

Pulp Mills

1997

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1997 Economic Census

Manufacturing

Industry Series



U S C E N S U S B U R E A U

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Economics and Statistics Administration
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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322110	Pulp mills	25	39	10 304	531 117	7 849	16 573	380 605	1 832 777	2 228 798	4 116 708	426 203
261100	Pulp mills	N	39	10 304	531 117	7 849	16 573	380 605	1 832 777	2 228 798	4 116 708	426 203

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322110, PULP MILLS												
United States	-	39	37	10 304	531 117	7 849	16 573	380 605	1 832 777	2 228 798	4 116 708	426 203
Florida	-	3	3	1 701	85 745	1 348	2 934	64 109	413 056	357 949	767 967	50 898
Mississippi	-	3	3	1 347	59 787	1 078	2 250	45 097	273 628	295 024	568 282	17 379

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322110, PULP MILLS		322110, PULP MILLS— Con.	
Companies ¹	number.. 25	Value added	\$1,000.. 1 832 777
All establishments	number.. 39	Total inventories, beginning of year	\$1,000.. 581 600
Establishments with 1 to 19 employees	number.. 2	Finished goods inventories, beginning of year	\$1,000.. 294 093
Establishments with 20 to 99 employees	number.. 14	Work-in-process inventories, beginning of year	\$1,000.. 48 752
Establishments with 100 employees or more	number.. 23	Materials and supplies inventories, beginning of year	\$1,000.. 238 755
All employees	number.. 10 304	Total inventories, end of year	\$1,000.. 497 620
Total compensation ²	\$1,000.. 667 650	Finished goods inventories, end of year	\$1,000.. 263 045
Annual payroll	\$1,000.. 531 117	Work-in-process inventories, end of year	\$1,000.. 24 667
Total fringe benefits	\$1,000.. 136 533	Materials and supplies inventories, end of year	\$1,000.. 209 908
Production workers, average for year	number.. 7 849	Gross book value of total assets at beginning of year	\$1,000.. 7 534 551
Production workers on March 12	number.. 8 260	Total capital expenditures (new and used)	\$1,000.. 426 203
Production workers on May 12	number.. 7 869	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 28 765
Production workers on August 12	number.. 7 671	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 397 438
Production workers on November 12	number.. 7 596	Total retirements ²	\$1,000.. 85 077
Production-worker hours	1,000.. 16 573	Gross book value of total assets at end of year	\$1,000.. 7 875 677
Production-worker wages	\$1,000.. 380 605	Total depreciation during year ²	\$1,000.. 441 094
Total cost of materials	\$1,000.. 2 228 798	Total rental payments ²	\$1,000.. 85 239
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 835 307	Buildings and other structures rental payments ²	\$1,000.. 12 688
Cost of resales	\$1,000.. 12 200	Machinery and equipment rental payments ²	\$1,000.. 72 551
Cost of fuels	\$1,000.. 191 810	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 13 238
Cost of purchased electricity	\$1,000.. 92 802	Response coverage ratio ⁴	percent.. 83
Cost of contract work	\$1,000.. 96 679	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 178 121
Quantity of electricity purchased for heat and power	1,000 kWh.. 2 176 854	Response coverage ratio ⁴	percent.. 83
Quantity of electricity generated less sold for heat and power	1,000 kWh.. 3 451 515	Cost of purchased communications services ³	\$1,000.. 2 671
Total value of shipments	\$1,000.. 4 116 708	Response coverage ratio ⁴	percent.. 83
Primary products value of shipments	\$1,000.. 3 627 934	Cost of purchased legal services ³	\$1,000.. 2 512
Secondary products value of shipments	\$1,000.. 439 394	Response coverage ratio ⁴	percent.. 83
Total miscellaneous receipts	\$1,000.. 49 380	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 1 434
Value of resales	\$1,000.. 15 618	Response coverage ratio ⁴	percent.. 83
Contract receipts	\$1,000.. D	Cost of purchased advertising services ³	\$1,000.. 405
Other miscellaneous receipts	\$1,000.. D	Response coverage ratio ⁴	percent.. 83
Primary products specialization ratio	percent.. 89	Cost of purchased software and other data processing services ³	\$1,000.. 2 148
Value of primary products shipments made in all industries	\$1,000.. 6 127 032	Response coverage ratio ⁴	percent.. 83
Value of primary products shipments made in this industry	\$1,000.. 3 627 934	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 12 738
Value of primary products shipments made in other industries	\$1,000.. 2 499 098	Response coverage ratio ⁴	percent.. 83
Coverage ratio	percent.. 59		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322110, PULP MILLS												
All establishments	-	39	37	10 304	531 117	7 849	16 573	380 605	1 832 777	2 228 798	4 116 708	426 203
Establishments with 1 to 4 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 5 to 9 employees	-	1	-	D	D	D	D	D	D	D	D	D
Establishments with 10 to 19 employees	-	1	-	D	D	D	D	D	D	D	D	D
Establishments with 20 to 49 employees	-	9	9	D	D	D	D	D	D	D	D	D
Establishments with 50 to 99 employees	-	5	5	312	12 415	233	472	8 085	53 031	65 218	115 996	7 164
Establishments with 100 to 249 employees	-	9	9	1 588	85 010	1 166	2 651	61 903	279 736	334 256	661 415	D
Establishments with 250 to 499 employees	-	8	8	3 221	190 604	2 313	5 016	129 078	550 637	741 098	1 308 812	97 011
Establishments with 500 to 999 employees	-	5	5	3 740	173 194	3 023	6 224	129 958	732 415	758 221	1 478 249	100 929
Establishments with 1,000 to 2,499 employees	-	1	1	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	-	-	-	-	-	-	-	-	-	-	-	-

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322110	Pulp mills	39	10 304	531 117	7 849	16 573	380 605	1 832 777	2 228 798	4 116 708	426 203
3221101	Special alpha and dissolving woodpulp (sulfite and sulfate for chemical conversion, papermaking, and other uses)	4	D	D	D	D	D	D	D	D	D
3221103	Sulfate woodpulp, including soda	14	7 031	373 456	5 402	11 474	273 460	1 363 796	1 678 367	3 046 921	377 643
3221105	Sulfite and other woodpulp	1	D	D	D	D	D	D	D	D	D
3221107	Pulp, other than wood, and pulp mill byproducts, nec	20	1 350	62 685	918	1 765	34 531	188 674	275 296	473 169	19 258

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322110	Pulp.....	N	X	X	6 127 032	N	X	X	6 103 858
3221101	Special alpha and dissolving woodpulp (sulfite and sulfate for chemical conversion, papermaking, and other uses).....	N	X	X	842 210	N	X	X	921 469
32211011	Special alpha and dissolving woodpulp (sulfite and sulfate for chemical conversion, papermaking, and other uses).....	N	X	X	842 210	N	X	X	N
3221101100	Special alpha and dissolving woodpulp (sulfite and sulfate for chemical conversion, papermaking, and other uses)..... 1,000 s tons (dry basis)..	6	1 039.3	1 073.2	842 210	7	1 518.8	1 498.4	921 469
3221103	Sulfate woodpulp, including soda.....	N	X	X	4 487 266	N	X	X	4 411 596
32211031	Sulfate woodpulp, including soda.....	N	X	X	4 487 266	N	X	X	N
3221103111	Sulfate woodpulp, bleached and semibleached, including soda..... 1,000 s tons (dry basis)..	28	26 982.2	9 913.9	4 349 929	29	27 740.5	9 628.4	4 333 125
3221103121	Sulfate woodpulp, unbleached..... 1,000 s tons (dry basis)..	8	25 576.1	444.7	137 337	10	22 733.1	271.4	78 471
3221103Y	Sulfate woodpulp, including soda, nsk.....	N	X	X	-	N	X	X	N
3221103YVV	Sulfate woodpulp, including soda, nsk.....	N	X	X	-	N	X	X	-
3221105	Sulfite and other woodpulp.....	N	X	X	204 991	N	X	X	280 448
32211051	Sulfite and other woodpulp.....	N	X	X	204 991	N	X	X	N
3221105111	Sulfite woodpulp, bleached and unbleached..... 1,000 s tons (dry basis)..	5	1 720.9	361.5	162 024	7	1 685.2	D	D
3221105121	Groundwood pulp (stone, refiner, and thermomechanical)..... 1,000 s tons (dry basis)..	1	6 710.7	D	D	-	5 987.3	-	-
3221105131	Semichemical woodpulp..... 1,000 s tons (dry basis)..	2	P4 584.2	D	D	-	3 703.9	-	-
3221105141	Other woodpulp, including defibrated or exploded, screenings, damaged, etc. 1,000 s tons (dry basis)..	-	D	-	-	1	D	D	D
3221105Y	Sulfite and other woodpulp, nsk.....	N	X	X	-	N	X	X	N
3221105YVV	Sulfite and other woodpulp, nsk.....	N	X	X	-	N	X	X	-
3221107	Pulp, other than wood, and pulp mill byproducts, nec.....	N	X	X	592 565	N	X	X	490 345
32211071	Pulp, other than wood, and pulp mill byproducts, nec.....	N	X	X	592 565	N	X	X	N
3221107111	Cotton linter pulp..... 1,000 s tons (dry basis)..	3	D	D	D	4	S	173.9	187 972
3221107121	Other pulp, including pulp made from straw, rag, flax, deinked paper, bagasse, etc. 1,000 s tons (dry basis)..	17	P4 586.7	D	D	13	2 444.4	P457.9	206 189
3221107131	Turpentine, sulfate..... mil gal..	30	P30.4	26.6	40 531	29	P30.4	30.3	26 941
3221107141	Other pulp mill cooking liquor byproducts (skimmings, binders, fuel, etc.)..... 1,000 s tons (dry basis)..	12	P960.1	678.8	33 393	18	2 760.0	864.4	69 243
3221107Y	Pulp, other than wood, and pulp mill byproducts, nec, nsk.....	N	X	X	-	N	X	X	N
3221107YVV	Pulp, other than wood, and pulp mill byproducts, nec, nsk.....	N	X	X	-	N	X	X	-
322110W	Pulp mill products, nsk, total.....	N	X	X	-	N	X	X	-
322110WY	Pulp mill products, nsk, total.....	N	X	X	-	N	X	X	N
322110WYVV	Pulp mill products, nsk, for nonadministrative-record establishments.....	N	X	X	-	N	X	X	-
322110WYVY	Pulp mill products, nsk, for administrative-record establishments.....	N	X	X	-	N	X	X	-

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; P 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3221101	SPECIAL ALPHA AND DISSOLVING WOODPULP (SULFITE AND SULFATE FOR CHEMICAL CONVERSION, PAPERMAKING, AND OTHER USES)		
	United States	842 210	921 469
3221103	SULFATE WOODPULP, INCLUDING SODA		
	United States	4 487 266	4 411 596
	Alabama	689 414	719 035
	Florida	418 709	365 036
	Georgia	741 147	709 281
	Maine	241 721	187 535
	Mississippi	423 813	408 142
	South Carolina	332 572	322 063
	Washington	183 633	131 576
3221105	SULFITE AND OTHER WOODPULP		
	United States	204 991	280 448
	Washington	91 170	170 725
3221107	PULP, OTHER THAN WOOD, AND PULP MILL BYPRODUCTS, NEC		
	United States	592 565	490 345
	Alabama	17 996	3 191
	Arkansas	4 495	3 134
	Florida	8 345	5 989
	Georgia	23 106	31 831
	Louisiana	8 470	4 548
	South Carolina	10 440	8 672
	Tennessee	154 953	150 401
	Texas	7 365	2 932
	Virginia	2 526	N
	Wisconsin	75 586	63 315

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322110	PULP MILLS				
11331005	Spruce and true fir pulpwood bolts and logs 1,000 standard cords..	D	D	D	D
11331007	Hemlock pulpwood bolts and logs 1,000 standard cords..	D	D	1 183.8	94 864
11331009	Southern pine pulpwood bolts and logs 1,000 standard cords..	3 718.5	289 412	4 669.2	301 477
11331023	Other softwood pulpwood bolts and logs, including Douglas fir and Jack pine 1,000 standard cords..	D	D	D	D
32100009	Softwood pulpwood wood chips, slabs, cores, sawdust, bark, and other mill residues 1,000 standard cords..	3 421.2	285 276	4 940.6	459 838
11331011	Southern mixed hardwood pulpwood bolts and logs 1,000 standard cords..	D	D	2 866.6	175 296
11331025	Other hardwood pulpwood bolts and logs 1,000 standard cords..	D	D	1 270.6	80 636
32100011	Hardwood pulpwood wood chips, slabs, cores, sawdust, bark, and other mill residues 1,000 standard cords..	2 496.8	192 214	1 939.1	131 853
32518103	Chlorine (100 percent Cl basis) 1,000 s tons..	89.9	23 140	268.6	24 197
32518107	Sodium hydroxide (caustic soda)(100 percent NaOH) 1,000 s tons..	560.4	112 656	688.8	178 918
32518823	Sodium chlorate (100 percent NaClO3) 1,000 s tons..	215.8	70 475	281.6	96 327
32510007	Other sodium compounds X	12 532	X	X	10 916
32518813	Aluminum sulfate (17 percent Al2O3) 1,000 s tons..	914.6	1 670	20.6	2 340
32599811	Rosin sizing mil lb (dry basis)..	5.4	2 399	9.1	3 801
32741003	Lime 1,000 s tons..	198.0	13 157	314.1	21 055
21232400	Kaolin and ball clay 1,000 s tons..	D	D	114.8	17 317
31122113	Starch mil lb..	D	D	67.2	12 177
32521131	Synthetic resins mil lb..	D	D	D	D
32513103	Titanium dioxide, composite and pure (100 percent TiO2) mil lb..	D	D	16.7	14 371
32518829	Calcium carbonate, precipitated (100 percent CaCO2) 1,000 s tons..	D	D	D	D
32500009	All other chemicals, including organic X	X	110 725	X	155 742
32210029	Woodpulp produced at affiliated or associated mills at other locations 1,000 s tons (dry basis)..	-	-	D	D
32210031	Woodpulp purchased market wood pulp 1,000 s tons (dry basis)..	D	D	42.6	21 261
00190006	Mixed wastepaper, except plant's own broke paper 1,000 s tons..	630.4	79 372	D	D
00190007	Mechanical news wastepaper, except plant's own broke paper 1,000 s tons..	-	-	N	N

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1997 and 1992—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322110	PULP MILLS—Con.				
00190072	Other mechanical wastepaper, except plant's own broke paper 1,000 s tons..	—	—	N	N
00190073	Corrugated wastepaper, including kraft, except plant's own broke paper 1,000 s tons..	D	D	14.2	925
00190009	High grade pulp substitutes wastepaper, except plant's own broke paper 1,000 s tons..	D	D	D	D
00190010	High grade deinking wastepaper, except plant's own broke paper 1,000 s tons..	D	D	D	D
31122305	Cotton linters (net weight) mil lb..	D	D	429.7	44 872
32210033	Linter pulp 1,000 s tons..	—	—	N	N
00190015	Other fibrous materials, including rags, straw, and bagasse 1,000 s tons..	D	D	D	D
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	—	X	N
31323001	Nonwoven fabrics mil sq yd..	—	—	N	N
001900A2	Packaging paper and plastics film, coated, laminated, printed, etc.	X	9 293	X	N
32552003	Glues and adhesives mil lb..	0.4	559	N	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	D	X	3 278
00970099	All other materials and components, parts, containers, and supplies	X	211 597	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	24 614	X	8 660

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322110 PULP MILLS

This U.S. industry comprises establishments primarily engaged in manufacturing pulp without manufacturing paper or paperboard. The pulp is made by separating the cellulose fibers from the other impurities in wood or other materials, such as used or recycled rags, linters, scrap paper, and straw.

The data published with NAICS code 322110 include the following SIC industry:

2611 Pulp mills

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Paper (Except Newsprint) Mills

1997

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1997 Economic Census

Manufacturing

Industry Series



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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322121	Paper (except newsprint) mills	120	262	120 256	5 840 013	94 412	205 740	4 219 038	20 410 619	19 867 439	40 184 049	3 157 596
262110	Paper mills (pt)	N	225	93 617	4 618 386	72 457	159 531	3 342 376	13 874 962	15 988 486	29 931 200	2 357 470
267610	Sanitary paper products (pt)	N	35	D	D	D	D	D	D	D	D	D
384210	Surgical appliances & supplies (pt)	N	2	D	D	D	D	D	D	D	D	D

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322121, PAPER (EXCEPT NEWSPRINT) MILLS												
United States	-	262	257	120 256	5 840 013	94 412	205 740	4 219 038	20 410 619	19 867 439	40 184 049	3 157 596
Florida	-	3	3	2 486	135 340	1 899	4 018	98 866	357 396	563 838	895 078	56 659
Georgia	-	6	6	2 782	117 935	2 304	5 031	90 458	442 543	515 268	948 986	216 079
Massachusetts	-	22	20	3 513	147 787	2 382	5 369	90 806	479 922	427 152	909 768	51 112
Mississippi	-	4	4	1 722	85 240	1 336	2 872	61 822	207 508	313 311	527 353	22 033
New Hampshire	-	9	9	1 961	81 022	1 478	3 198	55 938	266 386	210 729	474 830	23 501
Ohio	-	10	10	4 661	241 998	3 540	8 095	174 196	757 588	595 065	1 349 350	73 075
Pennsylvania	-	12	12	7 627	269 105	6 402	13 646	202 334	2 126 571	1 405 686	3 487 591	227 021
South Carolina	-	5	5	4 324	228 841	3 312	7 710	167 267	1 298 104	896 805	2 201 912	258 789
Vermont	2	5	5	1 015	36 955	763	1 628	24 009	91 155	99 332	191 312	18 346
Washington	-	7	7	4 830	220 534	4 028	8 135	171 442	767 941	836 396	1 577 010	108 021
Wisconsin	-	38	38	21 893	1 090 736	16 874	35 328	728 566	3 224 685	3 273 978	6 476 594	369 890

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322121, PAPER (EXCEPT NEWSPRINT) MILLS			
Companies ¹	number.. 120	322121, PAPER (EXCEPT NEWSPRINT) MILLS— Con.	
All establishments	number.. 262	3221211, Paper (except newsprint) mills— integrated producer—Con.	
Establishments with 1 to 19 employees	number.. 5	Production workers, average for year	number.. 51 199
Establishments with 20 to 99 employees	number.. 64	Production workers on March 12	number.. 50 972
Establishments with 100 employees or more	number.. 193	Production workers on May 12	number.. 51 376
All employees	number.. 120 256	Production workers on August 12	number.. 51 864
Total compensation ²	\$1,000.. 7 342 531	Production workers on November 12	number.. 50 584
Annual payroll	\$1,000.. 5 840 013	Production-worker hours	1,000.. 113 744
Total fringe benefits	\$1,000.. 1 502 518	Production-worker wages	\$1,000.. 2 456 511
Production workers, average for year	number.. 94 412	Total cost of materials	\$1,000.. 11 417 645
Production workers on March 12	number.. 94 144	Cost of materials, parts, containers, etc., consumed	\$1,000.. 9 572 358
Production workers on May 12	number.. 95 135	Cost of resales	\$1,000.. 51 323
Production workers on August 12	number.. 95 271	Cost of fuels	\$1,000.. 978 816
Production workers on November 12	number.. 93 098	Cost of purchased electricity	\$1,000.. 607 383
Production-worker hours	1,000.. 205 740	Cost of contract work	\$1,000.. 207 765
Production-worker wages	\$1,000.. 4 219 038	Quantity of electricity purchased for heat and power	1,000 kWh.. 15 021 249
Total cost of materials	\$1,000.. 19 867 439	Quantity of electricity generated less sold for heat and power	1,000 kWh.. 16 917 739
Cost of materials, parts, containers, etc., consumed	\$1,000.. 16 813 691	Total value of shipments	\$1,000.. 21 771 854
Cost of resales	\$1,000.. 231 421	Primary products value of shipments	\$1,000.. X
Cost of fuels	\$1,000.. 1 465 377	Secondary products value of shipments	\$1,000.. X
Cost of purchased electricity	\$1,000.. 1 049 869	Total miscellaneous receipts	\$1,000.. X
Cost of contract work	\$1,000.. 307 081	Value of resales	\$1,000.. X
Quantity of electricity purchased for heat and power	1,000 kWh.. 25 781 846	Contract receipts	\$1,000.. X
Quantity of electricity generated less sold for heat and power	1,000 kWh.. 20 247 759	Other miscellaneous receipts	\$1,000.. X
Total value of shipments	\$1,000.. 40 184 049	Primary products specialization ratio	percent.. X
Primary products value of shipments	\$1,000.. 36 247 176	Value of primary products shipments made in all industries	\$1,000.. X
Secondary products value of shipments	\$1,000.. 3 339 960	Value of primary products shipments made in this industry	\$1,000.. X
Total miscellaneous receipts	\$1,000.. 596 913	Value of primary products shipments made in other industries	\$1,000.. X
Value of resales	\$1,000.. 366 921	Coverage ratio	percent.. X
Contract receipts	\$1,000.. 3 667	Value added	\$1,000.. 10 265 189
Other miscellaneous receipts	\$1,000.. 226 325	Total inventories, beginning of year	\$1,000.. 2 612 819
Primary products specialization ratio	percent.. 91	Finished goods inventories, beginning of year	\$1,000.. 1 139 035
Value of primary products shipments made in all industries	\$1,000.. 38 125 760	Work-in-process inventories, beginning of year	\$1,000.. 240 488
Value of primary products shipments made in this industry	\$1,000.. 36 247 176	Materials and supplies inventories, beginning of year	\$1,000.. 1 233 296
Value of primary products shipments made in other industries	\$1,000.. 1 878 584	Total inventories, end of year	\$1,000.. 2 646 051
Coverage ratio	percent.. 95	Finished goods inventories, end of year	\$1,000.. 1 062 002
Value added	\$1,000.. 20 410 619	Work-in-process inventories, end of year	\$1,000.. 228 501
Total inventories, beginning of year	\$1,000.. 4 345 308	Materials and supplies inventories, end of year	\$1,000.. 1 355 548
Finished goods inventories, beginning of year	\$1,000.. 1 907 979	Gross book value of total assets at beginning of year	\$1,000.. X
Work-in-process inventories, beginning of year	\$1,000.. 473 537	Total capital expenditures (new and used)	\$1,000.. X
Materials and supplies inventories, beginning of year	\$1,000.. 1 963 792	Capital expenditures for buildings and other structures (new and used)	\$1,000.. X
Total inventories, end of year	\$1,000.. 4 534 904	Capital expenditures for machinery and equipment (new and used)	\$1,000.. X
Finished goods inventories, end of year	\$1,000.. 1 952 664	Total retirements ²	\$1,000.. X
Work-in-process inventories, end of year	\$1,000.. 522 861	Gross book value of total assets at end of year	\$1,000.. X
Materials and supplies inventories, end of year	\$1,000.. 2 059 379	Total depreciation during year ²	\$1,000.. X
Gross book value of total assets at beginning of year	\$1,000.. 53 279 521	Total rental payments ²	\$1,000.. X
Total capital expenditures (new and used)	\$1,000.. 3 157 596	Buildings and other structures rental payments ²	\$1,000.. X
Capital expenditures for buildings and other structures (new and used)	\$1,000.. 248 513	Machinery and equipment rental payments ²	\$1,000.. X
Capital expenditures for machinery and equipment (new and used)	\$1,000.. 2 909 083	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. X
Total retirements ²	\$1,000.. 700 593	Response coverage ratio ⁴	percent.. X
Gross book value of total assets at end of year	\$1,000.. 55 736 524	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. X
Total depreciation during year ²	\$1,000.. 2 450 553	Response coverage ratio ⁴	percent.. X
Total rental payments ²	\$1,000.. 164 271	Cost of purchased communications services ³	\$1,000.. X
Buildings and other structures rental payments ²	\$1,000.. 66 297	Response coverage ratio ⁴	percent.. X
Machinery and equipment rental payments ²	\$1,000.. 97 974	Cost of purchased legal services ³	\$1,000.. X
Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 122 462	Response coverage ratio ⁴	percent.. X
Response coverage ratio ⁴	percent.. 98	Cost of purchased accounting and bookkeeping services ³	\$1,000.. X
Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 1 073 679	Response coverage ratio ⁴	percent.. X
Response coverage ratio ⁴	percent.. 98	Cost of purchased advertising services ³	\$1,000.. X
Cost of purchased communications services ³	\$1,000.. 44 294	Response coverage ratio ⁴	percent.. X
Response coverage ratio ⁴	percent.. 98	Cost of purchased software and other data processing services ³	\$1,000.. X
Cost of purchased legal services ³	\$1,000.. 37 183	Response coverage ratio ⁴	percent.. X
Response coverage ratio ⁴	percent.. 98	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. X
Cost of purchased accounting and bookkeeping services ³	\$1,000.. 10 740	Response coverage ratio ⁴	percent.. X
Response coverage ratio ⁴	percent.. 98	3221212, Paper (except newsprint) mills— nonintegrated producer	
Cost of purchased advertising services ³	\$1,000.. 32 066	Companies ¹	number.. N
Response coverage ratio ⁴	percent.. 98	All establishments	number.. 177
Cost of purchased software and other data processing services ³	\$1,000.. 38 145	Establishments with 1 to 19 employees	number.. 5
Response coverage ratio ⁴	percent.. 98	Establishments with 20 to 99 employees	number.. 58
Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 126 027	Establishments with 100 employees or more	number.. 114
Response coverage ratio ⁴	percent.. 98	All employees	number.. 54 099
3221211, Paper (except newsprint) mills— integrated producer			
Companies ¹	number.. N	Total compensation ²	\$1,000.. 3 153 572
All establishments	number.. 85	Annual payroll	\$1,000.. 2 462 666
Establishments with 1 to 19 employees	number.. —	Total fringe benefits	\$1,000.. 690 906
Establishments with 20 to 99 employees	number.. 6	Production workers, average for year	number.. 43 213
Establishments with 100 employees or more	number.. 79	Production workers on March 12	number.. 43 172
All employees	number.. 66 157	Production workers on May 12	number.. 43 759
Total compensation ²	\$1,000.. 4 188 959	Production workers on August 12	number.. 43 407
Annual payroll	\$1,000.. 3 377 347	Production workers on November 12	number.. 42 514
Total fringe benefits	\$1,000.. 811 612	Production-worker hours	1,000.. 91 996
		Production-worker wages	\$1,000.. 1 762 527

Table 3. Detailed Statistics by Industry: 1997—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322121, PAPER (EXCEPT NEWSPRINT) MILLS— Con.		322121, PAPER (EXCEPT NEWSPRINT) MILLS— Con.	
3221212, Paper (except newsprint) mills— nonintegrated producer—Con.		3221212, Paper (except newsprint) mills— nonintegrated producer—Con.	
Total cost of materials	\$1,000..	Total inventories, end of year	\$1,000..
Cost of materials, parts, containers, etc., consumed	\$1,000..	Finished goods inventories, end of year	\$1,000..
Cost of resales	\$1,000..	Work-in-process inventories, end of year	\$1,000..
Cost of fuels	\$1,000..	Materials and supplies inventories, end of year	\$1,000..
Cost of purchased electricity	\$1,000..	Gross book value of total assets at beginning of year	\$1,000..
Cost of contract work	\$1,000..	Total capital expenditures (new and used)	\$1,000..
Quantity of electricity purchased for heat and power	1,000 kWh..	Capital expenditures for buildings and other structures (new and used)	\$1,000..
Quantity of electricity generated less sold for heat and power ...	1,000 kWh..	Capital expenditures for machinery and equipment (new and used)	\$1,000..
Total value of shipments	\$1,000..	Total retirements ²	\$1,000..
Primary products value of shipments	\$1,000..	Gross book value of total assets at end of year	\$1,000..
Secondary products value of shipments	\$1,000..	Total depreciation during year ²	\$1,000..
Total miscellaneous receipts	\$1,000..	Total rental payments ²	\$1,000..
Value of resales	\$1,000..	Buildings and other structures rental payments ²	\$1,000..
Contract receipts	\$1,000..	Machinery and equipment rental payments ²	\$1,000..
Other miscellaneous receipts	\$1,000..	Cost of purchased services for the repair of buildings and other structures ³	\$1,000..
Primary products specialization ratio	percent..	Response coverage ratio ⁴	percent..
Value of primary products shipments made in all industries	\$1,000..	Cost of purchased services for the repair of machinery and equipment ³	\$1,000..
Value of primary products shipments made in this industry	\$1,000..	Response coverage ratio ⁴	percent..
Value of primary products shipments made in other industries	\$1,000..	Cost of purchased communications services ³	\$1,000..
Coverage ratio	percent..	Response coverage ratio ⁴	percent..
Value added	\$1,000..	Cost of purchased legal services ³	\$1,000..
Total inventories, beginning of year	\$1,000..	Response coverage ratio ⁴	percent..
Finished goods inventories, beginning of year	\$1,000..	Cost of purchased accounting and bookkeeping services ³	\$1,000..
Work-in-process inventories, beginning of year	\$1,000..	Response coverage ratio ⁴	percent..
Materials and supplies inventories, beginning of year	\$1,000..	Cost of purchased advertising services ³	\$1,000..
		Response coverage ratio ⁴	percent..
		Cost of purchased software and other data processing services ³	\$1,000..
		Response coverage ratio ⁴	percent..
		Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000..
		Response coverage ratio ⁴	percent..

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322121. PAPER (EXCEPT NEWSPRINT) MILLS												
All establishments	-	262	257	120 256	5 840 013	94 412	205 740	4 219 038	20 410 619	19 867 439	40 184 049	3 157 596
Establishments with 1 to 4 employees	5	3	-	5	123	5	10	115	455	367	823	59
Establishments with 5 to 9 employees	9	1	-	D	D	D	D	D	D	D	D	D
Establishments with 10 to 19 employees	-	1	-	D	D	D	D	D	D	D	D	D
Establishments with 20 to 49 employees	2	20	20	664	26 025	510	1 049	17 802	70 893	72 747	143 029	10 233
Establishments with 50 to 99 employees	-	44	44	3 332	128 291	2 504	5 277	87 156	396 111	434 527	832 094	46 307
Establishments with 100 to 249 employees	-	57	57	9 109	396 834	6 810	14 547	269 876	1 358 511	1 350 502	2 692 998	271 760
Establishments with 250 to 499 employees	-	42	42	14 305	642 308	11 204	24 564	463 835	2 083 337	2 488 427	4 578 230	334 132
Establishments with 500 to 999 employees	-	54	54	37 630	1 791 652	29 139	63 005	1 300 703	5 720 665	7 048 704	12 747 771	781 315
Establishments with 1,000 to 2,499 employees	-	39	39	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	-	1	1	D	D	D	D	D	D	D	D	D
Administrative records ²	-	1	-	D	D	D	D	D	D	D	D	D

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322121	Paper (except newsprint) mills	262	120 256	5 840 013	94 412	205 740	4 219 038	20 410 619	19 867 439	40 184 049	3 157 596
3221211	Clay-coated printing and converting paper	32	27 269	1 414 579	21 242	46 027	1 028 904	4 339 045	4 780 564	9 184 678	694 662
3221213	Uncoated freesheet paper (containing not more than 10 percent mechanical fiber)	67	39 232	1 935 351	30 482	67 401	1 409 229	5 941 214	6 947 264	12 946 298	974 635
3221217	Cotton fiber paper (containing 25 percent or more cotton or similar fibers) and thin paper	11	D	D	D	D	D	D	D	D	D
3221219	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper	10	3 406	153 813	2 741	5 900	114 883	515 197	486 581	997 964	74 348
322121A	Packaging and industrial converting paper, except unbleached kraft	11	3 146	143 924	2 445	5 713	100 180	344 676	611 979	956 567	80 768
322121C	Specialty industrial paper, except specialty packaging	40	6 199	277 403	4 506	10 318	182 990	856 401	937 503	1 775 344	74 797
322121E	Construction paper	7	591	22 609	425	834	13 828	47 441	54 552	101 238	7 330
322121G	Tissue paper and other machine-creped paper	39	9 374	493 588	7 373	16 443	368 818	1 374 907	1 790 715	3 123 864	377 378
322121L	Disposable diapers (usually containing pulp or cellulose fibers), and similar disposable products (made in paper mills)	4	D	D	D	D	D	D	D	D	D
322121N	Sanitary tissue paper products (made in paper mills)	35	24 764	1 124 515	20 392	42 787	798 785	5 711 844	3 423 909	8 976 700	782 866

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322121	Paper (except newsprint)	N	X	X	38 125 760	N	X	X	N
3221211	Clay-coated printing and converting paper	N	X	X	8 544 873	N	X	X	7 360 722
32212111	Clay-coated groundwood printing and converting paper (containing more than 10 percent mechanical fiber), including prime-coated body stock	N	X	X	3 706 540	N	X	X	N
3221211111	Clay-coated groundwood printing and converting paper (containing more than 10 percent mechanical fiber), including prime-coated body stock	12	X	4 818.5	3 706 540	N	X	N	N
32212112	Clay-coated freesheet printing and converting paper (containing not more than 10 percent mechanical fiber), including prime-coated body stock	N	X	X	4 838 333	N	X	X	N
3221211221	Clay-coated freesheet printing and converting paper, coated one side (containing not more than 10 percent mechanical fiber), including prime-coated body stock	16	X	1 129.2	1 033 272	N	X	N	N
3221211231	Clay-coated freesheet printing and converting paper, coated two sides (containing not more than 10 percent mechanical fiber), including prime-coated body stock	16	X	4 025.2	3 805 061	N	X	N	N
3221211Y	Clay-coated printing and converting paper, nsk	N	X	X	-	N	X	X	N
3221211YV	Clay-coated printing and converting paper, nsk	N	X	X	-	N	X	X	15 141
3221213	Uncoated freesheet paper (containing not more than 10 percent mechanical fiber)	N	X	X	11 182 792	N	X	X	8 693 189
32212131	Bond and writing paper, and form bond in rolls, uncoated freesheet	N	X	X	3 472 714	N	X	X	N
3221213111	Bond and writing paper, including protective check, uncoated freesheet	18	X	3 050.4	2 287 119	22	X	2 138.3	1 870 075
3221213115	Form bond paper in rolls, uncoated freesheet	15	X	1 866.3	1 185 595	17	X	1 883.6	1 093 296
32212132	Other writing paper, including body stock for communication papers, technical and reproduction, tablet, ledger, onion skin, papeterie and wedding, etc., uncoated freesheet	N	X	X	2 095 580	N	X	X	N
3221213221	Body stock for communication, copying, and related papers, uncoated freesheet	9	X	1 090.5	787 854	11	X	406.5	265 236
3221213225	Other uncoated freesheet technical and reproduction papers, including mimeograph and gelatin and spirit process duplicating	10	X	1 134.3	848 845	13	X	1 755.3	1 100 297
3221213231	Writing tablet paper, uncoated freesheet	11	X	327.8	216 922	14	X	353.2	193 732
3221213235	Other writing paper, including ledger, onion skin, papeterie and wedding, etc., uncoated freesheet	10	X	351.0	241 959	14	X	97.5	71 541
32212133	Publication and printing paper, uncoated freesheet, all types	N	X	X	2 776 755	N	X	X	N
3221213341	Plain publication and printing paper, uncoated freesheet, including machine finish, English finish, antique, bulking, eggshell, and supercalendered	7	X	257.7	214 668	9	X	365.2	348 550
3221213345	Offset publication and printing paper, uncoated freesheet	23	X	2 231.6	1 730 654	22	X	2 143.3	1 499 168
3221213351	Other uncoated publication and printing freesheet paper	21	X	894.5	831 433	22	X	844.2	629 201
32212134	Cover and text papers, envelope, body stock for coating, and all other converting and miscellaneous uncoated freesheet paper	N	X	X	2 837 743	N	X	X	N
3221213461	Cover and text papers, uncoated freesheet	18	X	548.8	899 380	21	X	391.6	602 355
3221213471	Envelope (white wove) paper, uncoated freesheet	13	X	1 043.4	673 392	15	X	1 044.9	543 556
3221213481	Kraft envelope (bleached kraft and brown kraft) paper, uncoated freesheet	10	X	243.5	177 234	10	X	322.0	210 837
3221213491	Uncoated freesheet body stock paper for coating (base or raw stock for conversion of off-machine coating) and miscellaneous uncoated freesheet nec	12	X	925.5	1 087 737	12	X	285.4	247 094
3221213Y	Uncoated freesheet (containing not more than 10 percent mechanical fiber), nsk	N	X	X	-	N	X	X	N
3221213YV	Uncoated freesheet (containing not more than 10 percent mechanical fiber), nsk	N	X	X	-	N	X	X	18 251

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322121	Paper (except newsprint)—Con.								
3221215	Bleached bristols, excluding cotton fiber index and bogus (weight more than 150 grams per sq meter)	N	X	X	1 208 278	N	X	X	1 153 677
32212151	Bleached bristols, excluding cotton fiber index and bogus (weight more than 150 g per sq m)	N	X	X	1 208 278	N	X	X	N
3221215111	Uncoated bleached bristol tag stock (weight more than 150 g per sq m)	10	X	S	149 384	9	X	199.9	150 108
3221215121	Uncoated bleached bristol file folder stock (weight more than 150 g per sq m)	10	X		311.2 231 124	10	X	243.2	180 949
3221215131	Other uncoated bleached bristols, including tabulating card, index, printing, and postcard stock (weight more than 150 g per sq m), excluding cotton fiber index and bogus	15	X		302.2 269 664	17	X	330.0	280 343
3221215141	Coated bleached bristols (weight more than 150 g per sq m), excluding cotton fiber index and bogus	5	X		582.2 558 106	7	X	548.8	542 277
3221215Y	Bleached bristols (weight more than 150 g-m2), excluding cotton fiber index and bogus, nsk	N	X	X	—	N	X	X	N
3221215YWV	Bleached bristols (weight more than 150 g-m2), excluding cotton fiber index and bogus, nsk	N	X	X	—	N	X	X	—
3221217	Cotton fiber paper (containing 25 percent or more cotton or similar fibers) and thin paper	N	X	X	762 448	N	X	X	804 562
32212171	Cotton fiber paper (containing 25 percent or more cotton or similar fibers) and thin paper	N	X	X	691 127	N	X	X	N
3221217111	Cotton fiber paper (containing 25 percent or more cotton or similar fibers)	11	X		141.5 334 311	N	X	N	N
3221217121	Thin paper including carbonizing, Bible, mimeograph and duplicating stencil tissue, India, tipping, condenser, cigarette paper, etc.	6	X		133.3 356 816	4	X	157.6	387 048
3221217Y	Cotton fiber paper (containing 25 percent or more cotton or similar fibers) and thin paper, nsk	N	X	X	71 321	N	X	X	N
3221217YWV	Cotton fiber paper (containing 25 percent or more cotton or similar fibers) and thin paper, nsk	N	X	X	71 321	N	X	X	5 893
3221219	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper	N	X	X	1 329 543	N	X	X	1 299 177
32212191	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper	N	X	X	1 317 250	N	X	X	N
3221219111	Unbleached kraft shipping sack paper (meets minimum Federal specifications UU-S-48) and other unbleached kraft shipping sack paper	4	X		440.5 219 367	10	X	680.7	331 843
3221219121	Unbleached kraft bag and sack paper (except shipping), including grocers' and other unbleached kraft bag and sack for notion, millinery, etc.	16	X		1 270.4 639 483	19	X	1 552.5	675 905
3221219131	Unbleached kraft wrapping and specialty packaging paper (92 lb or less), including flour, sugar, dog food, fast foods, dairy products, etc.	10	X		156.6 97 575	14	X	203.8	107 884
3221219191	Other unbleached kraft converting paper, including creping (92 lb or less), asphaltting paper, coating and laminating, gumming, etc.	11	X		541.8 360 825	10	X	304.4	177 098
3221219Y	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper, nsk	N	X	X	12 293	N	X	X	N
3221219YWV	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper, nsk	N	X	X	12 293	N	X	X	6 447
322121A	Packaging and industrial converting paper, except unbleached kraft	N	X	X	1 071 261	N	X	X	950 888
322121A1	Packaging and industrial converting paper, except unbleached kraft	N	X	X	1 053 028	N	X	X	N
322121A111	Shipping sack paper (except unbleached kraft), including combination kraft and rope, bleached and semibleached	3	X		32.7 26 655	8	X	186.2	134 155
322121A121	Other bag and sack paper, except unbleached kraft and shipping, including grocers', liquor, millinery, notion, variety, etc.	8	X		134.5 91 552	7	X	112.6	75 685
322121A131	Specialty packaging (92 lb or less) and wrapping paper, except unbleached kraft (butcher, flour, sugar, fast foods, confectionery, etc.)	16	X		626.6 687 977	15	X	496.6	521 054

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322121	Paper (except newsprint)—Con.								
322121A	Packaging and industrial converting paper, except unbleached kraft—Con.								
322121A1	Packaging and industrial converting paper, except unbleached kraft—Con.								
322121A141	Other converting stock, including asphalt and creping stocks (not more than 92 lb), coating and laminating, gummed, twisting and spinning stock (19 lb or more), and waxing stock (18 lb or more) 1,000 s tons	11	X	9165.3	189 982	N	X	N	N
322121A151	Glassine, greaseproof, and vegetable parchment, all grades regardless of end use (92 lb or less) 1,000 s tons	6	X	45.1	56 862	7	X	66.0	99 218
322121AY	Packaging and industrial converting paper, except unbleached kraft, nsk	N	X	X	18 233	N	X	X	N
322121AYWV	Packaging and industrial converting paper, except unbleached kraft, nsk	N	X	X	18 233	N	X	X	9 562
322121C	Special industrial paper, except specialty packaging, including absorbent, battery separator, electrical papers, etc.	N	X	X	1 858 012	N	X	X	1 478 724
322121C1	Special industrial paper, except specialty packaging, including absorbent, battery separator, electrical papers, etc.	N	X	X	1 858 012	N	X	X	N
322121C100	Special industrial paper, except specialty packaging, including absorbent, battery separator, electrical papers, etc. 1,000 s tons	34	X	P1 000.5	1 858 012	43	X	1 131.7	1 478 724
322121E	Construction paper	N	X	X	176 214	N	X	X	158 962
322121E1	Construction paper	N	X	X	176 214	N	X	X	N
322121E111	Roofing felts, saturating and dry 1,000 s tons	12	X	9340.7	93 423	7	X	298.5	70 157
322121E121	Other construction paper, including sheathing paper, floor covering felts, automotive, insulating paper blankets, etc. 1,000 s tons	8	X	180.7	82 791	6	X	102.6	71 263
322121EY	Construction paper, nsk	N	X	X	—	N	X	X	N
322121EYWV	Construction paper, nsk	N	X	X	—	N	X	X	17 542
322121G	Tissue paper and other machine-creped paper	N	X	X	2 607 288	N	X	X	5 024 700
322121G1	Toilet tissue stock	N	X	X	940 969	N	X	X	N
322121G111	Toilet tissue stock 1,000 s tons	20	P2 648.0	91 068.2	940 969	15	N	2 269.0	1 973 733
322121G2	Toweling paper stock, except wiper stock	N	X	X	766 126	N	X	X	N
322121G221	Toweling paper stock, except wiper stock 1,000 s tons	19	P2 358.5	P887.7	766 126	18	N	1 675.5	1 420 083
322121G3	Tissue paper and other machine-creped paper, excluding toilet tissue stock and toweling paper stock	N	X	X	900 193	N	X	X	N
322121G331	Facial tissue stock, except toweling, napkin, and toilet 1,000 s tons	8	9387.7	106.4	109 103	11	N	363.8	493 994
322121G341	Napkin paper stock, except sanitary napkin stock wadding 1,000 s tons	18	728.7	319.7	304 985	20	N	672.0	535 249
322121G351	Wiper tissue stock, regular, facial, and wadding stock 1,000 s tons	3	D	6.4	10 361	9	N	88.0	107 348
322121G361	Other sanitary paper stock, including sanitary napkin stock wadding, aseptic paper stock, reinforced paper stock, etc. 1,000 s tons	14	S	275.3	266 005	15	N	283.0	260 479
322121G371	Wrapping tissue, including florist tissue stock, hosiery paper, interleaving, antitarnish, etc. 1,000 s tons	8	S	S	116 987	13	N	117.5	134 891
322121G391	Other tissue paper stock, including waxing tissue stock, creped wadding for interior packaging (excluding sanitary and thin) 1,000 s tons	9	91.9	88.3	92 752	10	N	51.6	53 376
322121GY	Tissue paper and other machine-creped paper, nsk	N	X	X	—	N	X	X	N
322121GYWV	Tissue paper and other machine-creped paper, nsk	N	X	X	—	N	X	X	45 547
322121J	Sanitary napkins and tampons (made in paper mills)	N	X	X	138 007	N	X	X	N
322121J1	Sanitary napkins and tampons (made in paper mills)	N	X	X	138 007	N	X	X	N
322121J111	Sanitary napkins, including maternity pads (made in paper mills) \$ mil	3	X	1 052.5	138 007	N	X	N	N
322121J121	Tampons (made in paper mills) \$ mil	—	X	—	—	N	X	N	N
322121JY	Sanitary napkins and tampons (made in paper mills), nsk	N	X	X	—	N	X	X	N
322121JYWV	Sanitary napkins and tampons (made in paper mills), nsk	N	X	X	—	N	X	X	N

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322121	Paper (except newsprint)—Con.								
322121L	Disposable diapers (usually containing pulp or cellulose fibers), and similar disposable products (made in paper mills)	N	X	X	1 752 612	N	X	X	N
322121L1	Disposable diapers (usually containing pulp or cellulose fibers), and similar disposable products (made in paper mills)	N	X	X	1 752 612	N	X	X	N
322121L111	Disposable diapers, except adult (usually containing pulp or cellulose fibers), including disposable training pants (made in paper mills) # mil	2	X	D	D	N	X	N	N
322121L121	Disposable adult diapers, usually containing pulp or cellulose fibers (made in paper mills) #	1	X	X	D	N	X	X	N
322121L131	Disposable incontinent pads and bedpads (made in paper mills) #	2	X	X	D	N	X	X	N
322121LY	Disposable diapers and similar disposable products (made in paper mills), nsk	N	X	X	—	N	X	X	N
322121LYWV	Disposable diapers and similar disposable products (made in paper mills), nsk	N	X	X	—	N	X	X	N
322121N	Sanitary tissue paper products (made in paper mills)	N	X	X	7 444 392	N	X	X	N
322121N1	Facial tissues and handkerchiefs, including sputum wipes (made in paper mills)	N	X	X	795 176	N	X	X	N
322121N111	Facial tissues and handkerchiefs, including sputum wipes (made in paper mills) \$ 1,000 s tons	9	X	258.0	795 176	N	X	N	N
322121N2	Paper table napkins, bulk and dispenser industrial and retail package (resale) types (made in paper mills) #	N	X	X	D	N	X	X	N
322121N221	Paper table napkins, industrial, regular type, single-ply, bulk (made in paper mills) # 1,000 s tons	5	X	D	D	N	X	N	N
322121N223	Paper table napkins, industrial, regular type, single-ply, dispenser (made in paper mills) # 1,000 s tons	3	X	D	D	N	X	N	N
322121N225	Paper table napkins, industrial (bulk and dispenser type), facial tissue type, two-ply or more (made in paper mills) # 1,000 s tons	2	X	D	D	N	X	N	N
322121N227	Paper table napkins, retail packages (resale), regular type, single-ply (made in paper mills) \$ 1,000 s tons	9	X	158.4	306 620	N	X	N	N
322121N229	Paper table napkins, retail packages (resale), facial tissue type, two-ply or more (made in paper mills) # 1,000 s tons	3	X	D	D	N	X	N	N
322121N3	Toilet tissue, rolls and ovals, retail packages (resale), facial tissue type, two-ply or more (made in paper mills)	N	X	X	1 187 899	N	X	X	N
322121N331	Toilet tissue, rolls and ovals, retail packages (resale), facial tissue type, two-ply or more (made in paper mills) \$ 1,000 s tons	9	X	609.3	1 187 899	N	X	N	N
322121N4	Toilet tissue, rolls and ovals, retail packages (resale), regular type, single-ply (made in paper mills) #	N	X	X	D	N	X	X	N
322121N433	Toilet tissue, rolls and ovals, retail packages (resale), regular type, single-ply (made in paper mills) # 1,000 s tons	8	X	D	D	N	X	N	N
322121N5	Toilet tissue, rolls and ovals, industrial, and interfolded and flat package type (made in paper mills) #	N	X	X	D	N	X	X	N
322121N535	Toilet tissue, rolls and ovals, industrial, facial tissue type, two-ply or more (made in paper mills) # 1,000 s tons	6	X	D	D	N	X	N	N
322121N541	Toilet tissue, rolls and ovals, industrial, regular type, single-ply (made in paper mills) # 1,000 s tons	7	X	D	D	N	X	N	N
322121N551	Toilet tissue, interfolded and flat package (made in paper mills) # 1,000 s tons	2	X	D	D	N	X	N	N
322121N6	Paper towels (rolled, folded, or interfolded), industrial (made in paper mills)	N	X	X	791 194	N	X	X	N
322121N661	Paper towels (rolled, folded, or interfolded), industrial (made in paper mills) \$ 1,000 s tons	6	X	579.5	791 194	N	X	N	N
322121N7	Paper towels (rolled, folded, or interfolded), retail packages (resale) (made in paper mills) #	N	X	X	D	N	X	X	N
322121N771	Paper towels (rolled, folded, or interfolded), retail packages (resale), single-ply (made in paper mills) # 1,000 s tons	6	X	D	D	N	X	N	N
322121N773	Paper towels (rolled, folded, or interfolded), retail packages (resale), two-ply or more (made in paper mills) \$ 1,000 s tons	8	X	440.4	782 618	N	X	N	N

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322121	Paper (except newsprint)—Con.								
322121N	Sanitary tissue paper products (made in paper mills)—Con.								
322121N8	Other sanitary tissue paper products (made in paper mills) #	N	X	X	D	N	X	X	N
322121N881	Paper wipers (windshield, industrial, and lithographic plate), except nonwoven (made in paper mills) #	2	X	D	D	N	X	N	N
322121N891	Other sanitary paper products, including absorbent pads, toilet seat covers, bibs, headrests, tray covers, etc. (made in paper mills) #	2	X	D	D	N	X	N	N
322121NY	Sanitary tissue paper products (made in paper mills), nsk	N	X	X	60 462	N	X	X	N
322121NYWV	Sanitary tissue paper products (made in paper mills), nsk	N	X	X	60 462	N	X	X	N
322121W	Paper (except newsprint) mill products, nsk, total	N	X	X	50 040	N	X	X	N
322121WY	Paper (except newsprint) mill products, nsk, total	N	X	X	50 040	N	X	X	N
322121WYWW	Paper (except newsprint) mill products, nsk, for nonadministrative-record establishments	N	X	X	50 040	N	X	X	N
322121WYWY	Paper (except newsprint) mill products, nsk, for administrative-record establishments	N	X	X	—	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3221211	CLAY-COATED PRINTING AND CONVERTING PAPER		
	United States	8 544 873	7 360 722
	Maine	1 976 886	1 500 844
	Michigan	1 089 656	936 957
	Minnesota	1 006 382	819 050
	New York	333 415	282 681
3221213	UNCOATED FRESHEET PAPER (CONTAINING NOT MORE THAN 10 PERCENT MECHANICAL FIBER)		
	United States	11 182 792	8 693 189
	Alabama	1 515 920	763 183
	Maine	438 089	488 696
	Massachusetts	138 033	145 259
	Michigan	182 665	286 468
	New Hampshire	226 387	N
	New York	626 195	555 516
	North Carolina	488 456	429 072
	Ohio	756 441	678 097
	Pennsylvania	870 680	639 467
	South Carolina	639 122	405 996
	Washington	565 790	538 364
	Wisconsin	1 746 691	1 131 828
3221215	BLEACHED BRISTOLS, EXCLUDING COTTON FIBER INDEX AND BOGUS (WEIGHT MORE THAN 150 GRAMS PER SQ METER)		
	United States	1 208 278	1 153 677
	Massachusetts	3 989	N
	New Hampshire	22 565	N
	Wisconsin	91 316	84 745

See footnotes at end of table.

Table 6b. **Product Class Shipments for Selected States: 1997 and 1992—Con.**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3221217	COTTON FIBER PAPER (CONTAINING 25 PERCENT OR MORE COTTON OR SIMILAR FIBERS) AND THIN PAPER		
	United States	762 448	804 562
	Massachusetts	295 876	287 679
	Wisconsin	77 860	194 027
3221219	UNBLEACHED KRAFT (NOT LESS THAN 80 PERCENT) PACKAGING AND INDUSTRIAL CONVERTING PAPER		
	United States	1 329 543	1 299 177
	Louisiana	204 914	N
322121A	PACKAGING AND INDUSTRIAL CONVERTING PAPER, EXCEPT UNBLEACHED KRAFT		
	United States	1 071 261	950 888
	Michigan	308 261	N
	Washington	104 872	133 970
	Wisconsin	228 147	217 765
322121C	SPECIAL INDUSTRIAL PAPER, EXCEPT SPECIALTY PACKAGING, INCLUDING ABSORBENT, BATTERY SEPARATOR, ELECTRICAL PAPERS, ETC.		
	United States	1 858 012	1 478 724
	Massachusetts	308 913	245 939
	Michigan	153 371	180 822
	New Hampshire	109 063	125 336
	New York	251 405	173 918
	Wisconsin	381 561	316 358
322121E	CONSTRUCTION PAPER		
	United States	176 214	158 962
322121G	TISSUE PAPER AND OTHER MACHINE-CREPED PAPER		
	United States	2 607 288	5 024 700
	Michigan	42 890	N
	New Hampshire	34 337	38 615
	New York	180 577	339 308
	North Carolina	10 373	N
	Wisconsin	713 150	984 053
322121J	SANITARY NAPKINS AND TAMPONS (MADE IN PAPER MILLS)		
	United States	138 007	N
322121L	DISPOSABLE DIAPERS (USUALLY CONTAINING PULP OR CELLULOSE FIBERS), AND SIMILAR DISPOSABLE PRODUCTS (MADE IN PAPER MILLS)		
	United States	1 752 612	N
322121N	SANITARY TISSUE PAPER PRODUCTS (MADE IN PAPER MILLS)		
	United States	7 444 392	N
	New York	387 179	N
	Washington	704 830	N
	Wisconsin	941 175	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322121	PAPER (EXCEPT NEWSPRINT) MILLS				
11331005	Spruce and true fir pulpwood bolts and logs 1,000 standard cords..	1 203.9	130 244	N	N
11331007	Hemlock pulpwood bolts and logs 1,000 standard cords..	724.3	58 249	N	N
11331009	Southern pine pulpwood bolts and logs 1,000 standard cords..	10 583.6	550 373	N	N
11331023	Other softwood pulpwood bolts and logs, including Douglas fir and Jack pine 1,000 standard cords..	2 368.6	122 711	N	N
32100009	Softwood pulpwood wood chips, slabs, cores, sawdust, bark, and other mill residues 1,000 standard cords..	10 179.3	672 628	N	N
11331011	Southern mixed hardwood pulpwood bolts and logs 1,000 standard cords..	P7 108.0	390 718	N	N
11331025	Other hardwood pulpwood bolts and logs 1,000 standard cords..	8 810.5	479 381	N	N
32100011	Hardwood pulpwood wood chips, slabs, cores, sawdust, bark, and other mill residues 1,000 standard cords..	7 357.0	496 284	N	N
32518103	Chlorine (100 percent Cl basis) 1,000 s tons..	346.0	74 296	N	N
32518107	Sodium hydroxide (caustic soda)(100 percent NaOH) 1,000 s tons..	1 137.0	216 135	N	N
32518823	Sodium chlorate (100 percent NaClO3) 1,000 s tons..	642.8	227 829	N	N
32510007	Other sodium compounds X	X	44 578	X	N
32518813	Aluminum sulfate (17 percent Al2O3) 1,000 s tons..	145.4	19 039	N	N
32599811	Rosin sizing mil lb (dry basis)..	179.2	89 480	N	N
32741003	Lime 1,000 s tons..	669.8	36 741	N	N
21232400	Kaolin and ball clay 1,000 s tons..	1 978.6	313 888	N	N
31122113	Starch mil lb..	2 135.5	406 440	N	N
32521131	Synthetic resins mil lb..	411.4	271 828	N	N
32513103	Titanium dioxide, composite and pure (100 percent TiO2) mil lb..	376.2	320 929	N	N
32518829	Calcium carbonate, precipitated (100 percent CaCO2) 1,000 s tons..	1 819.4	259 553	N	N
32500009	All other chemicals, including organic X	X	1 443 379	X	N
32210029	Woodpulp produced at affiliated or associated mills at other locations 1,000 s tons (dry basis)..	1 980.7	889 868	N	N
32210031	Woodpulp purchased market wood pulp 1,000 s tons (dry basis)..	7 640.9	3 186 165	N	N
00190006	Mixed wastepaper, except plant's own broke paper 1,000 s tons..	1 570.0	242 207	N	N
00190007	Mechanical news wastepaper, except plant's own broke paper 1,000 s tons..	446.6	22 997	N	N
00190072	Other mechanical wastepaper, except plant's own broke paper 1,000 s tons..	313.3	38 654	N	N
00190073	Corrugated wastepaper, including kraft, except plant's own broke paper 1,000 s tons..	1 448.8	218 983	N	N
00190009	High grade pulp substitutes wastepaper, except plant's own broke paper 1,000 s tons..	438.9	133 105	N	N
00190010	High grade deinking wastepaper, except plant's own broke paper 1,000 s tons..	P1 446.6	282 195	N	N
31122305	Cotton linters (net weight) mil lb..	470.0	38 509	N	N
32210033	Linters pulp 1,000 s tons..	S	27 455	N	N
00190015	Other fibrous materials, including rags, straw, and bagasse 1,000 s tons..	284.2	106 516	N	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes X	X	52 203	X	N
31323001	Nonwoven fabrics mil sq yd..	S	140 027	N	N
001900A2	Packaging paper and plastics film, coated, laminated, printed, etc. X	X	372 673	X	N
32552003	Glues and adhesives mil lb..	91.0	67 130	N	N
32221001	Paperboard containers, boxes, and corrugated paperboard X	X	413 155	X	N
00970099	All other materials and components, parts, containers, and supplies X	X	3 110 334	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k. X	X	846 812	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322121 PAPER (EXCEPT NEWSPRINT) MILLS

This U.S. industry comprises establishments primarily engaged in manufacturing paper (except newsprint and uncoated groundwood paper) from pulp. These establishments may manufacture or purchase pulp. In addition, the establishments may also convert the paper they make.

The data published with NAICS code 322121 include the following SIC industries:

2621 Paper mills (pt)

2676 Sanitary paper products (pt)

3842 Surgical appliances and supplies (pt)

This definition comes from the 1997 NAICS Manual. However, for this industry, the 1997 Economic Census – Manufacturing did not fully implement the conversion to NAICS. Data for NAICS industry 322121 include paper mills which convert sanitary paper stock into sanitary

paper products, but do not include paper mills which are primarily engaged in the manufacture of other converted paper products. The NAICS definitions will be fully implemented with the 2002 Economic Census.

3221211 Paper (Except Newsprint) Mills - Integrated Producer

Establishments primarily engaged in manufacturing paper (except newsprint and uncoated groundwood paper) from pulp in combination with pulp manufacture.

3221212 Paper (Except Newsprint) Mills - Nonintegrated Producer

Establishments primarily engaged in manufacturing paper (except newsprint and uncoated groundwood paper) from pulp not in combination with pulp manufacture.

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsk) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F.

Footnotes for Products Statistics and Materials Consumed by Kind

Part 1. Products Statistics (Tables 6a and 6b)

NAICS product code	Footnote
\$ 322121J111	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
\$ 322121J121	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
# 322121L111	The total for products 322121L111 and 3222913111 is: Quantity = 21,092.8 Mil and Value = \$4,894,272 thousand.
# 322121L121	The total for products 322121L121 and 3222913121 is: Quantity = (Not Collected) and Value = \$751,530 thousand.
# 322121L131	The total for products 322121L131 and 3222913131 is: Quantity = (Not Collected) and Value = \$237,758 thousand.
\$ 322121N111	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
# 322121N2	The total for products 322121N2 and 32229152 is: Quantity = (Not Collected) and Value = \$1,497,708 thousand.
# 322121N221	The total for products 322121N221 and 3222915221 is: Quantity = 110.8 (1,000 s tons) and Value = \$171,865 thousand.
# 322121N223	The total for products 322121N223 and 3222915223 is: Quantity = 214.9 (1,000 s tons) and Value = \$294,858 thousand.
# 322121N225	The total for products 322121N225 and 3222915225 is: Quantity = (Suppressed) and Value = \$180,170 thousand.
\$ 322121N227	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
# 322121N229	The total for products 322121N229 and 3222915229 is: Quantity = 31.3 (1,000 s tons) and Value = \$67,555 thousand.
\$ 322121N331	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
# 322121N4	The total for products 322121N4 and 32229154 is: Quantity = (Not Collected) and Value = \$1,016,067 thousand.
# 322121N433	The total for products 322121N433 and 3222915433 is: Quantity = (Suppressed) and Value = \$1,016,067 thousand.
# 322121N5	The total for products 322121N5 and 32229155 is: Quantity = (Not Collected) and Value = \$1,764,024 thousand.
# 322121N535	The total for products 322121N535 and 3222915535 is: Quantity = 308.6 p (1,000 s tons) and Value = \$461,895 thousand.
# 322121N541	The total for products 322121N541 and 3222915541 is suppressed to avoid disclosure of individual companies.
# 322121N551	The total for products 322121N551 and 3222915551 is suppressed to avoid disclosure of individual companies.
\$ 322121N661	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
# 322121N7	The total for products 322121N7 and 32229157 is: Quantity = (Not Collected) and Value = \$2,639,755 thousand.
# 322121N771	The total for products 322121N771 and 3222915771 is: Quantity = (Suppressed) and Value = \$1,625,746 thousand.
\$ 322121N773	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
# 322121N8	The total for products 322121N8 and 32229158 is: Quantity = (Not Collected) and Value = \$399,564 thousand.

Part 1. Products Statistics (Tables 6a and 6b)—Con.

NAICS product code	Footnote
# 322121N881	The total for products 322121N881 and 3222915881 is: Quantity = (Suppressed) and Value = \$163,313 thousand.
# 322121N891	The total for products 322121N891 and 3222915891 is: Quantity = 147.4 (1,000 s tons) and Value = \$236,251 thousand.

Part 2. Materials Consumed by Kind (Table 7)

Not applicable.

Newsprint Mills

1997

Issued November 1999

EC97M-3221C

1997 Economic Census

Manufacturing

Industry Series



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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322122	Newsprint mills	25	31	14 015	767 084	10 774	23 405	557 562	2 775 594	2 791 788	5 584 285	414 272
262120	Paper mills (pt)	N	31	14 015	767 084	10 774	23 405	557 562	2 775 594	2 791 788	5 584 285	414 272

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322122, NEWSPRINT MILLS												
United States	-	31	30	14 015	767 084	10 774	23 405	557 562	2 775 594	2 791 788	5 584 285	414 272
Washington	-	5	5	1 399	84 989	1 066	2 327	62 131	426 479	447 302	874 386	34 983

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322122, NEWSPRINT MILLS		322122, NEWSPRINT MILLS—Con.	
Companies ¹	number.. 25	3221221, Newsprint mills—integrated producer—Con.	
All establishments	number.. 31	Production-worker hours	1,000.. 21 624
Establishments with 1 to 19 employees	number.. 1	Production-worker wages	\$1,000.. 514 548
Establishments with 20 to 99 employees	number.. 1	Total cost of materials	\$1,000.. 2 561 659
Establishments with 100 employees or more	number.. 29	Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 869 654
All employees	number.. 14 015	Cost of resales	\$1,000.. D
Total compensation ²	\$1,000.. 964 406	Cost of fuels	\$1,000.. 200 698
Annual payroll	\$1,000.. 767 084	Cost of purchased electricity	\$1,000.. 379 924
Total fringe benefits	\$1,000.. 197 322	Cost of contract work	\$1,000.. D
Production workers, average for year	number.. 10 774	Quantity of electricity purchased for heat and power	1,000 kWh.. 11 939 929
Production workers on March 12	number.. 10 751	Quantity of electricity generated less sold for heat and power	1,000 kWh.. 4 031 691
Production workers on May 12	number.. 10 787	Total value of shipments	\$1,000.. 5 121 499
Production workers on August 12	number.. 10 917	Primary products value of shipments	\$1,000.. X
Production workers on November 12	number.. 10 641	Secondary products value of shipments	\$1,000.. X
Production-worker hours	1,000.. 23 405	Total miscellaneous receipts	\$1,000.. X
Production-worker wages	\$1,000.. 557 562	Value of resales	\$1,000.. X
Total cost of materials	\$1,000.. 2 791 788	Contract receipts	\$1,000.. X
Cost of materials, parts, containers, etc., consumed	\$1,000.. 2 045 540	Other miscellaneous receipts	\$1,000.. X
Cost of resales	\$1,000.. D	Primary products specialization ratio	percent.. X
Cost of fuels	\$1,000.. 226 717	Value of primary products shipments made in all industries	\$1,000.. X
Cost of purchased electricity	\$1,000.. 400 499	Value of primary products shipments made in this industry	\$1,000.. X
Cost of contract work	\$1,000.. D	Value of primary products shipments made in other industries	\$1,000.. X
Quantity of electricity purchased for heat and power	1,000 kWh.. 12 303 132	Coverage ratio	percent.. X
Quantity of electricity generated less sold for heat and power	1,000 kWh.. 4 224 230	Value added	\$1,000.. 2 545 217
Total value of shipments	\$1,000.. 5 584 285	Total inventories, beginning of year	\$1,000.. 386 257
Primary products value of shipments	\$1,000.. D	Finished goods inventories, beginning of year	\$1,000.. 93 554
Secondary products value of shipments	\$1,000.. D	Work-in-process inventories, beginning of year	\$1,000.. 6 240
Total miscellaneous receipts	\$1,000.. D	Materials and supplies inventories, beginning of year	\$1,000.. 286 463
Value of resales	\$1,000.. D	Total inventories, end of year	\$1,000.. 349 700
Contract receipts	\$1,000.. —	Finished goods inventories, end of year	\$1,000.. 78 035
Other miscellaneous receipts	\$1,000.. 3 031	Work-in-process inventories, end of year	\$1,000.. 7 136
Primary products specialization ratio	percent.. D	Materials and supplies inventories, end of year	\$1,000.. 264 529
Value of primary products shipments made in all industries	\$1,000.. 5 496 517	Gross book value of total assets at beginning of year	\$1,000.. X
Value of primary products shipments made in this industry	\$1,000.. D	Total capital expenditures (new and used)	\$1,000.. X
Value of primary products shipments made in other industries	\$1,000.. D	Capital expenditures for buildings and other structures (new and used)	\$1,000.. X
Coverage ratio	percent.. D	Capital expenditures for machinery and equipment (new and used)	\$1,000.. X
Value added	\$1,000.. 2 775 594	Total retirements ²	\$1,000.. X
Total inventories, beginning of year	\$1,000.. 422 346	Gross book value of total assets at end of year	\$1,000.. X
Finished goods inventories, beginning of year	\$1,000.. 101 679	Total depreciation during year ²	\$1,000.. X
Work-in-process inventories, beginning of year	\$1,000.. 9 386	Total rental payments ²	\$1,000.. X
Materials and supplies inventories, beginning of year	\$1,000.. 311 281	Buildings and other structures rental payments ²	\$1,000.. X
Total inventories, end of year	\$1,000.. 384 389	Machinery and equipment rental payments ²	\$1,000.. X
Finished goods inventories, end of year	\$1,000.. 82 903	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. X
Work-in-process inventories, end of year	\$1,000.. 11 259	Response coverage ratio ⁴	percent.. X
Materials and supplies inventories, end of year	\$1,000.. 290 227	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. X
Gross book value of total assets at beginning of year	\$1,000.. 9 162 571	Response coverage ratio ⁴	percent.. X
Total capital expenditures (new and used)	\$1,000.. 414 272	Cost of purchased communications services ³	\$1,000.. X
Capital expenditures for buildings and other structures (new and used)	\$1,000.. 30 034	Response coverage ratio ⁴	percent.. X
Capital expenditures for machinery and equipment (new and used)	\$1,000.. 384 238	Cost of purchased legal services ³	\$1,000.. X
Total retirements ²	\$1,000.. 92 208	Response coverage ratio ⁴	percent.. X
Gross book value of total assets at end of year	\$1,000.. 9 484 635	Cost of purchased accounting and bookkeeping services ³	\$1,000.. X
Total depreciation during year ²	\$1,000.. 414 239	Response coverage ratio ⁴	percent.. X
Total rental payments ²	\$1,000.. 42 246	Cost of purchased advertising services ³	\$1,000.. X
Buildings and other structures rental payments ²	\$1,000.. 29 291	Response coverage ratio ⁴	percent.. X
Machinery and equipment rental payments ²	\$1,000.. 12 955	Cost of purchased software and other data processing services ³	\$1,000.. X
Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 8 221	Response coverage ratio ⁴	percent.. X
Response coverage ratio ⁴	percent.. 87	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. X
Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 190 870	Response coverage ratio ⁴	percent.. X
Response coverage ratio ⁴	percent.. 87	3221222, Newsprint mills—nonintegrated producer	
Cost of purchased communications services ³	\$1,000.. 4 668	Companies ¹	number.. N
Response coverage ratio ⁴	percent.. 87	All establishments	number.. 6
Cost of purchased legal services ³	\$1,000.. 3 100	Establishments with 1 to 19 employees	number.. 1
Response coverage ratio ⁴	percent.. 87	Establishments with 20 to 99 employees	number.. 1
Cost of purchased accounting and bookkeeping services ³	\$1,000.. 1 075	Establishments with 100 employees or more	number.. 4
Response coverage ratio ⁴	percent.. 87	All employees	number.. 1 095
Cost of purchased advertising services ³	\$1,000.. 803	Total compensation ²	\$1,000.. 80 292
Response coverage ratio ⁴	percent.. 87	Annual payroll	\$1,000.. 63 308
Cost of purchased software and other data processing services ³	\$1,000.. 4 293	Total fringe benefits	\$1,000.. 16 984
Response coverage ratio ⁴	percent.. 87	Production workers, average for year	number.. 808
Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 18 336	Production workers on March 12	number.. 811
Response coverage ratio ⁴	percent.. 87	Production workers on May 12	number.. 801
3221221, Newsprint mills—integrated producer		Production workers on August 12	number.. 827
Companies ¹	number.. N	Production workers on November 12	number.. 793
All establishments	number.. 25	Production-worker hours	1,000.. 1 781
Establishments with 1 to 19 employees	number.. —	Production-worker wages	\$1,000.. 43 014
Establishments with 20 to 99 employees	number.. —	Total cost of materials	\$1,000.. 230 129
Establishments with 100 employees or more	number.. 25	Cost of materials, parts, containers, etc., consumed	\$1,000.. 175 886
All employees	number.. 12 920	Cost of resales	\$1,000.. —
Total compensation ²	\$1,000.. 884 114	Cost of fuels	\$1,000.. 26 019
Annual payroll	\$1,000.. 703 776	Cost of purchased electricity	\$1,000.. 20 575
Total fringe benefits	\$1,000.. 180 338	Cost of contract work	\$1,000.. 7 649
Production workers, average for year	number.. 9 966	Quantity of electricity purchased for heat and power	1,000 kWh.. 363 203
Production workers on March 12	number.. 9 940	Quantity of electricity generated less sold for heat and power	1,000 kWh.. 192 539
Production workers on May 12	number.. 9 986		
Production workers on August 12	number.. 10 090		
Production workers on November 12	number.. 9 848		

Table 3. Detailed Statistics by Industry: 1997—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322122, NEWSPRINT MILLS—Con.		322122, NEWSPRINT MILLS—Con.	
3221222, Newsprint mills—nonintegrated producer—Con.		3221222, Newsprint mills—nonintegrated producer—Con.	
Total value of shipments	\$1,000..	Gross book value of total assets at beginning of year—Con.	
Primary products value of shipments	\$1,000..	Total capital expenditures (new and used)	\$1,000.. X
Secondary products value of shipments	\$1,000..	Capital expenditures for buildings and other structures (new and used)	\$1,000.. X
Total miscellaneous receipts	\$1,000..	Capital expenditures for machinery and equipment (new and used)	\$1,000.. X
Value of resales	\$1,000..	Total retirements ²	\$1,000.. X
Contract receipts	\$1,000..	Gross book value of total assets at end of year	\$1,000.. X
Other miscellaneous receipts	\$1,000..	Total depreciation during year ²	\$1,000.. X
Primary products specialization ratio	percent..	Total rental payments ²	\$1,000.. X
Value of primary products shipments made in all industries	\$1,000..	Buildings and other structures rental payments ²	\$1,000.. X
Value of primary products shipments made in this industry	\$1,000..	Machinery and equipment rental payments ²	\$1,000.. X
Value of primary products shipments made in other industries	\$1,000..	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. X
Coverage ratio	percent..	Response coverage ratio ⁴	percent.. X
Value added	\$1,000..	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. X
Total inventories, beginning of year	\$1,000..	Response coverage ratio ⁴	percent.. X
Finished goods inventories, beginning of year	\$1,000..	Cost of purchased communications services ³	\$1,000.. X
Work-in-process inventories, beginning of year	\$1,000..	Response coverage ratio ⁴	percent.. X
Materials and supplies inventories, beginning of year	\$1,000..	Cost of purchased legal services ³	\$1,000.. X
Total inventories, end of year	\$1,000..	Response coverage ratio ⁴	percent.. X
Finished goods inventories, end of year	\$1,000..	Cost of purchased accounting and bookkeeping services ³	\$1,000.. X
Work-in-process inventories, end of year	\$1,000..	Response coverage ratio ⁴	percent.. X
Materials and supplies inventories, end of year	\$1,000..	Cost of purchased advertising services ³	\$1,000.. X
Gross book value of total assets at beginning of year	\$1,000..	Response coverage ratio ⁴	percent.. X
		Cost of purchased software and other data processing services ³	\$1,000.. X
		Response coverage ratio ⁴	percent.. X
		Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. X
		Response coverage ratio ⁴	percent.. X

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322122, NEWSPRINT MILLS												
All establishments	-	31	30	14 015	767 084	10 774	23 405	557 562	2 775 594	2 791 788	5 584 285	414 272
Establishments with 1 to 4 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 5 to 9 employees	-	1	-	D	D	D	D	D	D	D	D	D
Establishments with 10 to 19 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 20 to 49 employees	-	1	1	D	D	D	D	D	D	D	D	D
Establishments with 50 to 99 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 100 to 249 employees	-	8	8	D	D	D	D	D	D	D	D	D
Establishments with 250 to 499 employees	-	12	12	4 136	233 051	3 134	6 713	164 908	1 181 339	921 260	2 113 012	240 648
Establishments with 500 to 999 employees	-	5	5	3 192	183 226	2 479	5 402	136 418	559 477	829 598	1 394 142	52 613
Establishments with 1,000 to 2,499 employees	-	4	4	5 278	269 190	4 114	8 909	200 082	668 262	707 968	1 375 062	86 855
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	-	-	-	-	-	-	-	-	-	-	-	-

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322122	Newsprint mills	31	14 015	767 084	10 774	23 405	557 562	2 775 594	2 791 788	5 584 285	414 272
3221221	Newsprint	21	9 562	541 596	7 347	15 889	397 385	2 028 256	2 055 654	4 089 699	191 002
3221223	Uncoated groundwood paper (containing more than 10 percent mechanical fiber)	10	4 453	225 488	3 427	7 516	160 177	747 338	736 134	1 494 586	223 270

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322122	Newsprint	N	X	X	5 496 517	N	X	X	N
3221221	Newsprint	N	X	X	3 712 495	N	X	X	2 924 869
32212211	Newsprint	N	X	X	3 712 495	N	X	X	N
3221221100	Newsprint 1,000 s tons ..	21	X	7 146.9	3 712 495	20	X	7 217.4	2 924 869
3221223	Uncoated groundwood paper (containing more than 10 percent mechanical fiber)	N	X	X	1 784 022	N	X	X	972 107
32212231	Uncoated groundwood paper (containing more than 10 percent mechanical fiber)	N	X	X	1 784 022	N	X	X	N
3221223111	Uncoated groundwood publication and printing paper, including supercalendered 1,000 s tons ..	16	X	1 820.4	1 250 761	N	X	X	N
3221223121	Other converting and miscellaneous groundwood paper, including form bond, wallpaper base, and body stock for coating 1,000 s tons ..	8	X	447.3	533 261	6	X	98.8	78 129
3221223Y	Uncoated groundwood paper (containing more than 10 percent mechanical fiber), nsk	N	X	X	-	N	X	X	N
3221223YWV	Uncoated groundwood paper (containing more than 10 percent mechanical fiber), nsk	N	X	X	-	N	X	X	20 716
322122W	Newsprint mill products, nsk, total	N	X	X	-	N	X	X	N
322122WY	Newsprint mill products, nsk, total	N	X	X	-	N	X	X	N
322122WYWW	Newsprint mill products, nsk, for nonadministrative-record establishments	N	X	X	-	N	X	X	N
322122WYWY	Newsprint mill products, nsk, for administrative-record establishments	N	X	X	-	N	X	X	N

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3221221	NEWSPRINT		
	United States	3 712 495	2 924 869
	Washington	710 877	469 784
3221223	UNCOATED GROUNDWOOD PAPER (CONTAINING MORE THAN 10 PERCENT MECHANICAL FIBER)		
	United States	1 784 022	972 107
	Maine	430 618	319 311
	Michigan	93 391	N
	Minnesota	269 583	N
	Wisconsin	92 966	52 903

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322122	NEWSPRINT MILLS				
11331005	Spruce and true fir pulpwood bolts and logs 1,000 standard cords..	819.1	73 149	N	N
11331007	Hemlock pulpwood bolts and logs 1,000 standard cords..	D	D	N	N
11331009	Southern pine pulpwood bolts and logs 1,000 standard cords..	3 884.2	255 406	N	N
11331023	Other softwood pulpwood bolts and logs, including Douglas fir and Jack pine 1,000 standard cords..	D	D	N	N
32100009	Softwood pulpwood wood chips, slabs, cores, sawdust, bark, and other mill residues 1,000 standard cords..	1 855.7	148 846	N	N
11331011	Southern mixed hardwood pulpwood bolts and logs 1,000 standard cords..	487.1	23 615	N	N
11331025	Other hardwood pulpwood bolts and logs 1,000 standard cords..	D	D	N	N
32100011	Hardwood pulpwood wood chips, slabs, cores, sawdust, bark, and other mill residues 1,000 standard cords..	721.5	41 479	N	N
32518103	Chlorine (100 percent Cl basis) 1,000 s tons..	60.5	14 337	N	N
32518107	Sodium hydroxide (caustic soda)(100 percent NaOH) 1,000 s tons..	173.6	29 855	N	N
32518823	Sodium chlorate (100 percent NaClO3) 1,000 s tons..	36.8	13 490	N	N
32510007	Other sodium compounds X	X	54 195	X	N
32518813	Aluminum sulfate (17 percent Al2O3) 1,000 s tons..	83.7	15 021	N	N
32599811	Rosin sizing mil lb (dry basis)..	19.0	7 206	N	N
32741003	Lime 1,000 s tons..	82.4	5 687	N	N
21232400	Kaolin and ball clay 1,000 s tons..	249.0	51 317	N	N
31122113	Starch mil lb..	56.7	14 723	N	N
32521131	Synthetic resins mil lb..	D	D	N	N
32513103	Titanium dioxide, composite and pure (100 percent TiO2) mil lb..	3.2	2 878	N	N
32518829	Calcium carbonate, precipitated (100 percent CaCO2) 1,000 s tons..	27.3	4 743	N	N
32500009	All other chemicals, including organic..... X	X	280 897	X	N
32210029	Woodpulp produced at affiliated or associated mills at other locations 1,000 s tons (dry basis)..	D	D	N	N
32210031	Woodpulp purchased market wood pulp 1,000 s tons (dry basis)..	371.7	183 702	N	N
00190006	Mixed wastepaper, except plant's own broke paper 1,000 s tons..	386.6	44 934	N	N
00190007	Mechanical news wastepaper, except plant's own broke paper 1,000 s tons..	3 123.7	229 807	N	N
00190072	Other mechanical wastepaper, except plant's own broke paper 1,000 s tons..	276.4	19 707	N	N
00190073	Corrugated wastepaper, including kraft, except plant's own broke paper 1,000 s tons..	152.4	22 893	N	N
00190009	High grade pulp substitutes wastepaper, except plant's own broke paper 1,000 s tons..	D	D	N	N
00190010	High grade deinking wastepaper, except plant's own broke paper 1,000 s tons..	128.4	13 009	N	N
31122305	Cotton linters (net weight) mil lb..	-	-	N	N
32210033	Linter pulp 1,000 s tons..	-	-	N	N
00190015	Other fibrous materials, including rags, straw, and bagasse 1,000 s tons..	-	-	N	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes X	X	D	X	N
31323001	Nonwoven fabrics mil sq yd..	-	-	N	N
001900A2	Packaging paper and plastics film, coated, laminated, printed, etc. X	X	41 788	X	N
32552003	Glues and adhesives mil lb..	D	D	N	N
32221001	Paperboard containers, boxes, and corrugated paperboard X	X	-	X	N
00970099	All other materials and components, parts, containers, and supplies X	X	325 434	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k. X	X	60 941	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B. NAICS Codes, Titles, and Descriptions

322122 NEWSPRINT MILLS

This U.S. industry comprises establishments primarily engaged in manufacturing newsprint and uncoated groundwood paper from pulp. These establishments may manufacture or purchase pulp. In addition, the establishments may also convert the paper they make.

The data published with NAICS code 322122 include the following SIC industry:

2621 Paper mills (pt)

3221221 Newsprint Mills - Integrated Producer

Establishments primarily engaged in manufacturing newsprint and uncoated groundwood paper from pulp in combination with pulp manufacture.

3221222 Newsprint Mills - Nonintegrated Producer

Establishments primarily engaged in manufacturing newsprint and uncoated groundwood paper from pulp not in combination with pulp manufacture.

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710	26710	3222241YWV	2674100	2674100	3222911	26762	26761
322221WYWW	2671000	2671000	3222243	26742	26742	3222911111	2676214	2676114
322221WYVY	2671002	2671002	322224321	2674211	2674211	3222911121	2676251	2676151
3222221	26721	26721	322224322	2674212	2674212	3222911YVW	2676200	2676100
3222221111	2672113	2672113	3222243YVW	2674200	2674200	3222913	26765	26763
3222221121	2672153	2672153	3222244	26740	26740	3222913	38421	38421
3222221YVW	2672100	2672100	3222244YVW	2674000	2674000	3222913111	2676500	2676300
3222223	26722	26722	3222244YVY	2674002	2674002	3222913121	3842133	3842132
3222223111	2672212	2672212	3222250	34970	34970	3222913131	3842135	3842132
3222223121	2672230	2672230	3222250	34970	34970	3222913YVW	2676500	2676300
3222223YVW	2672200	2672200	3222250	34972	34972	3222913YVW	3842100	3842100
3222225	26723	26723	3222250	3497210	3497210	3222915	26766	26764
3222225111	2672313	2672313	3222250010	3497222	3497222	3222915111	2676611	2676411
3222225221	2672343	2672343	3222250206	3497225	3497225	3222915221	2676625	2676425
3222225331	2672333	2672333	3222250311	3497225	3497225	3222915222	2676627	2676427
3222225341	2672345	2672345	3222250416	3497228	3497228	3222915225	2676633	2676433
3222225351	2672353	2672353	3222250421	3497241	3497241	3222915227	2676635	2676435
3222225361	2672359	2672359	3222250YVW	3497000	3497000	3222915229	2676637	2676437
3222225371	2672361	2672361	3222250YVY	3497002	3497002	3222915331	2676645	2676445
3222225475	2672381	2672381	3222260	26750	26750	3222915433	2676647	2676447
3222225581	2672385	2672385	3222260	26753	26753	3222915535	2676641	2676441
3222225585	2672375	2672375	3222260100	2675300	2675300	3222915541	2676643	2676443
3222225591	2672398	2672398	3222260YVW	2675000	2675000	3222915551	2676655	2676455
3222225YVW	2672300	2672300	3222260YVY	2675002	2675002	3222915661	2676671	2676471
3222226	26791	26791	3222260YVY	2675002	2675002	3222915771	2676676	2676476
3222226111	2679122	2679122	3222311	26751	26751	3222915773	2676677	2676477
3222226121	2679125	2679126	3222311111	2675110	2675110	3222915881	2676681	2676481
3222226121	2679125	2679128	3222311121	2675111	2675111	3222915891	2676699	2676499
3222226131	2679134	2679134	32223111231	2675112	2675112	3222915YVW	2676600	2676400
3222226141	2679136	2679136	3222311391	2675191	2675120	322291W	26760	26760
3222226191	2679141	2679141	3222311391	2675191	2675130	322291W	38420	38420
3222226YVW	2679100	2679100	3222311YVW	2675100	2675100	322291WYVW	2676000	2676000
3222227	26792	26792	3222311111	26793	26793	322291WYVW	3842000	3842000
3222227111	2679282	2679282	3222313111	2679311	2679311	322291WYVW	2676002	2676002
3222227121	2679291	2679291	3222313191	2679331	2679331	322291WYVY	3842002	3842002
3222227191	2679296	2679296	3222313YVW	2679300	2679300	3222991	26794	26794
3222227YVW	2679200	2679200	322231W	26750	26750	3222991100	2679400	2679400
3222229	26724	26724	322231W	26790	26790	3222993	26752	26752
3222229111	2672445	2672445	322231WYVW	2675000	2675000	3222993	26795	26795
3222229121	2672453	2672453	322231WYVW	2679000	2679000	3222993	39999	39999
3222229131	2672455	2672455	322231WYVY	2675002	2675002	3222993111	2679521	2679521
3222229141	2672456	2672456	322231WYVY	2679002	2679002	3222993221	2679531	2679531
3222229151	2672469	2672469	3222320	26770	26770	3222993231	2679541	2679541
3222229YVW	2672400	2672400	3222320	2677010	2677010	3222993241	2679548	2679548
322222W	26720	26720	3222320111	2677021	2677021	3222993351	2679551	2679551
322222W	26790	26790	3222320121	2677022	2677022	3222993361	2679561	2679561
322222WYVW	2672000	2672000	3222320131	2677040	2677040	3222993471	2675200	2675200
322222WYVW	2679000	2679000	3222320YVW	2677000	2677000	3222993471	2675200	2675200
322222WYVY	2672002	2672002	3222320YVY	2677002	2677002	3222993471	2675200	2675200
322222WYVY	2679002	2679002	3222331	26781	26781	3222993471	2675200	2675200
3222231	26731	26731	3222331111	2678111	2678111	3222993471	2675200	2675200
3222231100	2673100	2673100	3222331121	2678113	2678113	3222993591	2679598	2679598
3222233	26733	26733	3222331131	2678121	2678121	3222993591	3999996	3999913
3222233111	2673306	2673311	3222331YVW	2678100	2678100	3222993591	3999996	3999999
3222233121	2673312	2673312	3222333	26782	26782	3222993YVW	2679500	2679500
3222233131	2673315	2673311	3222333	2678212	2678212	3222993YVW	3999900	3999900
3222233131	2673315	2673314	3222333221	2678225	2678213	322299W	26750	26750
3222233YVW	2673300	2673300	3222333221	2678225	2678221	322299W	26790	26790
322223W	26730	26730	3222333331	2678235	2678235	322299W	39990	39990
322223WYVW	2673000	2673000	3222333441	2678245	2678245	322299WYVW	2675000	2675000
322223WYVY	2673002	2673002	3222333551	2678251	2678251	322299WYVW	2679000	2679000
3222241	26741	26741	3222333691	2678298	2678298	322299WYVW	3999000	3999000
3222241111	2674111	2674111	3222333YVW	2678200	2678200	322299WYVY	2675002	2675002
3222241221	2674112	2674112	322233W	26780	26780	322299WYVY	2679002	2679002
3222241231	2674113	2674113	322233WYVW	2678000	2678000	322299WYVY	3999002	3999002
3222241341	2674115	2674115	322233WYVY	2678002	2678002	322299WYVY	3999002	3999002

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322130	Paperboard mills	85	217	54 106	2 684 728	41 381	91 971	1 904 192	8 764 709	10 968 252	19 712 850	1 606 413
263100	Paperboard mills	N	217	54 106	2 684 728	41 381	91 971	1 904 192	8 764 709	10 968 252	19 712 850	1 606 413

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322130, PAPERBOARD MILLS												
United States	-	217	213	54 106	2 684 728	41 381	91 971	1 904 192	8 764 709	10 968 252	19 712 850	1 606 413
California	-	15	15	1 640	82 880	1 226	2 784	55 114	264 608	416 374	682 293	24 570
Florida	-	4	4	1 637	89 163	1 282	2 716	66 693	317 979	430 163	751 497	19 114
Georgia	-	14	14	6 811	353 034	5 180	12 003	245 868	1 135 609	1 500 793	2 627 264	220 398
Louisiana	-	5	5	2 796	142 834	2 206	4 596	103 627	668 938	807 880	1 477 342	56 333
Massachusetts	-	6	6	696	29 420	534	1 212	21 755	97 044	92 172	189 963	6 017
New Jersey	-	10	10	784	32 790	590	1 398	24 503	91 199	74 525	166 267	8 481
Pennsylvania	-	13	13	1 109	47 142	882	2 110	34 600	151 498	137 569	288 582	12 104
South Carolina	-	5	5	2 349	115 111	1 725	3 599	78 857	481 399	406 151	887 899	82 540
Tennessee	-	6	6	1 155	62 053	913	2 126	48 690	212 642	235 176	447 737	40 574
Texas	-	8	8	3 059	152 302	2 306	5 000	112 720	521 513	658 142	1 167 992	36 760

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322130, PAPERBOARD MILLS		322130, PAPERBOARD MILLS—Con.	
Companies ¹	number.. 85	3221301, Paperboard mills—integrated producer—Con.	
All establishments	number.. 217	Production-worker hours	1,000.. 62 069
Establishments with 1 to 19 employees	number.. 4	Production-worker wages	\$1,000.. 1 391 727
Establishments with 20 to 99 employees	number.. 81	Total cost of materials	\$1,000.. 8 420 446
Establishments with 100 employees or more	number.. 132	Cost of materials, parts, containers, etc., consumed	\$1,000.. 6 757 131
All employees	number.. 54 106	Cost of resales	\$1,000.. 25 331
Total compensation ²	\$1,000.. 3 341 775	Cost of fuels	\$1,000.. 830 637
Annual payroll	\$1,000.. 2 684 728	Cost of purchased electricity	\$1,000.. 449 878
Total fringe benefits	\$1,000.. 657 047	Cost of contract work	\$1,000.. 357 469
Production workers, average for year	number.. 41 381	Quantity of electricity purchased for heat and power	1,000 kWh.. 13 059 712
Production workers on March 12	number.. 41 348	Quantity of electricity generated less sold for heat and power	1,000 kWh.. 14 296 221
Production workers on May 12	number.. 40 601	Total value of shipments	\$1,000.. 14 856 353
Production workers on August 12	number.. 41 830	Primary products value of shipments	\$1,000.. X
Production workers on November 12	number.. 41 745	Secondary products value of shipments	\$1,000.. X
Production-worker hours	1,000.. 91 971	Total miscellaneous receipts	\$1,000.. X
Production-worker wages	\$1,000.. 1 904 192	Value of resales	\$1,000.. X
Total cost of materials	\$1,000.. 10 968 252	Contract receipts	\$1,000.. X
Cost of materials, parts, containers, etc., consumed	\$1,000.. 8 687 480	Other miscellaneous receipts	\$1,000.. X
Cost of resales	\$1,000.. 86 197	Primary products specialization ratio	percent.. X
Cost of fuels	\$1,000.. 1 135 476	Value of primary products shipments made in all industries	\$1,000.. X
Cost of purchased electricity	\$1,000.. 678 802	Value of primary products shipments made in this industry	\$1,000.. X
Cost of contract work	\$1,000.. 380 297	Value of primary products shipments made in other industries	\$1,000.. X
Quantity of electricity purchased for heat and power	1,000 kWh.. 17 742 439	Coverage ratio	percent.. X
Quantity of electricity generated less sold for heat and power	1,000 kWh.. 14 934 217	Value added	\$1,000.. 6 450 465
Total value of shipments	\$1,000.. 19 712 850	Total inventories, beginning of year	\$1,000.. 1 299 719
Primary products value of shipments	\$1,000.. 17 339 917	Finished goods inventories, beginning of year	\$1,000.. 366 432
Secondary products value of shipments	\$1,000.. 2 095 086	Work-in-process inventories, beginning of year	\$1,000.. 69 243
Total miscellaneous receipts	\$1,000.. 277 847	Materials and supplies inventories, beginning of year	\$1,000.. 864 044
Value of resales	\$1,000.. 88 611	Total inventories, end of year	\$1,000.. 1 251 869
Contract receipts	\$1,000.. D	Finished goods inventories, end of year	\$1,000.. 398 813
Other miscellaneous receipts	\$1,000.. D	Work-in-process inventories, end of year	\$1,000.. 51 420
Primary products specialization ratio	percent.. 89	Materials and supplies inventories, end of year	\$1,000.. 801 636
Value of primary products shipments made in all industries	\$1,000.. 18 506 875	Gross book value of total assets at beginning of year	\$1,000.. X
Value of primary products shipments made in this industry	\$1,000.. 17 339 917	Total capital expenditures (new and used)	\$1,000.. X
Value of primary products shipments made in other industries	\$1,000.. 1 166 958	Capital expenditures for buildings and other structures (new and used)	\$1,000.. X
Coverage ratio	percent.. 93	Capital expenditures for machinery and equipment (new and used)	\$1,000.. X
Value added	\$1,000.. 8 764 709	Total retirements ²	\$1,000.. X
Total inventories, beginning of year	\$1,000.. 1 551 872	Gross book value of total assets at end of year	\$1,000.. X
Finished goods inventories, beginning of year	\$1,000.. 443 824	Total depreciation during year ²	\$1,000.. X
Work-in-process inventories, beginning of year	\$1,000.. 74 642	Total rental payments ²	\$1,000.. X
Materials and supplies inventories, beginning of year	\$1,000.. 1 033 406	Buildings and other structures rental payments ²	\$1,000.. X
Total inventories, end of year	\$1,000.. 1 517 264	Machinery and equipment rental payments ²	\$1,000.. X
Finished goods inventories, end of year	\$1,000.. 482 411	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. X
Work-in-process inventories, end of year	\$1,000.. 56 166	Response coverage ratio ⁴	percent.. X
Materials and supplies inventories, end of year	\$1,000.. 978 687	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. X
Gross book value of total assets at beginning of year	\$1,000.. 32 211 743	Response coverage ratio ⁴	percent.. X
Total capital expenditures (new and used)	\$1,000.. 1 606 413	Cost of purchased communications services ³	\$1,000.. X
Capital expenditures for buildings and other structures (new and used)	\$1,000.. 117 016	Response coverage ratio ⁴	percent.. X
Capital expenditures for machinery and equipment (new and used)	\$1,000.. 1 489 397	Cost of purchased legal services ³	\$1,000.. X
Total retirements ²	\$1,000.. 261 534	Response coverage ratio ⁴	percent.. X
Gross book value of total assets at end of year	\$1,000.. 33 556 622	Cost of purchased accounting and bookkeeping services ³	\$1,000.. X
Total depreciation during year ²	\$1,000.. 1 568 201	Response coverage ratio ⁴	percent.. X
Total rental payments ²	\$1,000.. 135 411	Cost of purchased advertising services ³	\$1,000.. X
Buildings and other structures rental payments ²	\$1,000.. 45 077	Response coverage ratio ⁴	percent.. X
Machinery and equipment rental payments ²	\$1,000.. 90 334	Cost of purchased software and other data processing services ³	\$1,000.. X
Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 72 840	Response coverage ratio ⁴	percent.. X
Response coverage ratio ⁴	percent.. 94	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. X
Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 815 419	Response coverage ratio ⁴	percent.. X
Response coverage ratio ⁴	percent.. 94	3221302, Paperboard mills—nonintegrated producer	
Cost of purchased communications services ³	\$1,000.. 17 611	Companies ¹	number.. N
Response coverage ratio ⁴	percent.. 94	All establishments	number.. 150
Cost of purchased legal services ³	\$1,000.. 9 087	Establishments with 1 to 19 employees	number.. 4
Response coverage ratio ⁴	percent.. 94	Establishments with 20 to 99 employees	number.. 79
Cost of purchased accounting and bookkeeping services ³	\$1,000.. 1 563	Establishments with 100 employees or more	number.. 67
Response coverage ratio ⁴	percent.. 94	All employees	number.. 16 587
Cost of purchased advertising services ³	\$1,000.. 1 460	Total compensation ²	\$1,000.. 909 555
Response coverage ratio ⁴	percent.. 94	Annual payroll	\$1,000.. 716 347
Cost of purchased software and other data processing services ³	\$1,000.. 15 295	Total fringe benefits	\$1,000.. 193 208
Response coverage ratio ⁴	percent.. 94	Production workers, average for year	number.. 12 805
Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 70 960	Production workers on March 12	number.. 12 785
Response coverage ratio ⁴	percent.. 94	Production workers on May 12	number.. 12 773
3221301, Paperboard mills—integrated producer		Production workers on August 12	number.. 12 884
Companies ¹	number.. N	Production workers on November 12	number.. 12 778
All establishments	number.. 67	Production-worker hours	1,000.. 29 902
Establishments with 1 to 19 employees	number.. —	Production-worker wages	\$1,000.. 512 465
Establishments with 20 to 99 employees	number.. 2	Total cost of materials	\$1,000.. 2 547 806
Establishments with 100 employees or more	number.. 65	Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 930 349
All employees	number.. 37 519	Cost of resales	\$1,000.. 60 866
Total compensation ²	\$1,000.. 2 432 220	Cost of fuels	\$1,000.. 304 839
Annual payroll	\$1,000.. 1 968 381	Cost of purchased electricity	\$1,000.. 228 924
Total fringe benefits	\$1,000.. 463 839	Cost of contract work	\$1,000.. 22 828
Production workers, average for year	number.. 28 576	Quantity of electricity purchased for heat and power	1,000 kWh.. 4 682 727
Production workers on March 12	number.. 28 563	Quantity of electricity generated less sold for heat and power	1,000 kWh.. 637 996
Production workers on May 12	number.. 27 828		
Production workers on August 12	number.. 28 946		
Production workers on November 12	number.. 28 967		

Table 3. Detailed Statistics by Industry: 1997—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322130, PAPERBOARD MILLS—Con.		322130, PAPERBOARD MILLS—Con.	
3221302, Paperboard mills—nonintegrated producer—Con.		3221302, Paperboard mills—nonintegrated producer—Con.	
Total value of shipments	\$1,000..	Gross book value of total assets at beginning of year—Con.	
Primary products value of shipments	\$1,000..	Total capital expenditures (new and used)	\$1,000.. X
Secondary products value of shipments	\$1,000..	Capital expenditures for buildings and other structures (new and used)	\$1,000.. X
Total miscellaneous receipts	\$1,000..	Capital expenditures for machinery and equipment (new and used)	\$1,000.. X
Value of resales	\$1,000..	Total retirements ²	\$1,000.. X
Contract receipts	\$1,000..	Gross book value of total assets at end of year	\$1,000.. X
Other miscellaneous receipts	\$1,000..	Total depreciation during year ²	\$1,000.. X
Primary products specialization ratio	percent..	Total rental payments ²	\$1,000.. X
Value of primary products shipments made in all industries	\$1,000..	Buildings and other structures rental payments ²	\$1,000.. X
Value of primary products shipments made in this industry	\$1,000..	Machinery and equipment rental payments ²	\$1,000.. X
Value of primary products shipments made in other industries	\$1,000..	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. X
Coverage ratio	percent..	Response coverage ratio ⁴	percent.. X
Value added	\$1,000..	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. X
Total inventories, beginning of year	\$1,000..	Response coverage ratio ⁴	percent.. X
Finished goods inventories, beginning of year	\$1,000..	Cost of purchased communications services ³	\$1,000.. X
Work-in-process inventories, beginning of year	\$1,000..	Response coverage ratio ⁴	percent.. X
Materials and supplies inventories, beginning of year	\$1,000..	Cost of purchased legal services ³	\$1,000.. X
Total inventories, end of year	\$1,000..	Response coverage ratio ⁴	percent.. X
Finished goods inventories, end of year	\$1,000..	Cost of purchased accounting and bookkeeping services ³	\$1,000.. X
Work-in-process inventories, end of year	\$1,000..	Response coverage ratio ⁴	percent.. X
Materials and supplies inventories, end of year	\$1,000..	Cost of purchased advertising services ³	\$1,000.. X
Gross book value of total assets at beginning of year	\$1,000..	Response coverage ratio ⁴	percent.. X
		Cost of purchased software and other data processing services ³	\$1,000.. X
		Response coverage ratio ⁴	percent.. X
		Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. X
		Response coverage ratio ⁴	percent.. X

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322130, PAPERBOARD MILLS												
All establishments	-	217	213	54 106	2 684 728	41 381	91 971	1 904 192	8 764 709	10 968 252	19 712 850	1 606 413
Establishments with 1 to 4 employees	9	2	-	D	D	D	D	D	D	D	D	D
Establishments with 5 to 9 employees	-	1	-	D	D	D	D	D	D	D	D	D
Establishments with 10 to 19 employees	9	1	-	D	D	D	D	D	D	D	D	D
Establishments with 20 to 49 employees	-	14	14	D	D	D	D	D	D	D	D	D
Establishments with 50 to 99 employees	-	67	67	5 089	213 020	3 930	9 135	153 662	738 704	683 681	1 416 929	95 145
Establishments with 100 to 249 employees	-	67	67	9 777	440 040	7 330	17 016	305 003	1 417 037	1 732 426	3 146 480	197 526
Establishments with 250 to 499 employees	-	33	33	11 636	579 568	9 226	20 886	429 594	1 722 485	2 640 356	4 353 894	465 534
Establishments with 500 to 999 employees	-	25	25	17 146	923 719	13 244	28 693	637 918	3 390 181	4 024 856	7 432 412	482 385
Establishments with 1,000 to 2,499 employees	-	7	7	9 904	506 938	7 242	15 311	362 330	1 435 496	1 844 324	3 259 008	359 240
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	-	-	-	-	-	-	-	-	-	-	-	-

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322130	Paperboard mills	217	54 106	2 684 728	41 381	91 971	1 904 192	8 764 709	10 968 252	19 712 850	1 606 413
3221301	Unbleached kraft packaging and industrial converting paperboard (80 percent or more virgin woodpulp) ...	38	20 739	1 093 168	15 848	34 444	773 215	3 389 032	4 844 058	8 223 045	689 277
3221303	Bleached packaging and industrial converting paperboard (80 percent or more virgin bleached woodpulp) ..	12	11 158	574 925	8 483	18 249	420 174	2 206 649	2 371 677	4 570 758	316 663
3221305	Semichemical paperboard, including corrugating medium (75 percent or more virgin woodpulp)	7	1 887	82 753	1 439	3 147	61 835	309 011	285 114	589 823	35 537
3221307	Recycled paperboard	151	19 846	915 698	15 279	35 428	638 185	2 820 758	3 438 228	6 260 251	560 151
3221309	Wet machine board, including binders' board and shoe board	8	472	17 987	329	696	10 641	38 428	28 306	67 275	4 647

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322130	Paperboard	N	X	X	18 506 875	N	X	X	16 372 973
3221301	Unbleached kraft packaging and industrial converting paperboard (80 percent or more virgin woodpulp)	N	X	X	7 368 147	N	X	X	7 438 633
32213011	Unbleached kraft linerboard	N	X	X	6 187 427	N	X	X	N
3221301111	Unbleached kraft linerboard	22	X	18 547.7	6 187 427	24	X	18 432.3	6 242 516
32213012	Other unbleached kraft packaging and industrial converting paperboard, including tube, can, and drum paperboard, corrugating medium, folding carton-type board, etc.	N	X	X	1 180 720	N	X	X	N
3221301221	Other unbleached kraft packaging and industrial converting paperboard, including tube, can, and drum paperboard, corrugating medium, folding carton-type board, etc.	10	X	2 684.6	1 180 720	13	X	2 752.2	1 196 117
3221301Y	Unbleached kraft packaging and industrial converting paperboard (80 percent or more virgin woodpulp), nsk	N	X	X	-	N	X	X	N
3221301YWV	Unbleached kraft packaging and industrial converting paperboard (80 percent or more virgin woodpulp), nsk	N	X	X	-	N	X	X	-
3221303	Bleached packaging and industrial converting paperboard (80 percent or more virgin bleached woodpulp)	N	X	X	3 898 606	N	X	X	3 341 916
32213031	Bleached folding carton-type paperboard	N	X	X	1 895 678	N	X	X	N
3221303111	Bleached folding carton-type paperboard	11	X	2 638.9	1 895 678	12	X	2 153.5	1 557 757
32213032	Bleached milk carton board	N	X	X	923 553	N	X	X	N
3221303221	Bleached milk carton board	5	X	1 166.1	923 553	5	X	1 172.9	803 856
32213033	Other solid bleached paperboard, including linerboard, heavyweight cup and round nested food container board, plate, dish, and tray stock, and paperboard for moist, liquid, and oily foods	N	X	X	1 079 375	N	X	X	N
3221303331	Bleached linerboard	9	X	275.9	193 337	8	X	336.7	208 232
3221303341	Bleached heavyweight cup and round nested food container paperboard	10	X	768.0	507 910	8	X	616.0	398 396
3221303351	Bleached plate, dish, and tray paperboard stock	9	X	343.0	201 270	10	X	378.3	199 136
3221303361	Other solid bleached paperboard, including paperboard for moist, liquid, and oily foods	6	X	287.9	176 858	6	X	295.9	174 539
3221303Y	Bleached packaging and industrial converting paperboard (80 percent or more virgin bleached woodpulp), nsk	N	X	X	-	N	X	X	N
3221303YWV	Bleached packaging and industrial converting paperboard (80 percent or more virgin bleached woodpulp), nsk	N	X	X	-	N	X	X	-
3221305	Semichemical paperboard, including corrugating medium (75 percent or more virgin woodpulp)	N	X	X	858 940	N	X	X	1 216 603
32213051	Semichemical paperboard, including corrugating medium (75 percent or more virgin woodpulp)	N	X	X	858 940	N	X	X	N
3221305100	Semichemical paperboard, including corrugating medium (75 percent or more virgin woodpulp)	10	X	3 549.1	858 940	13	X	3 939.1	1 216 603
3221307	Recycled paperboard	N	X	X	6 290 806	N	X	X	4 261 131
32213071	Recycled corrugating medium	N	X	X	1 379 664	N	X	X	N
3221307111	Recycled corrugating medium	34	X	5 628.7	1 379 664	22	X	3 549.2	983 741
32213072	Recycled linerboard and container chip and filler board	N	X	X	1 728 527	N	X	X	N
3221307221	Recycled linerboard	25	X	5 145.8	1 674 237	13	X	1 679.7	603 995
3221307231	Recycled container chip and filler board	6	X	S	54 290	11	X	544.7	182 464
32213073	Recycled clay-coated folding carton board	N	X	X	1 065 897	N	X	X	N
3221307341	Recycled clay-coated folding carton board	12	X	2 258.0	1 065 897	11	X	1 954.9	932 498
32213074	Recycled unlined folding carton chipboard, and lined, including kraft and white	N	X	X	478 890	N	X	X	N
3221307451	Recycled unlined folding carton chipboard	15	X	788.5	292 992	16	X	440.4	147 027
3221307461	Recycled lined folding carton board, including kraft and white	13	X	434.6	185 898	N	X	X	N

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322130	Paperboard—Con.								
3221307	Recycled paperboard—Con.								
32213075	Other recycled paperboard, including setup, tube, can, and drum stock, gypsum linerboard, panelboard and wallboard stock, and other special combination packaging and converting paperboard	N	X	X	1 627 217	N	X	X	N
3221307571	Recycled setup board	6	X	175.5	77 582	9	X	121.2	44 678
3221307575	Recycled tube, can, and drum paperboard stock	14	X	1 754.4	699 169	19	X	1 316.5	421 595
3221307581	Recycled gypsum linerboard	6	X	870.6	390 676	9	X	543.3	161 022
3221307591	Other recycled paperboard, including panelboard and wallboard stock and other special combination packaging and industrial converting paperboard	20	X	1 188.1	459 790	25	X	P1 166.6	457 568
3221307Y	Recycled paperboard, nsk	N	X	X	10 611	N	X	X	N
3221307YVW	Recycled paperboard, nsk	N	X	X	10 611	N	X	X	235 963
3221309	Wet machine board, including binders' board and shoe board	N	X	X	86 373	N	X	X	81 384
32213091	Wet machine board, including binders' board and shoe board	N	X	X	86 373	N	X	X	N
3221309100	Wet machine board, including binders' board and shoe board	7	X	S	86 373	7	X	127.9	81 384
322130W	Paperboard mill products, nsk, total	N	X	X	4 003	N	X	X	33 306
322130WY	Paperboard mill products, nsk, total	N	X	X	4 003	N	X	X	N
322130WYVW	Paperboard mill products, nsk, for nonadministrative-record establishments	N	X	X	4 003	N	X	X	33 306
322130WYVY	Paperboard mill products, nsk, for administrative-record establishments	N	X	X	—	N	X	X	—

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3221301	UNBLEACHED KRAFT PACKAGING AND INDUSTRIAL CONVERTING PAPERBOARD (80 PERCENT OR MORE VIRGIN WOODPULP)		
	United States	7 368 147	7 438 633
	Alabama	930 522	991 478
	Florida	618 543	703 725
	Georgia	1 199 083	1 123 369
	Louisiana	1 089 855	1 111 239
	Oregon	628 068	591 347
3221303	BLEACHED PACKAGING AND INDUSTRIAL CONVERTING PAPERBOARD (80 PERCENT OR MORE VIRGIN BLEACHED WOODPULP)		
	United States	3 898 606	3 341 916
	Alabama	488 354	457 929
	Arkansas	716 852	626 291
	Georgia	573 330	553 826
3221305	SEMICHEMICAL PAPERBOARD, INCLUDING CORRUGATING MEDIUM (75 PERCENT OR MORE VIRGIN WOODPULP)		
	United States	858 940	1 216 603
	Louisiana	163 029	192 149

See footnotes at end of table.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992—Con.

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3221307	RECYCLED PAPERBOARD		
	United States	6 290 806	4 261 131
	Alabama	234 661	N
	California	640 553	569 435
	Connecticut	238 606	156 446
	Georgia	252 501	N
	Illinois	142 879	123 202
	Indiana	238 774	264 275
	Kentucky	203 284	N
	Massachusetts	183 691	N
	Michigan	478 822	423 150
	New Jersey	152 903	95 082
	New York	231 303	115 639
	North Carolina	56 924	56 590
	Ohio	361 132	341 915
	Pennsylvania	276 492	250 726
	South Carolina	186 187	N
	Tennessee	173 699	156 620
	Texas	139 649	103 760
	Virginia	402 157	291 274
	Washington	195 183	N
	Wisconsin	192 196	160 464
3221309	WET MACHINE BOARD, INCLUDING BINDERS' BOARD AND SHOE BOARD		
	United States	86 373	81 384

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322130	PAPERBOARD MILLS				
11331005	Spruce and true fir pulpwood bolts and logs 1,000 standard cords..	D	D	480.6	39 628
11331007	Hemlock pulpwood bolts and logs 1,000 standard cords..	D	D	D	D
11331009	Southern pine pulpwood bolts and logs 1,000 standard cords..	16 144.6	1 376 465	15 610.9	1 138 011
11331023	Other softwood pulpwood bolts and logs, including Douglas fir and Jack pine	D	D	769.4	100 871
32100009	Softwood pulpwood wood chips, slabs, cores, sawdust, bark, and other mill residues	P12 642.9	994 160	10 715.9	794 666
11331011	Southern mixed hardwood pulpwood bolts and logs 1,000 standard cords..	4 445.0	343 000	3 980.5	232 182
11331025	Other hardwood pulpwood bolts and logs 1,000 standard cords..	P1 455.7	97 329	1 214.1	84 241
32100011	Hardwood pulpwood wood chips, slabs, cores, sawdust, bark, and other mill residues	6 848.6	357 580	4 158.2	266 187
32518103	Chlorine (100 percent Cl basis)	118.0	25 512	172.8	20 904
32518107	Sodium hydroxide (caustic soda)(100 percent NaOH)	861.3	135 987	717.6	174 132
32518823	Sodium chlorate (100 percent NaClO3)	237.2	83 664	142.5	50 507
32510007	Other sodium compounds	X	39 502	X	52 836
32518813	Aluminum sulfate (17 percent Al2O3)	284.9	28 704	246.9	26 510
32599811	Rosin sizing mil lb (dry basis)..	P137.4	73 470	P142.7	51 373
32741003	Lime 1,000 s tons..	503.6	32 810	361.3	23 464
21232400	Kaolin and ball clay	526.7	69 527	405.8	56 346
31122113	Starch mil lb..	875.7	165 920	496.4	103 792
32521131	Synthetic resins mil lb..	298.0	145 941	214.9	90 341
32513103	Titanium dioxide, composite and pure (100 percent TiO2)	85.2	89 338	95.1	85 297
32518829	Calcium carbonate, precipitated (100 percent CaCO2)	Q201.7	27 572	92.7	9 783
32500009	All other chemicals, including organic	X	534 991	X	410 434
32210029	Woodpulp produced at affiliated or associated mills at other locations	156.9	72 515	D	D
32210031	Woodpulp purchased market wood pulp	234.8	107 292	86.0	37 179
00190006	Mixed wastepaper, except plant's own broke paper	P1 883.1	69 500	Q1 215.2	44 374
00190007	Mechanical news wastepaper, except plant's own broke paper	1 269.6	50 023	1 267.6	47 341
00190072	Other mechanical wastepaper, except plant's own broke paper	821.4	51 526	548.4	31 460
00190073	Corrugated wastepaper, including kraft, except plant's own broke paper	16 052.2	1 722 711	10 020.5	599 343
00190009	High grade pulp substitutes wastepaper, except plant's own broke paper	662.9	110 750	546.4	117 144
00190010	High grade deinking wastepaper, except plant's own broke paper	122.1	17 710	189.5	35 157
31122305	Cotton linters (net weight)	D	D	D	D

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1997 and 1992—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322130	PAPERBOARD MILLS—Con.				
32210033	Linter pulp 1,000 s tons..	D	D	N	N
00190015	Other fibrous materials, including rags, straw, and bagasse 1,000 s tons..	D	D	D	D
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	D	X	N
31323001	Nonwoven fabrics mil sq yd..	D	D	N	N
001900A2	Packaging paper and plastics film, coated, laminated, printed, etc.	X	42 286	X	N
32552003	Glues and adhesives mil lb..	S	1 102	N	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	91 918	X	57 546
00970099	All other materials and components, parts, containers, and supplies	X	1 204 053	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	357 545	X	99 131

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322130 PAPERBOARD MILLS

This U.S. industry comprises establishments primarily engaged in manufacturing paperboard from pulp. These establishments may manufacture or purchase pulp. In addition, the establishments may also convert the paperboard they make.

The data published with NAICS code 322130 include the following SIC industry:

2631 Paperboard mills

This definition comes from the 1997 NAICS Manual. However, for this industry, the 1997 Economic Census – Manufacturing did not fully implement the conversion to NAICS. Data for NAICS industry 322130 do not include

paperboard mills primarily engaged in converting paperboard into paperboard products. The NAICS definitions will be fully implemented with the 2002 Economic Census.

3221301 Paperboard Mills - Integrated Producer

Establishments primarily engaged in manufacturing paperboard from pulp in combination with pulp manufacture.

3221302 Paperboard Mills - Nonintegrated Producer

Establishments primarily engaged in manufacturing paperboard from pulp not in combination with pulp manufacture or paperboard converting.

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710	26710	3222241YVW	2674100	2674100	3222911	26762	26761
322221WYWW	2671000	2671000	322224311	2674211	2674211	3222911111	2676214	267614
322221WYVW	2671002	2671002	322224321	2674212	2674212	3222911121	2676251	2676151
3222221	26721	26721	3222243YVW	2674200	2674200	322291YVW	2676200	2676100
3222221111	2672113	2672113	3222244W	26740	26740	3222913	26765	26763
3222221121	2672153	2672153	3222244YVW	2674000	2674000	3222913111	38421	38421
3222221YVW	2672100	2672100	3222244YVW	2674002	2674002	3222913121	3842133	3842132
3222223	26722	26722	3222250	34970	34970	3222913131	3842135	3842132
3222223111	2672212	2672212	3222250	34972	34972	3222913YVW	2676500	2676300
3222223121	2672230	2672230	3222250	3497210	3497210	3222913YVW	3842100	3842100
3222223YVW	2672200	2672200	3222250206	3497222	3497222	3222915	26766	26764
3222225	26723	26723	3222250311	3497225	3497225	3222915111	2676611	2676411
3222225111	2672313	2672313	3222250316	3497228	3497228	3222915221	2676625	2676425
3222225221	2672343	2672343	3222250421	3497241	3497241	3222915225	2676627	2676427
3222225331	2672333	2672333	3222250YVW	3497000	3497000	3222915229	2676633	2676433
3222225341	2672345	2672345	3222250YVW	3497200	3497200	3222915231	2676635	2676435
3222225351	2672353	2672353	3222260	26750	26750	3222915311	2676637	2676437
3222225361	2672359	2672359	3222260100	2675300	2675300	3222915331	2676645	2676445
3222225371	2672361	2672361	3222260YVW	2675000	2675000	3222915433	2676647	2676447
3222225475	2672381	2672381	3222260YVW	2675002	2675002	3222915535	2676641	2676441
3222225581	2672385	2672385	3222260YVW	2675002	2675002	3222915541	2676643	2676443
3222225585	2672375	2672375	3222311	26751	26751	3222915551	2676655	2676455
3222225591	2672398	2672398	3222311111	2675110	2675110	3222915661	2676671	2676471
3222225YVW	2672300	2672300	3222311121	2675111	2675111	3222915771	2676676	2676476
3222226	26791	26791	3222311231	2675112	2675112	3222915773	2676677	2676477
3222226111	2679122	2679122	3222311391	2675191	2675120	3222915881	2676681	2676481
3222226121	2679125	2679126	3222311391	2675191	2675130	3222915891	2676699	2676499
3222226121	2679125	2679128	3222311YVW	2675100	2675100	3222915YVW	2676600	2676400
3222226131	2679134	2679134	3222313	26793	26793	322291W	26760	26760
3222226141	2679136	2679136	3222313111	2679311	2679311	322291W	38420	38420
3222226191	2679141	2679141	3222313191	2679331	2679331	322291WYVW	2676002	2676002
3222226YVW	2679100	2679100	3222313YVW	2679300	2679300	322291WYVW	3842002	3842002
3222227	26792	26792	322231W	26750	26750	3222991	26794	26794
3222227111	2679282	2679282	322231W	26790	26790	3222991100	2679400	2679400
3222227121	2679291	2679291	322231W	2679000	2679000	3222993	26752	26752
3222227191	2679296	2679296	322231WYVW	2679000	2679000	3222993	26795	26795
3222227YVW	2679200	2679200	322231WYVW	2679002	2679002	3222993	39999	39999
3222229	26724	26724	3222320	26770	26770	3222993111	2679521	2679521
3222229111	2672445	2672445	3222320111	2677010	2677010	3222993221	2679531	2679531
3222229121	2672453	2672453	3222320121	2677021	2677021	3222993231	2679541	2679541
3222229131	2672455	2672455	3222320131	2677022	2677022	3222993241	2679548	2679548
3222229141	2672456	2672456	3222320141	2677040	2677040	3222993351	2679550	2679551
3222229151	2672469	2672469	3222320YVW	2677000	2677000	3222993361	2679561	2679561
3222229YVW	2672400	2672400	3222320YVW	2677002	2677002	3222993471	2675200	2675200
322222W	26720	26720	3222331	26781	26781	3222993471	2675200	2675216
322222W	26790	26790	3222331111	2678111	2678111	3222993471	2675200	2675271
322222WYVW	2672000	2672000	3222331121	2678113	2678113	3222993591	2679598	2679598
322222WYVW	2679000	2679000	3222331131	2678121	2678121	3222993591	3999996	3999913
322222WYVW	2672002	2672002	3222331YVW	2678100	2678100	3222993591	3999996	3999999
322222WYVW	2679002	2679002	3222333	26782	26782	3222993YVW	2679500	2679500
3222231	26731	26731	3222333111	2678212	2678212	3222993YVW	3999900	3999900
3222231100	2673100	2673100	3222333221	2678225	2678213	322299W	26750	26750
3222233	26733	26733	3222333321	2678225	2678221	322299W	26790	26790
3222233111	2673306	2673311	3222333331	2678235	2678235	322299W	39990	39990
3222233121	2673312	2673312	3222333441	2678245	2678245	322299WYVW	2675000	2675000
3222233131	2673315	2673311	3222333551	2678251	2678251	322299WYVW	2679000	2679000
3222233131	2673315	2673314	3222333691	2678298	2678298	322299WYVW	3999000	3999000
3222233YVW	2673300	2673300	3222333YVW	2678200	2678200	322299WYVW	2675002	2675002
322223W	26730	26730	322233W	26780	26780	322299WYVW	2679002	2679002
322223WYVW	2673000	2673000	322233W	2678000	2678000	322299WYVW	2679002	2679002
322223WYVW	2673002	2673002	322233YVW	2678002	2678002	322299WYVW	3999002	3999002
3222241	26741	26741	3222341	26780	26780			
3222241111	2674111	2674111						
3222241221	2674112	2674112						
3222241231	2674113	2674113						
3222241341	2674115	2674115						

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special

census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the

manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322211	Corrugated & solid fiber box mfg	996	1 740	125 127	4 265 174	91 856	191 709	2 582 303	9 666 001	15 998 167	25 643 851	962 259
265300	Corrugated & solid fiber boxes	N	1 740	125 127	4 265 174	91 856	191 709	2 582 303	9 666 001	15 998 167	25 643 851	962 259

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)	
	E ¹	Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)					Wages (\$1,000)
322211, CORRUGATED & SOLID FIBER BOX MFG												
United States	-	1 740	1 326	125 127	4 265 174	91 856	191 709	2 582 303	9 666 001	15 998 167	25 643 851	962 259
Alabama	-	26	21	1 786	53 083	1 270	2 592	32 106	114 021	244 742	358 705	13 501
Arizona	-	13	10	880	30 047	653	1 439	17 997	70 406	118 845	187 856	6 208
Arkansas	-	33	22	2 417	71 389	1 872	3 840	46 584	204 339	287 139	489 827	9 272
California	1	168	124	13 222	509 448	9 757	20 956	320 245	1 070 328	2 131 534	3 206 029	102 240
Colorado	2	19	15	1 276	48 080	949	2 045	27 894	119 289	177 814	297 005	10 633
Connecticut	-	26	20	1 706	64 228	1 257	2 703	36 114	136 980	184 037	321 303	8 293
Florida	1	47	31	2 925	94 252	2 219	4 585	61 975	208 332	474 257	680 459	22 668
Georgia	-	71	55	4 807	162 645	3 468	7 508	101 633	407 785	703 948	1 109 103	29 671
Illinois	-	115	94	9 176	333 185	6 625	14 546	196 555	854 675	1 196 936	2 046 345	58 006
Indiana	-	67	52	4 571	145 956	3 402	6 582	90 035	331 056	560 393	890 872	28 549
Iowa	-	13	11	1 450	48 156	1 127	2 354	32 335	109 505	209 645	317 512	8 119
Kansas	-	8	7	1 378	46 421	960	2 171	28 586	67 574	138 725	205 765	12 437
Kentucky	-	34	25	2 230	69 601	1 664	3 354	43 723	168 281	269 685	436 496	14 363
Louisiana	1	12	10	1 197	39 671	924	2 082	26 090	84 421	160 656	244 229	5 915
Massachusetts	-	40	30	3 012	109 949	2 177	4 596	61 739	219 184	321 465	538 735	18 560
Michigan	1	73	62	5 264	177 690	3 816	7 776	104 246	393 846	550 755	944 683	44 570
Minnesota	-	37	29	3 229	104 399	2 380	4 650	64 908	261 645	408 799	669 349	23 915
Mississippi	1	24	20	2 186	64 593	1 775	3 652	45 436	143 521	247 801	388 150	15 998
Missouri	-	46	39	3 045	101 934	2 220	4 484	58 968	193 785	400 826	602 215	15 535
Nebraska	-	6	6	357	12 245	261	579	7 116	30 943	50 956	81 613	833
New Jersey	1	73	44	4 936	183 239	3 572	7 198	105 580	383 909	505 887	891 850	32 520
New York	2	83	57	4 837	163 055	3 425	6 948	91 210	341 057	526 928	871 321	30 327
North Carolina	-	71	59	5 124	167 129	3 759	7 913	97 375	407 417	609 301	1 014 635	43 991
Ohio	-	130	94	7 726	256 084	5 562	11 463	154 738	624 610	966 606	1 589 524	99 207
Oregon	-	9	7	904	35 116	664	1 326	22 085	84 772	131 367	215 614	3 624
Pennsylvania	-	91	68	6 428	223 223	4 688	9 720	132 601	531 298	798 284	1 330 501	52 982
Rhode Island	1	8	5	291	9 972	191	392	5 021	20 911	29 471	50 360	1 870
South Carolina	-	30	27	2 596	80 086	2 028	4 229	49 337	189 150	300 360	488 146	24 337
Tennessee	-	64	49	4 261	127 289	3 251	6 702	75 654	274 928	459 508	735 463	27 478
Texas	1	111	91	7 756	238 999	5 673	11 881	137 716	554 049	983 488	1 532 064	57 650
Virginia	-	33	27	2 716	92 799	1 966	4 224	57 755	218 289	332 436	550 761	20 163
Washington	-	27	22	2 043	79 886	1 513	3 079	52 611	170 188	364 755	532 852	28 967
Wisconsin	-	54	40	4 593	167 877	3 225	6 818	101 385	355 657	578 365	930 370	50 781

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322211, CORRUGATED & SOLID FIBER BOX MFG		322211, CORRUGATED & SOLID FIBER BOX MFG	
— Con.		— Con.	
Companies ¹	number.. 996	Value added	\$1,000.. 9 666 001
All establishments	number.. 1 740	Total inventories, beginning of year	\$1,000.. 2 179 415
Establishments with 1 to 19 employees	number.. 414	Finished goods inventories, beginning of year	\$1,000.. 581 621
Establishments with 20 to 99 employees	number.. 798	Work-in-process inventories, beginning of year	\$1,000.. 124 278
Establishments with 100 employees or more	number.. 528	Materials and supplies inventories, beginning of year	\$1,000.. 1 473 516
All employees	number.. 125 127	Total inventories, end of year	\$1,000.. 2 237 953
Total compensation ²	\$1,000.. 5 322 396	Finished goods inventories, end of year	\$1,000.. 603 572
Annual payroll	\$1,000.. 4 265 174	Work-in-process inventories, end of year	\$1,000.. 122 644
Total fringe benefits	\$1,000.. 1 057 222	Materials and supplies inventories, end of year	\$1,000.. 1 511 737
Production workers, average for year	number.. 91 856	Gross book value of total assets at beginning of year	\$1,000.. 10 421 257
Production workers on March 12	number.. 91 460	Total capital expenditures (new and used)	\$1,000.. 962 259
Production workers on May 12	number.. 91 723	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 123 811
Production workers on August 12	number.. 92 020	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 838 448
Production workers on November 12	number.. 92 221	Total retirements ²	\$1,000.. 242 364
Production-worker hours	1,000.. 191 709	Gross book value of total assets at end of year	\$1,000.. 11 141 152
Production-worker wages	\$1,000.. 2 582 303	Total depreciation during year ²	\$1,000.. 644 876
Total cost of materials	\$1,000.. 15 998 167	Total rental payments ²	\$1,000.. 293 084
Cost of materials, parts, containers, etc., consumed	\$1,000.. 14 836 038	Buildings and other structures rental payments ²	\$1,000.. 146 720
Cost of resales	\$1,000.. 656 868	Machinery and equipment rental payments ²	\$1,000.. 146 364
Cost of fuels	\$1,000.. 142 409	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 53 167
Cost of purchased electricity	\$1,000.. 216 515	Response coverage ratio ⁴	percent.. 85
Cost of contract work	\$1,000.. 146 337	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 276 339
Quantity of electricity purchased for heat and power	1,000 kWh.. 3 444 719	Response coverage ratio ⁴	percent.. 85
Quantity of electricity generated less sold for heat and power	1,000 kWh.. D	Cost of purchased communications services ³	\$1,000.. 51 387
Total value of shipments	\$1,000.. 25 643 851	Response coverage ratio ⁴	percent.. 85
Primary products value of shipments	\$1,000.. 24 009 129	Cost of purchased legal services ³	\$1,000.. 9 477
Secondary products value of shipments	\$1,000.. 564 252	Response coverage ratio ⁴	percent.. 85
Total miscellaneous receipts	\$1,000.. 1 070 470	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 7 137
Value of resales	\$1,000.. 798 888	Response coverage ratio ⁴	percent.. 85
Contract receipts	\$1,000.. 33 957	Cost of purchased advertising services ³	\$1,000.. 8 817
Other miscellaneous receipts	\$1,000.. 237 625	Response coverage ratio ⁴	percent.. 85
Primary products specialization ratio	percent.. 97	Cost of purchased software and other data processing services ³	\$1,000.. 14 112
Value of primary products shipments made in all industries	\$1,000.. 24 144 852	Response coverage ratio ⁴	percent.. 85
Value of primary products shipments made in this industry	\$1,000.. 24 009 129	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 15 591
Value of primary products shipments made in other industries	\$1,000.. 135 723	Response coverage ratio ⁴	percent.. 85
Coverage ratio	percent.. 99		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322211, CORRUGATED & SOLID FIBER BOX MFG												
All establishments	-	1 740	1 326	125 127	4 265 174	91 856	191 709	2 582 303	9 666 001	15 998 167	25 643 851	962 259
Establishments with 1 to 4 employees	8	110	-	241	6 944	191	322	4 318	18 314	36 461	54 725	2 304
Establishments with 5 to 9 employees	7	94	-	665	17 199	492	763	10 878	48 177	89 765	138 304	4 567
Establishments with 10 to 19 employees	6	211	1	3 049	83 238	2 251	3 688	47 848	187 456	318 441	508 095	15 779
Establishments with 20 to 49 employees	1	444	444	15 021	452 924	10 705	20 509	239 968	1 051 032	1 460 850	2 513 282	97 100
Establishments with 50 to 99 employees	-	353	353	25 337	832 216	18 182	38 160	475 976	1 954 796	3 082 302	5 044 238	203 426
Establishments with 100 to 249 employees	-	503	503	72 450	2 581 936	54 012	115 892	1 622 126	5 707 647	10 008 269	15 688 999	576 103
Establishments with 250 to 499 employees	1	23	23	D	D	D	D	D	D	D	D	D
Establishments with 500 to 999 employees	-	1	1	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	-	1	1	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	9	294	-	3 191	68 143	2 364	3 145	43 956	167 779	362 535	532 355	16 078

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322211	Corrugated & solid fiber box mfg	1 740	125 127	4 265 174	91 856	191 709	2 582 303	9 666 001	15 998 167	25 643 851	962 259

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322211	Corrugated and solid fiber boxes	N	X	X	24 144 852	N	X	X	19 138 492
3222110	Corrugated and solid fiber boxes, including pallets	N	X	X	24 144 852	N	X	X	19 138 492
32221101	Corrugated shipping containers for food and beverages and carryout boxes for retail food	N	X	X	5 464 619	N	X	X	N
3222110111	Corrugated shipping containers for food and beverages .mil sq ft.	208	X	P119 009.0	5 064 994	185	X	97 519.4	4 219 681
3222110114	Corrugated carryout boxes for retail food .mil sq ft.	62	X	98 683.7	399 625	51	X	P4 114.5	172 467
32221102	Corrugated shipping containers for paper and allied products	N	X	X	2 295 442	N	X	X	N
3222110221	Corrugated shipping containers for paper and allied products .mil sq ft.	209	X	P51 073.7	2 295 442	214	X	P42 612.9	1 747 821
32221103	Corrugated shipping containers for metal and electrical machinery, equipment, supplies, products, and appliances	N	X	X	2 272 238	N	X	X	N
3222110341	Corrugated shipping containers for metal products, machinery, equipment, and supplies, except electrical .mil sq ft.	240	X	919 360.1	1 310 762	234	X	914 734.1	834 085
3222110345	Corrugated shipping containers for electrical machinery, equipment, supplies, and appliances .mil sq ft.	192	X	914 160.7	961 476	197	X	P12 494.3	680 555
32221104	Corrugated shipping containers for all other end uses nec	N	X	X	6 656 806	N	X	X	N
3222110431	Corrugated shipping containers for glass, clay, and stone products .mil sq ft.	114	X	12 188.3	565 650	124	X	P14 213.2	586 841
3222110433	Corrugated shipping containers for chemicals and drugs, including paints, varnishes, cosmetics, and soaps .mil sq ft.	168	X	917 821.5	930 723	169	X	P16 219.4	775 624
3222110435	Corrugated shipping containers for lumber and wood products, including furniture .mil sq ft.	164	X	911 915.5	679 983	154	X	P9 876.3	522 166
3222110437	Corrugated shipping containers for all other end uses not specified (leather, rubber, plastics, petroleum, etc.) #	259	X	X	4 480 450	337	X	X	4 036 372
32221105	Corrugated paperboard in sheets and rolls, lined and unlined	N	X	X	2 280 454	N	X	X	N
3222110551	Corrugated paperboard in sheets and rolls, lined and unlined	96	X	X	2 280 454	113	X	X	1 482 108
32221106	Other corrugated and solid fiber products, including containers, pallets, pads, partitions, point-of-purchase displays, etc.	N	X	X	2 400 814	N	X	X	N
3222110661	Corrugated solid fiber containers	51	X	X	453 248	41	X	X	435 652
3222110665	Corrugated and solid fiber pallets, pads, and partitions	134	X	X	595 178	121	X	X	488 405
3222110691	Other corrugated and solid fiber products, including point-of-purchase displays, etc.	185	X	X	1 352 388	163	X	X	1 370 009
3222110Y	Corrugated and solid fiber boxes, nsk, total	N	X	X	2 774 479	N	X	X	N
3222110YWW	Corrugated and solid fiber boxes, nsk, for nonadministrative-record establishments	N	X	X	2 251 366	N	X	X	1 702 476
3222110YWY	Corrugated and solid fiber boxes, nsk, for administrative-record establishments	N	X	X	523 113	N	X	X	84 230

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; 9 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Not applicable for this report]

10 NAICS 322211

MANUFACTURING—INDUSTRY SERIES

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322211	CORRUGATED & SOLID FIBER BOX MFG				
32210005	Paper and paperboard, except boxes and containers .....1,000 s tons..	^P 32 412.1	11 392 764	^P 27 070.2	10 014 502
32610021	Fabricated plastics products, including closures, ends, film, and strapping, etc.	X	126 356	X	47 450
33120017	Steel sheet and strip, including tin plate	X	D	X	N
33131503	Aluminum sheet, plate, and foil	X	D	X	N
33211500	Metal closures and crowns for containers	X	2 644	X	N
32410009	Petroleum wax .....mil lb..	^Q 346.2	120 360	^Q 286.4	95 045
32552003	Glues and adhesives	X	203 210	X	214 446
32591003	Printing ink .....mil lb..	S	153 843	S	132 162
00970099	All other materials and components, parts, containers, and supplies	X	865 277	X	599 358
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	1 962 179	X	1 119 189

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: ^P 10 to 19 percent estimated; ^Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322211 CORRUGATED AND SOLID FIBER BOX MANUFACTURING

This U.S. industry comprises establishments primarily engaged in laminating purchased paper or paperboard into corrugated or solid fiber boxes and related products, such as pads, partitions, pallets, and corrugated paper without manufacturing paperboard. These boxes are generally used for shipping.

The data published with NAICS code 322211 include the following SIC industry:

2653 Corrugated and solid fiber boxes

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Part 1. Products Statistics (Tables 6a and 6b)

NAICS product code	Footnote
# 3222110437	For 1992, data for product code 3222110437 includes total shipments of corrugated shipping containers for those establishments unable to provide an end use breakout.

Part 2. Materials Consumed by Kind (Table 7)

Not applicable.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710	26710	3222241YVW	2674100	2674100	3222911	26762	26761
322221WYWW	2671000	2671000	3222243	26742	26742	3222911111	2676214	267614
322221WYVY	2671002	2671002	322224321	2674211	2674211	3222911121	2676251	2676151
3222221	26721	26721	322224322	2674212	2674212	3222911YVW	2676200	2676100
3222221111	2672113	2672113	3222243YVW	2674200	2674200	3222913	26765	26763
3222221121	2672153	2672153	3222244W	26740	26740	3222913 pt.	26765	26763
3222221YVW	2672100	2672100	3222244YVW	2674000	2674000	3222913111	38421	38421
3222223	26722	26722	3222244YVWY	2674002	2674002	3222913121	3842133	3842132
3222223111	2672212	2672212	3222250 pt.	34970	34970	3222913131	3842135	3842132
3222223121	2672230	2672230	3222250 pt.	34970	34970	3222913YVW	2676500	2676300
3222223YVW	2672200	2672200	3222250 pt.	34972	34972	3222913YVW pt.	3842100	3842100
3222225	26723	26723	3222250101	3497210	3497210	3222915	26766	26764
3222225111	2672313	2672313	3222250206	3497222	3497222	3222915111	2676611	2676411
3222225221	2672343	2672343	3222250311	3497225	3497225	3222915221	2676625	2676425
3222225331	2672333	2672333	3222250416	3497228	3497228	3222915223	2676627	2676427
3222225341	2672345	2672345	3222250421	3497241	3497241	3222915225	2676633	2676433
3222225351	2672353	2672353	3222250YVW pt.	3497000	3497000	3222915227	2676635	2676435
3222225361	2672359	2672359	3222250YVW pt.	3497200	3497200	3222915229	2676637	2676437
3222225371	2672361	2672361	3222250YVY	3497002	3497002	3222915331	2676645	2676445
3222225475	2672381	2672381	3222260 pt.	26750	26750	3222915433	2676647	2676447
3222225581	2672385	2672385	3222260100	26753	26753	3222915535	2676641	2676441
3222225585	2672375	2672375	3222260YVW	2675000	2675000	3222915541	2676643	2676443
3222225591	2672398	2672398	3222260YVY	2675002	2675002	3222915551	2676655	2676455
3222225YVW	2672300	2672300	3222311	26751	26751	3222915661	2676671	2676471
3222226	26791	26791	3222311111	2675110	2675110	3222915771	2676676	2676476
3222226111	2679122	2679122	3222311121	2675111	2675111	3222915773	2676677	2676477
3222226121	2679125	2679125	3222311123	2675112	2675112	3222915881	2676681	2676481
3222226121 pt.	2679128	2679128	3222311391	2675191	2675120	3222915891	2676699	2676499
3222226131	2679134	2679134	3222311391 pt.	2675191	2675130	3222915YVW	2676600	2676400
3222226141	2679136	2679136	3222311YVW	2675100	2675100	322291W	26760	26760
3222226191	2679141	2679141	3222321	26793	26793	322291W pt.	26760	26760
3222226YVW	2679100	2679100	3222321311	2679311	2679311	322291WYVW	38420	38420
3222227	26792	26792	32223213111	2679311	2679311	322291WYVW pt.	2676000	2676000
3222227111	2679282	2679282	32223213191	2679331	2679331	322291WYVY	2676002	2676002
3222227121	2679291	2679291	3222321YVW	2679300	2679300	322291WYVY pt.	3842002	3842002
3222227191	2679296	2679296	322231W	26750	26750	3222991	26794	26794
3222227YVW	2679200	2679200	322231W pt.	26750	26750	3222991100	2679400	2679400
3222229	26724	26724	322231W pt.	26790	26790	3222993	26752	26752
3222229111	2672445	2672445	322231WYVW	2675000	2675000	3222993 pt.	26795	26795
3222229121	2672453	2672453	322231WYVW pt.	2679000	2679000	3222993 pt.	39999	39999
3222229131	2672455	2672455	322231WYVY	2675002	2675002	3222993111	2679521	2679521
3222229141	2672456	2672456	322231WYVY pt.	2679002	2679002	3222993221	2679531	2679531
3222229151	2672469	2672469	3222320	26770	26770	3222993231	2679541	2679541
3222229YVW	2672400	2672400	3222320111	2677010	2677010	3222993241	2679548	2679548
322222W	26720	26720	3222320121	2677021	2677021	3222993351	2679551	2679551
322222W pt.	26790	26790	3222320131	2677022	2677022	3222993361	2679551	2679551
322222WYVW	2672000	2672000	3222320141	2677040	2677040	3222993371	2679561	2679561
322222WYVW pt.	2679000	2679000	3222320YVW	2677000	2677000	3222993471	2675200	2675200
322222WYVY	2672002	2672002	3222320YVY	2677002	2677002	3222993471 pt.	2675200	2675200
322222WYVY pt.	2679002	2679002	3222331	26781	26781	3222993471 pt.	2675200	2675200
3222231	26731	26731	3222331111	2678111	2678111	3222993471 pt.	2675200	2675200
3222231100	2673100	2673100	32223311121	2678113	2678113	3222993471 pt.	2675200	2675200
3222233	26733	26733	3222331121	2678121	2678121	3222993591	2679598	2679598
3222233111	2673306	2673311	3222331131	2678121	2678121	3222993591 pt.	3999996	3999913
3222233121	2673312	2673312	3222333	26782	26782	3222993591 pt.	3999996	3999999
3222233131	2673315	2673311	322233311	2678212	2678212	3222993YVW	2679500	2679500
3222233131 pt.	2673315	2673314	3222333221	2678225	2678213	3222993YVW pt.	3999900	3999900
3222233YVW	2673300	2673300	3222333221 pt.	2678225	2678221	322299W	26750	26750
322223W	26730	26730	3222333331	2678235	2678235	322299W pt.	26790	26790
322223WYVW	2673000	2673000	3222333441	2678245	2678245	322299W pt.	39990	39990
322223WYVY	2673002	2673002	3222333551	2678251	2678251	322299WYVW	2675000	2675000
3222241	26741	26741	3222333691	2678298	2678298	322299WYVW pt.	2679000	2679000
3222241111	2674111	2674111	3222333YVW	2678200	2678200	322299WYVY	3999000	3999000
3222241221	2674112	2674112	322233W	26780	26780	322299WYVY pt.	2675002	2675002
3222241231	2674113	2674113	322233WYVW	2678000	2678000	322299WYVY pt.	2679002	2679002
3222241341	2674115	2674115	322233WYVY	2678002	2678002	322299WYVY pt.	3999002	3999002

Folding Paperboard Box Manufacturing

1997

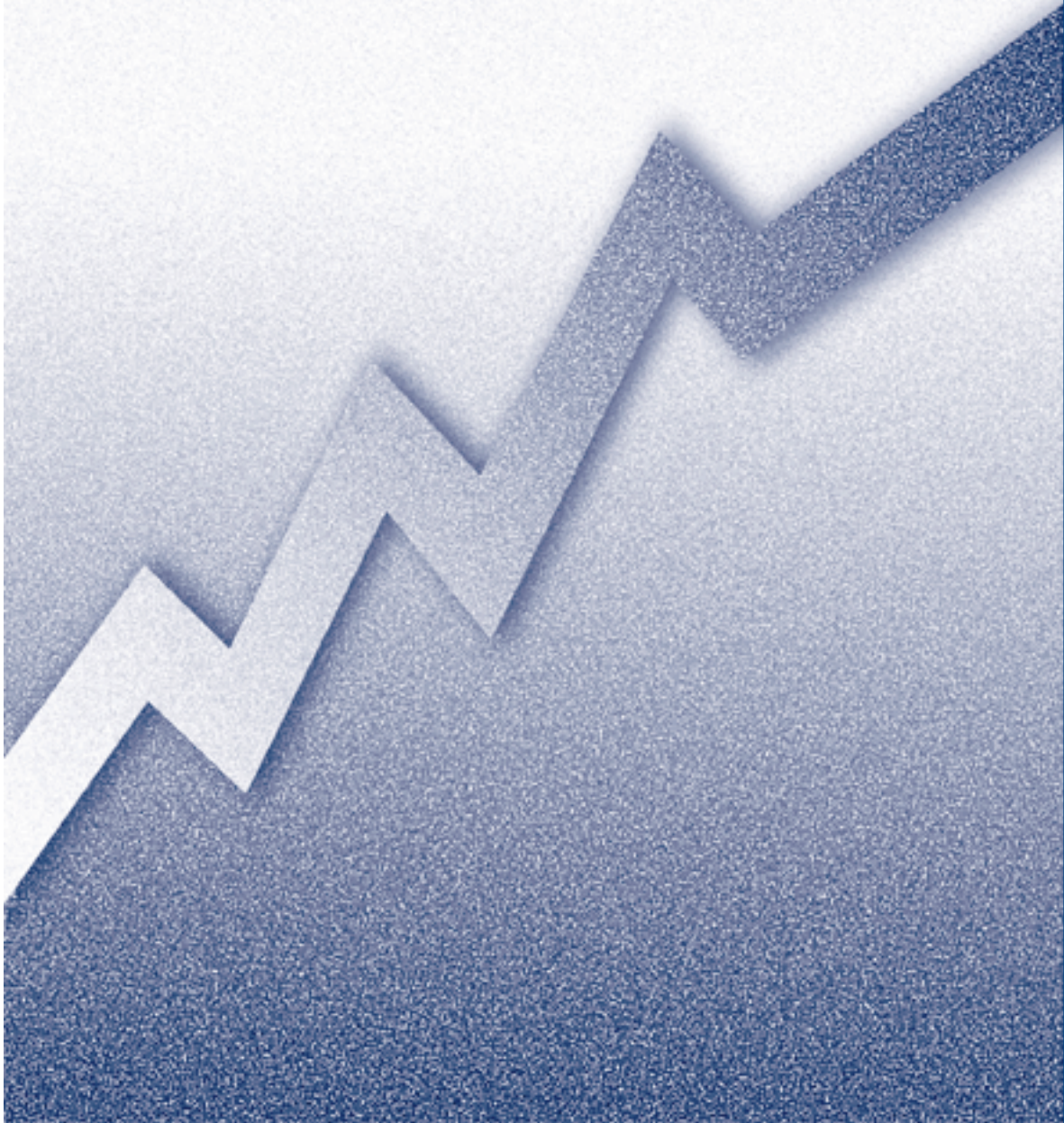
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1997 Economic Census

Manufacturing

Industry Series



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Industry Series



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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special

census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the

manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Compan-ies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322212 265700	Folding paperboard box mfg ... Folding paperboard boxes.....	430 N	575 575	50 197 50 197	1 754 783 1 754 783	39 974 39 974	87 558 87 558	1 208 097 1 208 097	4 111 449 4 111 449	4 823 111 4 823 111	8 942 208 8 942 208	419 061 419 061

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322212, FOLDING PAPERBOARD BOX MFG												
United States	-	575	433	50 197	1 754 783	39 974	87 558	1 208 097	4 111 449	4 823 111	8 942 208	419 061
Alabama	-	7	7	726	18 847	636	1 461	14 506	48 688	62 022	111 603	1 505
Arkansas	-	8	6	737	22 717	641	1 434	18 011	58 496	66 312	123 053	8 993
California	-	54	38	3 855	148 325	3 018	6 610	96 668	331 467	333 427	664 346	18 364
Colorado	-	7	6	542	20 321	410	877	12 103	50 667	86 483	136 394	2 694
Connecticut	1	14	11	762	26 546	591	1 079	18 189	50 328	44 771	97 088	2 930
Florida	-	12	9	711	22 298	569	1 017	12 834	54 238	48 238	102 176	6 855
Georgia	-	18	15	2 257	68 688	1 771	4 099	47 719	194 386	287 405	473 822	10 134
Illinois	-	51	38	4 836	194 180	3 854	8 719	135 433	445 623	494 798	948 500	21 062
Indiana	1	18	15	2 219	84 132	1 589	3 599	52 416	178 117	191 967	368 988	14 179
Kentucky	1	6	5	589	17 785	485	1 014	13 180	51 110	69 565	121 576	1 648
Massachusetts	-	21	15	1 675	58 332	1 324	2 843	38 738	133 577	123 707	255 717	14 241
Michigan	1	16	12	973	36 195	780	1 945	25 948	87 458	117 158	207 053	7 594
Minnesota	-	15	12	1 210	46 202	931	1 914	30 903	101 058	118 731	220 850	11 205
Missouri	-	15	9	1 353	51 473	1 086	2 490	37 481	111 522	149 038	263 937	16 988
Nebraska	2	5	4	543	20 416	431	848	13 243	37 011	48 693	84 079	3 088
New Jersey	1	26	18	2 305	79 287	1 800	3 879	51 965	182 628	129 283	314 218	11 721
New York	1	41	30	3 217	112 364	2 571	5 453	70 685	244 682	220 262	464 004	21 568
North Carolina	-	28	24	3 199	108 255	2 557	5 619	73 379	288 962	312 593	596 521	41 481
Ohio	1	44	33	3 605	118 254	2 916	6 418	83 269	281 198	342 368	627 974	40 080
Pennsylvania	2	42	27	2 484	81 321	2 008	4 406	57 909	201 493	236 373	436 053	30 629
Rhode Island	2	7	6	538	19 533	412	870	13 564	38 774	28 379	66 340	2 114
Texas	1	21	14	1 315	38 187	1 052	2 346	26 806	92 254	104 654	198 395	7 555
Utah	-	6	4	505	15 805	395	698	10 207	27 180	40 759	67 998	4 982
Virginia	1	12	10	2 036	77 832	1 595	3 546	53 287	177 555	247 905	424 615	23 610
Washington	-	7	7	540	18 589	395	841	12 593	38 153	50 553	88 897	3 691
Wisconsin	-	13	11	1 454	49 802	1 181	2 586	37 020	134 866	153 061	288 247	12 831

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322212, FOLDING PAPERBOARD BOX MFG		322212, FOLDING PAPERBOARD BOX MFG—Con.	
Companies ¹	number.. 430	Value added	\$1,000.. 4 111 449
All establishments	number.. 575	Total inventories, beginning of year	\$1,000.. 1 143 713
Establishments with 1 to 19 employees	number.. 142	Finished goods inventories, beginning of year	\$1,000.. 596 004
Establishments with 20 to 99 employees	number.. 239	Work-in-process inventories, beginning of year	\$1,000.. 180 554
Establishments with 100 employees or more	number.. 194	Materials and supplies inventories, beginning of year	\$1,000.. 367 155
All employees	number.. 50 197	Total inventories, end of year	\$1,000.. 1 130 780
Total compensation ²	\$1,000.. 2 238 368	Finished goods inventories, end of year	\$1,000.. 591 762
Annual payroll	\$1,000.. 1 754 783	Work-in-process inventories, end of year	\$1,000.. 177 148
Total fringe benefits	\$1,000.. 483 585	Materials and supplies inventories, end of year	\$1,000.. 361 870
Production workers, average for year	number.. 39 974	Gross book value of total assets at beginning of year	\$1,000.. 3 770 122
Production workers on March 15	number.. 40 183	Total capital expenditures (new and used)	\$1,000.. 419 061
Production workers on May 15	number.. 40 143	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 54 252
Production workers on August 15	number.. 39 772	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 364 809
Production workers on November 15	number.. 39 798	Total retirements ²	\$1,000.. 99 186
Production-worker hours	1,000.. 87 558	Gross book value of total assets at end of year	\$1,000.. 4 089 997
Production-worker wages	\$1,000.. 1 208 097	Total depreciation during year ²	\$1,000.. 284 156
Total cost of materials	\$1,000.. 4 823 111	Total rental payments ²	\$1,000.. 101 257
Cost of materials, parts, containers, etc., consumed	\$1,000.. 4 403 921	Buildings and other structures rental payments ²	\$1,000.. 47 857
Cost of resales	\$1,000.. 182 622	Machinery and equipment rental payments ²	\$1,000.. 53 400
Cost of fuels	\$1,000.. 23 807	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 29 345
Cost of purchased electricity	\$1,000.. 86 315	Response coverage ratio ⁴	percent.. 85
Cost of contract work	\$1,000.. 126 446	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 80 419
Quantity of electricity purchased for heat and power	1,000 kWh.. 1 368 582	Response coverage ratio ⁴	percent.. 85
Quantity of electricity generated less sold for heat and power	1,000 kWh.. -	Cost of purchased communications services ³	\$1,000.. 14 077
Total value of shipments	\$1,000.. 8 942 208	Response coverage ratio ⁴	percent.. 85
Primary products value of shipments	\$1,000.. 8 270 587	Cost of purchased legal services ³	\$1,000.. 6 691
Secondary products value of shipments	\$1,000.. 336 857	Response coverage ratio ⁴	percent.. 85
Total miscellaneous receipts	\$1,000.. 334 764	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 3 814
Value of resales	\$1,000.. 230 097	Response coverage ratio ⁴	percent.. 85
Contract receipts	\$1,000.. 46 156	Cost of purchased advertising services ³	\$1,000.. 3 390
Other miscellaneous receipts	\$1,000.. 58 511	Response coverage ratio ⁴	percent.. 85
Primary products specialization ratio	percent.. 96	Cost of purchased software and other data processing services ³	\$1,000.. 6 683
Value of primary products shipments made in all industries	\$1,000.. 8 605 565	Response coverage ratio ⁴	percent.. 85
Value of primary products shipments made in this industry	\$1,000.. 8 270 587	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 10 339
Value of primary products shipments made in other industries	\$1,000.. 334 978	Response coverage ratio ⁴	percent.. 85
Coverage ratio	percent.. 96		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322212, FOLDING PAPERBOARD BOX MFG												
All establishments	-	575	433	50 197	1 754 783	39 974	87 558	1 208 097	4 111 449	4 823 111	8 942 208	419 061
Establishments with 1 to 4 employees	9	52	-	117	3 504	99	178	2 584	7 664	9 714	17 450	787
Establishments with 5 to 9 employees	9	35	-	245	7 284	197	360	5 273	14 626	20 786	36 020	1 556
Establishments with 10 to 19 employees	6	55	-	804	24 927	644	1 212	16 590	51 718	65 128	117 960	7 123
Establishments with 20 to 49 employees	2	116	116	3 713	111 029	2 828	5 805	73 519	270 200	279 105	551 240	31 449
Establishments with 50 to 99 employees	1	123	123	8 832	296 666	6 845	14 301	191 393	675 085	684 574	1 363 442	61 102
Establishments with 100 to 249 employees	-	164	164	25 451	888 393	20 606	46 099	621 258	2 147 049	2 539 853	4 686 806	234 170
Establishments with 250 to 499 employees	-	26	26	8 227	316 296	6 431	14 106	217 240	708 314	844 389	1 564 927	63 192
Establishments with 500 to 999 employees	-	4	4	2 808	106 684	2 324	5 497	80 240	236 793	379 562	604 363	19 682
Establishments with 1,000 to 2,499 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	9	122	-	1 116	28 503	894	1 505	21 066	63 451	80 188	143 953	6 490

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322212	Folding paperboard box mfg	575	50 197	1 754 783	39 974	87 558	1 208 097	4 111 449	4 823 111	8 942 208	419 061

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322212	Folding paperboard boxes	N	X	X	8 605 565	N	X	X	7 731 347
3222120	Folding paperboard boxes, packaging, and packaging components	N	X	X	8 605 565	N	X	X	7 731 347
32221201	Folding paperboard boxes for dry food and produce, including pet and animal food	N	X	X	909 446	N	X	X	N
3222120111	Folding paperboard boxes for dry food and produce, including pet and animal food .....1,000 s tons..	74	X	¶25.0	909 446	68	X	¶612.3	815 630
32221202	Folding paperboard boxes for bottled and canned beverages, including carriers for alcoholic and nonalcoholic beverages	N	X	X	901 301	N	X	X	N
3222120221	Folding paperboard boxes for bottled and canned beverages, including carriers for alcoholic and nonalcoholic beverages .....1,000 s tons..	37	X	¶778.8	901 301	33	X	595.2	789 294
32221203	Folding paperboard boxes for cosmetics and medicinal products	N	X	X	743 016	N	X	X	N
3222120331	Folding paperboard boxes for cosmetics	72	X	X	289 755	N	X	X	N
3222120335	Folding paperboard boxes for medicinal products	84	X	X	453 261	N	X	X	N
32221204	Folding paperboard boxes for paper goods or products, including book mailers	N	X	X	376 327	N	X	X	N
3222120441	Folding paperboard boxes for paper goods or products, including book mailers .....1,000 s tons..	85	X	¶241.6	376 327	103	X	¶356.5	488 009
32221205	Folding paperboard boxes for fresh bakery products, butter, and ice cream and food pails	N	X	X	523 471	N	X	X	N
3222120551	Folding paperboard boxes for fresh bakery products .....1,000 s tons..	56	X	S	255 252	56	X	S	205 679
3222120555	Folding paperboard boxes for butter and ice cream and food pails .....1,000 s tons..	38	X	¶165.4	268 219	39	X	¶159.6	298 998
32221206	Folding paperboard boxes, packaging components, for all other end uses	N	X	X	4 160 963	N	X	X	N
3222120661	Folding paperboard boxes for biscuits and crackers .....1,000 s tons..	39	X	¶186.7	231 411	42	X	¶140.1	172 139
3222120663	Folding paperboard boxes for candy	72	X	X	226 138	74	X	X	204 303
3222120665	Folding paperboard boxes for processed meats, margarine, lard, and shortening .....1,000 s tons..	30	X	¶85.0	147 022	40	X	S	130 378
3222120667	Folding paperboard boxes for frozen foods .....1,000 s tons..	54	X	¶333.6	436 104	52	X	¶224.8	388 409
3222120671	Folding paperboard carryout boxes and trays for retail food .....1,000 s tons..	39	X	¶279.4	433 669	39	X	¶280.9	355 394
3222120673	Folding paperboard boxes for sporting goods, toys, and photographic equipment .....1,000 s tons..	58	X	S	167 522	N	X	N	N
3222120675	Folding paperboard boxes for soaps and detergents .....1,000 s tons..	41	X	¶229.3	314 729	41	X	¶228.5	338 810
3222120677	Folding paperboard boxes for tobacco .....1,000 s tons..	18	X	196.3	365 543	28	X	S	365 556
3222120681	Folding paperboard boxes for hardware and household supplies	115	X	X	519 095	116	X	X	426 306
3222120683	Paperboard backs for blister and skin packaging	38	X	X	178 422	37	X	X	76 991
3222120691	Folding paperboard boxes, packaging, and packaging components for all other end uses, n.e.c.	186	X	X	1 141 308	N	X	X	N
3222120Y	Folding paperboard boxes, nsk, total	N	X	X	991 041	N	X	X	N
3222120YVWV	Folding paperboard boxes, nsk, for nonadministrative-record establishments	N	X	X	849 077	N	X	X	798 507
3222120YWVY	Folding paperboard boxes, nsk, for administrative-record establishments	N	X	X	141 964	N	X	X	30 688

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; ¶ 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Not applicable for this report]

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322212	FOLDING PAPERBOARD BOX MFG				
32210005	Paper and paperboard, except boxes and containers .....1,000 s tons...	^Q 4 971.1	3 082 623	^Q 4 718.2	2 947 345
32610021	Fabricated plastics products, including closures, ends, film, and strapping, etc.	X	50 808	X	29 969
33120017	Steel sheet and strip, including tin plate	X	D	X	N
33131503	Aluminum sheet, plate, and foil	X	20 229	X	N
33211500	Metal closures and crowns for containers	X	D	X	N
32410009	Petroleum wax .....mil lb...	12.3	6 440	S	5 667
32552003	Glues and adhesives	X	37 857	X	29 704
32591003	Printing ink .....mil lb...	^P 67.1	210 375	^Q 85.2	219 414
00970099	All other materials and components, parts, containers, and supplies	X	493 518	X	432 368
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	496 536	X	355 813

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: ^P 10 to 19 percent estimated; ^Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322212 FOLDING PAPERBOARD BOX MANUFACTURING

This U.S. industry comprises establishments primarily engaged in converting paperboard (except corrugated) into folding paperboard boxes without manufacturing paper and paperboard.

The data published with NAICS code 322212 include the following SIC industry:

2657 Folding paperboard boxes

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710	26710	3222241YVW	2674100	2674100	3222911	26762	26761
322221WYWW	2671000	2671000	322224311	2674211	2674211	3222911111	2676214	2676114
322221WYVW	2671002	2671002	322224321	2674212	2674212	3222911121	2676251	2676151
3222221	26721	26721	3222243YVW	2674200	2674200	3222911YVW	2676200	2676100
3222221111	2672113	2672113	322224W	26740	26740	3222913 pt.	26765	26763
3222221121	2672153	2672153	322224WYVW	2674000	2674000	3222913111	38421	38421
3222221YVW	2672100	2672100	322224WYVW	2674002	2674002	3222913121	3842133	3842132
3222223	26722	26722	322224WYVW	2674002	2674002	3222913131	3842135	3842132
3222223111	2672212	2672212	3222250 pt.	34970	34970	3222913YVW pt.	2676500	2676300
3222223121	2672230	2672230	3222250YVW	3497002	3497002	3222913YVW pt.	3842100	3842100
3222223YVW	2672200	2672200	3222250 pt.	34972	34972	3222915	26766	26764
3222225	26723	26723	3222250101	3497210	3497210	3222915111	2676611	2676411
3222225111	2672313	2672313	3222250206	3497222	3497222	3222915221	2676625	2676425
3222225221	2672343	2672343	3222250311	3497225	3497225	3222915223	2676627	2676427
3222225331	2672333	2672333	3222250416	3497228	3497228	3222915225	2676633	2676433
3222225341	2672345	2672345	3222250421	3497241	3497241	3222915227	2676635	2676435
3222225351	2672353	2672353	3222250YVW pt.	3497000	3497000	3222915229	2676637	2676437
3222225361	2672359	2672359	3222250YVW pt.	3497200	3497200	3222915331	2676645	2676445
3222225371	2672361	2672361	3222250YVW	3497002	3497002	3222915433	2676647	2676447
3222225475	2672381	2672381	3222260 pt.	26750	26750	3222915535	2676641	2676441
3222225581	2672385	2672385	3222260100	2675300	2675300	3222915541	2676643	2676443
3222225585	2672375	2672375	3222260YVW	2675000	2675000	3222915551	2676655	2676455
3222225591	2672398	2672398	3222260YVW	2675002	2675002	3222915661	2676671	2676471
3222225YVW	2672300	2672300	3222260YVW	2675002	2675002	3222915771	2676676	2676476
3222226	26791	26791	3222311	26751	26751	3222915773	2676677	2676477
3222226111	2679122	2679122	3222311111	2675110	2675110	3222915881	2676681	2676481
3222226121 pt.	2679125	2679126	3222311121	2675111	2675111	3222915891	2676699	2676499
3222226121 pt.	2679125	2679128	32223111231	2675112	2675112	3222915YVW	2676600	2676400
3222226131	2679134	2679134	3222311391 pt.	2675191	2675120	322291W pt.	26760	26760
3222226141	2679136	2679136	3222311391 pt.	2675191	2675130	322291W pt.	38420	38420
3222226191	2679141	2679141	3222311YVW	2675100	2675100	322291WYVW pt.	2676000	2676000
3222226YVW	2679100	2679100	3222313	26793	26793	322291WYVW pt.	3842000	3842000
3222227	26792	26792	3222313111	2679311	2679311	322291WYVW pt.	2676002	2676002
3222227111	2679282	2679282	3222313191	2679331	2679331	322291WYVW pt.	3842002	3842002
3222227121	2679291	2679291	3222313YVW	2679300	2679300	3222991	26794	26794
3222227191	2679296	2679296	322231W pt.	26750	26750	3222991100	2679400	2679400
3222227YVW	2679200	2679200	322231W pt.	26790	26790	3222993 pt.	26752	26752
3222229	26724	26724	322231W pt.	2679000	2679000	3222993 pt.	26795	26795
3222229111	2672445	2672445	322231WYVW pt.	2675000	2675000	3222993 pt.	39999	39999
3222229121	2672453	2672453	322231WYVW pt.	2679002	2679002	3222993111	2679521	2679521
3222229131	2672455	2672455	322231WYVW pt.	2675002	2675002	3222993221	2679531	2679531
3222229141	2672456	2672456	322231WYVW pt.	2679002	2679002	3222993231	2679541	2679541
3222229151	2672469	2672469	3222320	26770	26770	3222993241	2679548	2679548
3222229YVW	2672400	2672400	322232011	2677010	2677010	3222993351 pt.	2679550	2679551
322222W pt.	26720	26720	3222320121	2677021	2677021	3222993351 pt.	2679550	2679555
322222W pt.	26790	26790	3222320131	2677022	2677022	3222993361	2679561	2679561
322222WYVW pt.	2672000	2672000	3222320141	2677040	2677040	3222993471 pt.	2675200	2675200
322222WYVW pt.	2679000	2679000	3222320YVW	2677000	2677000	3222993471 pt.	2675200	2675200
322222WYVW pt.	2672002	2672002	3222320YVW	2677002	2677002	3222993471 pt.	2675200	2675211
322222WYVW pt.	2679002	2679002	3222331	26781	26781	3222993471 pt.	2675200	2675217
3222231	26731	26731	3222331111	2678111	2678111	3222993471 pt.	2675200	2675297
3222231100	2673100	2673100	3222331121	2678113	2678113	3222993591 pt.	2679598	2679598
3222233	26733	26733	3222331131	2678121	2678121	3222993591 pt.	3999996	3999913
3222233111	2673306	2673311	3222333	26782	26782	3222993591 pt.	3999996	3999999
3222233121	2673312	2673312	322233311	2678212	2678212	3222993YVW pt.	2679500	2679500
3222233131 pt.	2673315	2673311	3222333221 pt.	2678225	2678213	322299W pt.	26750	26750
3222233131 pt.	2673315	2673314	3222333221 pt.	2678225	2678221	322299W pt.	26790	26790
3222233YVW	2673300	2673300	3222333331	2678235	2678235	322299W pt.	39990	39990
322223W	26730	26730	3222333441	2678245	2678245	322299WYVW pt.	2675000	2675000
322223WYVW	2673000	2673000	3222333551	2678251	2678251	322299WYVW pt.	2679000	2679000
322223WYVW	2673002	2673002	3222333691	2678298	2678298	322299WYVW pt.	3999000	3999000
3222241	26741	26741	3222333YVW	2678200	2678200	322299WYVW pt.	2675002	2675002
3222241111	2674111	2674111	322233W	26780	26780	322299WYVW pt.	2679002	2679002
3222241221	2674112	2674112	322233WYVW	2678000	2678000	322299WYVW pt.	3999002	3999002
3222241231	2674113	2674113	322233WYVW	2678002	2678002	322299WYVW pt.	3999002	3999002
3222241341	2674115	2674115	322233WYVW	2678002	2678002	322299WYVW pt.	3999002	3999002

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special

census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the

manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322213	Setup paperboard box mfg	143	155	6 227	145 880	4 925	9 508	91 685	305 517	221 065	522 643	21 695
265200	Setup paperboard boxes	N	155	6 227	145 880	4 925	9 508	91 685	305 517	221 065	522 643	21 695

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322213, SETUP PAPERBOARD BOX MFG												
United States	2	155	97	6 227	145 880	4 925	9 508	91 685	305 517	221 065	522 643	21 695
California	—	8	6	510	9 588	445	831	6 700	19 529	11 129	29 987	1 060
Illinois	—	9	5	315	7 718	202	406	4 205	13 263	7 386	20 693	486
Massachusetts	—	16	12	732	18 456	569	1 155	11 236	41 827	38 041	78 791	3 487
Michigan	5	6	2	100	3 052	74	141	1 508	6 141	3 998	10 128	110
New York	3	21	9	1 020	23 885	857	1 365	13 911	47 464	33 069	80 201	3 066
Ohio	—	9	7	326	8 204	262	554	5 373	16 510	10 415	25 889	992
Pennsylvania	2	14	11	604	13 896	486	971	9 710	32 729	23 317	55 447	2 074
Rhode Island	8	8	5	302	6 154	246	420	4 132	14 905	9 647	24 180	1 466
Virginia	—	3	3	111	2 369	74	147	1 077	3 307	3 410	6 645	127

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322213, SETUP PAPERBOARD BOX MFG		322213, SETUP PAPERBOARD BOX MFG—Con.	
Companies ¹	number.. 143	Value added .....	..\$1,000.. 305 517
All establishments	number.. 155	Total inventories, beginning of year .....	..\$1,000.. 78 047
Establishments with 1 to 19 employees	number.. 58	Finished goods inventories, beginning of year .....	..\$1,000.. 31 217
Establishments with 20 to 99 employees	number.. 87	Work-in-process inventories, beginning of year .....	..\$1,000.. 9 953
Establishments with 100 employees or more	number.. 10	Materials and supplies inventories, beginning of year .....	..\$1,000.. 36 877
All employees	number.. 6 227	Total inventories, end of year .....	..\$1,000.. 78 715
Total compensation ² .....	..\$1,000.. 175 653	Finished goods inventories, end of year .....	..\$1,000.. 35 922
Annual payroll .....	..\$1,000.. 145 880	Work-in-process inventories, end of year .....	..\$1,000.. 9 187
Total fringe benefits .....	..\$1,000.. 29 773	Materials and supplies inventories, end of year .....	..\$1,000.. 33 606
Production workers, average for year	number.. 4 925	Gross book value of total assets at beginning of year .....	..\$1,000.. 177 568
Production workers on March 15	number.. 4 476	Total capital expenditures (new and used) .....	..\$1,000.. 21 695
Production workers on May 15	number.. 4 756	Capital expenditures for buildings and other structures	
Production workers on August 15	number.. 5 150	(new and used) .....	..\$1,000.. 2 303
Production workers on November 15	number.. 5 318	Capital expenditures for machinery and equipment (new	
Production-worker hours .....	..1,000.. 9 508	and used) .....	..\$1,000.. 19 392
Production-worker wages .....	..\$1,000.. 91 685	Total retirements ² .....	..\$1,000.. 4 291
Total cost of materials .....	..\$1,000.. 221 065	Gross book value of total assets at end of year .....	..\$1,000.. 194 972
Cost of materials, parts, containers, etc., consumed .....	..\$1,000.. 197 932	Total depreciation during year ² .....	..\$1,000.. 15 646
Cost of resales .....	..\$1,000.. 7 755	Total rental payments ² .....	..\$1,000.. 14 418
Cost of fuels .....	..\$1,000.. 2 646	Buildings and other structures rental payments ² .....	..\$1,000.. 7 617
Cost of purchased electricity .....	..\$1,000.. 5 113	Machinery and equipment rental payments ² .....	..\$1,000.. 6 801
Cost of contract work .....	..\$1,000.. 7 619	Cost of purchased services for the repair of buildings and other	
Quantity of electricity purchased for heat and power .....	..1,000 kWh.. 74 509	structures ³ .....	..\$1,000.. 3 638
Quantity of electricity generated less sold for heat and power .....	..1,000 kWh.. -	Response coverage ratio ⁴	percent.. 99
Total value of shipments .....	..\$1,000.. 522 643	Cost of purchased services for the repair of machinery and	
Primary products value of shipments .....	..\$1,000.. 479 403	equipment ³ .....	..\$1,000.. 13 599
Secondary products value of shipments .....	..\$1,000.. 30 592	Response coverage ratio ⁴	percent.. 99
Total miscellaneous receipts .....	..\$1,000.. 12 648	Cost of purchased communications services ³ .....	..\$1,000.. 1 211
Value of resales .....	..\$1,000.. 10 819	Response coverage ratio ⁴	percent.. 99
Contract receipts .....	..\$1,000.. 1 381	Cost of purchased legal services ³ .....	..\$1,000.. 1 986
Other miscellaneous receipts .....	..\$1,000.. 448	Response coverage ratio ⁴	percent.. 99
Primary products specialization ratio	percent.. 94	Cost of purchased accounting and bookkeeping services ³ .....	..\$1,000.. 1 230
Value of primary products shipments made in all industries .....	..\$1,000.. 662 703	Response coverage ratio ⁴	percent.. 99
Value of primary products shipments made in this industry .....	..\$1,000.. 479 403	Cost of purchased advertising services ³ .....	..\$1,000.. 459
Value of primary products shipments made in other		Response coverage ratio ⁴	percent.. 99
industries .....	..\$1,000.. 183 300	Cost of purchased software and other data processing	
Coverage ratio	percent.. 72	services ³ .....	..\$1,000.. 58
		Response coverage ratio ⁴	percent.. 99
		Cost of purchased refuse removal (including hazardous waste)	
		services ³ .....	..\$1,000.. 1 032
		Response coverage ratio ⁴	percent.. 99

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322213, SETUP PAPERBOARD BOX MFG												
All establishments	2	155	97	6 227	145 880	4 925	9 508	91 685	305 517	221 065	522 643	21 695
Establishments with 1 to 4 employees	9	20	—	38	1 027	32	70	704	2 464	2 015	4 388	222
Establishments with 5 to 9 employees	5	16	—	116	2 709	79	161	1 579	5 954	5 423	11 107	367
Establishments with 10 to 19 employees	4	22	—	302	6 811	230	451	4 305	13 244	9 978	23 306	906
Establishments with 20 to 49 employees	2	59	59	2 072	51 111	1 621	3 232	32 372	104 237	77 658	181 740	9 977
Establishments with 50 to 99 employees	2	28	28	1 961	49 681	1 569	3 161	31 915	107 840	70 906	176 564	6 113
Establishments with 100 to 249 employees	—	8	8	D	D	D	D	D	D	D	D	D
Establishments with 250 to 499 employees	—	2	2	D	D	D	D	D	D	D	D	D
Establishments with 500 to 999 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	35	—	194	4 320	148	295	2 962	10 361	8 472	18 460	930

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322213	Setup paperboard box mfg	155	6 227	145 880	4 925	9 508	91 685	305 517	221 065	522 643	21 695

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322213	Setup paperboard boxes	N	X	X	662 703	N	X	X	516 224
3222130	Setup (rigid) paperboard boxes	N	X	X	662 703	N	X	X	516 224
32221301	Setup (rigid) paperboard boxes, classified by end use	N	X	X	586 461	N	X	X	N
3222130111	Setup (rigid) paperboard boxes for textiles, wearing apparel, and hosiery	48	X	X	81 115	30	X	X	66 705
3222130121	Setup (rigid) paperboard boxes for department stores and other retail stores	49	X	X	110 823	45	X	X	74 163
3222130131	Setup (rigid) paperboard boxes for confections	43	X	X	64 369	40	X	X	53 180
3222130141	Setup (rigid) paperboard boxes for cosmetics, including soap	27	X	X	67 553	19	X	X	33 283
3222130191	Setup (rigid) paperboard boxes for all other end uses, nec, (including stationery and office supplies, and hardware and household supplies)	112	X	X	262 601	N	X	X	N
3222130Y	Setup paperboard boxes, nsk, total	N	X	X	76 242	N	X	X	N
3222130YWW	Setup paperboard boxes, nsk, for nonadministrative-record establishments	N	X	X	58 250	N	X	X	84 275
3222130YWY	Setup paperboard boxes, nsk, for administrative-record establishments	N	X	X	17 992	N	X	X	9 670

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Not applicable for this report]

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322213	SETUP PAPERBOARD BOX MFG				
32210005	Paper and paperboard, except boxes and containers	S	112 287	S	85 936
32610021	Fabricated plastics products, including closures, ends, film, and strapping, etc.	X	5 307	X	2 343
33120017	Steel sheet and strip, including tin plate	X	27	X	N
33131503	Aluminum sheet, plate, and foil	X	713	X	N
33211500	Metal closures and crowns for containers	X	187	X	N
32410009	Petroleum wax	-	-	N	N
32552003	Glues and adhesives	X	3 281	X	3 721
32591003	Printing ink	S	1 169	S	2 293
00970099	All other materials and components, parts, containers, and supplies	X	33 290	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	41 671	X	55 699

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322213 SETUP PAPERBOARD BOX MANUFACTURING

This U.S. industry comprises establishments primarily engaged in converting paperboard into setup paperboard boxes (i.e., rigid-sided boxes not shipped flat) without manufacturing paperboard.

The data published with NAICS code 322213 include the following SIC industry:

2652 Setup paperboard boxes

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsk) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710	26710 pt	3222241YVV	2674100	2674100	3222911	26762	26761 pt
322221WYWW	2671000 pt	2671000 pt	3222243	26742	26742	3222911111	2676214	267614 pt
322221WYVY	2671002 pt	2671002 pt	322224321	2674211	2674211	3222911121	2676251	2676151 pt
3222221	26721	26721	322224322	2674212	2674212	3222911YVV	2676200	2676100 pt
3222221111	2672113	2672113	3222243YVV	2674200	2674200	3222913 pt	26765	26763 pt
3222221121	2672153	2672153	3222244W	26740	26740	3222913 pt	38421 pt	38421 pt
3222221YVV	2672100	2672100	3222244YWW	2674000	2674000	3222913111	2676500 pt	2676300 pt
3222223	26722	26722	3222244YVY	2674002	2674002	3222913121	3842133	3842132 pt
3222223111	2672212	2672212	3222250 pt	34970 pt	34970 pt	3222913131	3842135	3842132 pt
3222223121	2672230	2672230	3222250 pt	34972	34972	3222913YVV pt	2676500 pt	2676300 pt
3222223YVV	2672200	2672200	3222250 pt	3497210	3497210	3222913YVV pt	3842100 pt	3842100 pt
3222225	26723	26723	3222250101	3497222	3497222	3222915	26766	26764 pt
3222225111	2672313	2672313	3222250206	3497225	3497225	3222915111	2676611	2676411 pt
3222225221	2672343	2672343	3222250311	3497228	3497228	3222915221	2676625	2676425 pt
3222225331	2672333	2672333	3222250416	3497241	3497241	3222915223	2676627	2676427 pt
3222225341	2672345	2672345	3222250421	3497000 pt	3497000 pt	3222915225	2676633	2676433 pt
3222225351	2672353	2672353	3222250YVV pt	3497200	3497200	3222915227	2676635	2676435 pt
3222225361	2672359	2672359	3222250YVY	3497002 pt	3497002 pt	3222915229	2676637	2676437 pt
3222225371	2672361	2672361	3222260 pt	26750 pt	26750 pt	3222915331	2676645	2676445 pt
3222225475	2672381	2672381	3222260100	26753	26753	3222915433	2676647	2676447 pt
3222225581	2672385	2672385	32222601000	2675300	2675300	3222915535	2676641	2676441 pt
3222225585	2672375	2672375	3222260YVV	2675000 pt	2675000 pt	3222915541	2676643	2676443 pt
3222225591	2672398	2672398	3222260YVY	2675002 pt	2675002 pt	3222915551	2676655	2676455 pt
3222225YVV	2672300	2672300	3222311	26751	26751	3222915661	2676671	2676471 pt
3222226	26791	26791	3222311111	2675110	2675110	3222915771	2676676	2676476 pt
3222226111	2679122	2679122	3222311121	2675111	2675111	3222915773	2676677	2676477 pt
3222226121 pt	2679125 pt	2679126	3222311121	2675112	2675112	3222915881	2676681	2676481 pt
3222226121 pt	2679125 pt	2679128	3222311131	2675112	2675112	3222915891	2676699	2676499 pt
3222226131	2679134	2679134	3222311391 pt	2675191 pt	2675120	3222915YVV	2676600	2676400 pt
3222226141	2679136	2679136	3222311391 pt	2675191 pt	2675130	322291W pt	26760	26760 pt
3222226191	2679141	2679141	3222311YVV	2675100	2675100	322291W pt	38420 pt	38420 pt
3222226YVV	2679100	2679100	3222313	26793	26793	322291WYVV pt	2676000 pt	2676000 pt
3222227	26792	26792	3222313111	2679311	2679311	322291WYVW pt	3842000 pt	3842000 pt
3222227111	2679282	2679282	3222313121	2679311	2679311	322291WYVY pt	2676002 pt	2676002 pt
3222227121	2679291	2679291	3222313191	2679331	2679331	322291WYVY pt	3842002 pt	3842002 pt
3222227191	2679296	2679296	3222313YVV	2679300	2679300	3222991	26794	26794
3222227YVV	2679200	2679200	322231W pt	26750	26750	3222991100	2679400	2679400
3222229	26724	26724	322231W pt	26790	26790	3222993 pt	26752	26752
3222229111	2672445	2672445	322231WYVV pt	2675000 pt	2675000 pt	3222993 pt	26795	26795
3222229121	2672453	2672453	322231WYVW pt	2679000 pt	2679000 pt	3222993 pt	39999 pt	39999 pt
3222229131	2672455	2672455	322231WYVY pt	2675002 pt	2675002 pt	3222993111	2679521	2679521
3222229141	2672456	2672456	322231WYVY pt	2679002 pt	2679002 pt	3222993221	2679531	2679531
3222229151	2672469	2672469	3222320	26770	26770	3222993231	2679541	2679541
3222229YVV	2672400	2672400	322232011	2677010	2677010	3222993241	2679548	2679548
322222W pt	26720	26720	3222320121	2677021	2677021	3222993251 pt	2679550 pt	2679551
322222W pt	26790 pt	26790 pt	3222320131	2677022	2677022	3222993351 pt	2679550 pt	2679555
322222WYVV pt	2672000	2672000	3222320141	2677040	2677040	3222993361	2679561	2679561
322222WYVW pt	2679000 pt	2679000 pt	3222320YVV	2677000	2677000	3222993471 pt	2675200 pt	2675200 pt
322222WYVY pt	2672002	2672002	3222320YVY	2677002	2677002	3222993471 pt	2675200 pt	2675261
322222WYVY pt	2679002 pt	2679002 pt	3222331	26781	26781	3222993471 pt	2675200 pt	2675271
3222231	26731	26731	3222331111	2678111	2678111	3222993471 pt	2675200 pt	2675297
3222231100	2673100	2673100	3222331121	2678113	2678113	3222993591 pt	2679598	2679598
3222233	26733 pt	26733 pt	3222331131	2678121	2678121	3222993591 pt	3999996 pt	3999913 pt
3222233111	2673306	2673311 pt	3222331YVV	2678100	2678100	3222993591 pt	3999996 pt	3999999 pt
3222233121	2673312	2673312	3222333	26782	26782	3222993YVW pt	2679500	2679500
3222233131 pt	2673315 pt	2673311 pt	322233311	2678212	2678212	3222993YVW pt	3999900 pt	3999900 pt
3222233131 pt	2673315 pt	2673314 pt	3222333221 pt	2678225 pt	2678213	322299W pt	26750	26750 pt
3222233YVV	2673300 pt	2673300 pt	3222333221 pt	2678225 pt	2678221	322299W pt	26790	26790 pt
322223W	26730 pt	26730 pt	3222333331	2678235	2678235	322299W pt	39990	39990 pt
322223WYVV	2673000 pt	2673000 pt	3222333441	2678245	2678245	322299WYVV pt	2675000 pt	2675000 pt
322223WYVY	2673002 pt	2673002 pt	3222333551	2678251	2678251	322299WYVW pt	2679000 pt	2679000 pt
3222241	26741	26741	3222333691	2678298	2678298	322299WYVW pt	3999000 pt	3999000 pt
3222241111	2674111	2674111	3222333YVV	2678200	2678200	322299WYVY pt	2675002 pt	2675002 pt
3222241221	2674112	2674112	322233W	26780	26780	322299WYVY pt	2679002 pt	2679002 pt
3222241231	2674113	2674113	322233WYVV	2678000	2678000	322299WYVY pt	3999002 pt	3999002 pt
3222241341	2674115	2674115	322233WYVY	2678002	2678002			

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322214	Fiber can, tube, drum, & similar products mfg	140	285	11 549	356 604	9 524	19 336	262 360	953 734	1 342 012	2 296 167	69 359
265500	Fiber cans, drums, & similar products	N	285	11 549	356 604	9 524	19 336	262 360	953 734	1 342 012	2 296 167	69 359

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322214, FIBER CAN, TUBE, DRUM, & SIMILAR PRODUCTS MFG												
United States	-	285	187	11 549	356 604	9 524	19 336	262 360	953 734	1 342 012	2 296 167	69 359
Alabama	-	9	7	411	10 565	333	666	7 943	31 160	50 437	81 706	1 669
California	-	20	11	608	19 193	499	968	13 231	54 275	58 722	112 706	1 963
Illinois	-	16	12	681	19 613	539	1 178	13 983	45 857	68 817	115 075	3 239
Massachusetts	-	12	11	506	14 291	423	837	10 225	33 836	34 337	68 550	4 064
Michigan	1	9	5	197	6 429	159	295	4 385	13 570	14 672	28 105	515
New Jersey	-	13	10	512	15 009	437	842	11 624	44 878	51 820	97 437	1 117
North Carolina	-	13	9	788	22 554	648	1 394	17 606	57 360	68 854	126 078	4 818
Ohio	-	25	18	1 121	34 724	915	1 882	25 346	94 509	136 176	231 078	6 410
Pennsylvania	-	13	10	512	15 375	401	819	11 276	38 113	47 715	86 312	1 240
Rhode Island	9	3	1	114	2 538	95	192	1 916	6 933	10 377	17 266	408
South Carolina	-	13	6	862	25 267	715	1 387	19 726	55 340	83 593	139 360	7 307
Texas	-	16	11	542	17 021	429	955	12 677	52 551	68 670	121 177	2 256
Wisconsin	-	15	11	773	29 338	655	1 294	20 453	63 295	89 998	152 666	3 516

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322214, FIBER CAN, TUBE, DRUM, & SIMILAR PRODUCTS MFG		322214, FIBER CAN, TUBE, DRUM, & SIMILAR PRODUCTS MFG—Con.	
Companies ¹	number.. 140	Value added	\$1,000.. 953 734
All establishments	number.. 285	Total inventories, beginning of year	\$1,000.. 178 577
Establishments with 1 to 19 employees	number.. 98	Finished goods inventories, beginning of year	\$1,000.. 42 764
Establishments with 20 to 99 employees	number.. 167	Work-in-process inventories, beginning of year	\$1,000.. 9 043
Establishments with 100 employees or more	number.. 20	Materials and supplies inventories, beginning of year	\$1,000.. 126 770
All employees	number.. 11 549	Total inventories, end of year	\$1,000.. 174 008
Total compensation ²	\$1,000.. 452 943	Finished goods inventories, end of year	\$1,000.. 41 089
Annual payroll	\$1,000.. 356 604	Work-in-process inventories, end of year	\$1,000.. 10 297
Total fringe benefits	\$1,000.. 96 339	Materials and supplies inventories, end of year	\$1,000.. 122 622
Production workers, average for year	number.. 9 524	Gross book value of total assets at beginning of year	\$1,000.. 620 057
Production workers on March 12	number.. 9 311	Total capital expenditures (new and used)	\$1,000.. 69 359
Production workers on May 12	number.. 9 367	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 20 595
Production workers on August 12	number.. 9 660	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 48 764
Production workers on November 12	number.. 9 758	Total retirements ²	\$1,000.. 13 540
Production-worker hours	1,000.. 19 336	Gross book value of total assets at end of year	\$1,000.. 675 876
Production-worker wages	\$1,000.. 262 360	Total depreciation during year ²	\$1,000.. 46 041
Total cost of materials	\$1,000.. 1 342 012	Total rental payments ²	\$1,000.. 25 280
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 218 825	Buildings and other structures rental payments ²	\$1,000.. 13 900
Cost of resales	\$1,000.. 93 472	Machinery and equipment rental payments ²	\$1,000.. 11 380
Cost of fuels	\$1,000.. 6 455	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 3 978
Cost of purchased electricity	\$1,000.. 17 077	Response coverage ratio ⁴	percent.. 99
Cost of contract work	\$1,000.. 6 183	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 22 725
Quantity of electricity purchased for heat and power	1,000 kWh.. 266 083	Response coverage ratio ⁴	percent.. 99
Quantity of electricity generated less sold for heat and power	1,000 kWh.. D	Cost of purchased communications services ³	\$1,000.. 2 271
Total value of shipments	\$1,000.. 2 296 167	Response coverage ratio ⁴	percent.. 99
Primary products value of shipments	\$1,000.. 2 088 352	Cost of purchased legal services ³	\$1,000.. 674
Secondary products value of shipments	\$1,000.. 83 132	Response coverage ratio ⁴	percent.. 99
Total miscellaneous receipts	\$1,000.. 124 683	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 788
Value of resales	\$1,000.. 119 295	Response coverage ratio ⁴	percent.. 99
Contract receipts	\$1,000.. D	Cost of purchased advertising services ³	\$1,000.. 666
Other miscellaneous receipts	\$1,000.. D	Response coverage ratio ⁴	percent.. 99
Primary products specialization ratio	percent.. 96	Cost of purchased software and other data processing services ³	\$1,000.. 262
Value of primary products shipments made in all industries	\$1,000.. 2 153 519	Response coverage ratio ⁴	percent.. 99
Value of primary products shipments made in this industry	\$1,000.. 2 088 352	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 3 370
Value of primary products shipments made in other industries	\$1,000.. 65 167	Response coverage ratio ⁴	percent.. 99
Coverage ratio	percent.. 96		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322214, FIBER CAN, TUBE, DRUM, & SIMILAR PRODUCTS MFG												
All establishments	-	285	187	11 549	356 604	9 524	19 336	262 360	953 734	1 342 012	2 296 167	69 359
Establishments with 1 to 4 employees	6	19	-	51	1 206	39	70	905	4 812	6 092	10 845	182
Establishments with 5 to 9 employees	8	26	-	173	4 537	143	258	3 306	12 239	18 334	30 526	670
Establishments with 10 to 19 employees	3	53	-	769	21 439	617	1 153	14 363	61 829	88 648	150 197	2 774
Establishments with 20 to 49 employees	-	112	112	3 720	112 125	2 973	6 056	77 389	316 214	439 523	756 000	17 622
Establishments with 50 to 99 employees	-	55	55	3 662	111 074	3 044	6 266	84 516	309 949	420 650	730 922	20 792
Establishments with 100 to 249 employees	-	19	19	D	D	D	D	D	D	D	D	D
Establishments with 250 to 499 employees	-	1	1	D	D	D	D	D	D	D	D	D
Establishments with 500 to 999 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 1,000 to 2,499 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	9	65	-	680	14 777	567	873	11 216	40 368	60 419	100 526	2 374

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322214	Fiber can, tube, drum, & similar products mfg	285	11 549	356 604	9 524	19 336	262 360	953 734	1 342 012	2 296 167	69 359
3222141	Paperboard fiber drums with ends of any material	46	2 417	73 327	1 978	4 119	57 466	182 219	207 059	391 899	4 796
3222143	Fiber cans, tubes, and similar fiber products	167	8 246	263 365	6 809	14 071	189 800	721 194	1 058 259	1 777 573	61 371

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322214	Fiber cans, tubes, drums, and similar products	N	X	X	2 153 519	N	X	X	1 821 527
3222141	Paperboard fiber drums with ends of any material	N	X	X	374 327	N	X	X	373 934
32221411	Paperboard fiber drums with ends of any material	N	X	X	374 327	N	X	X	N
3222141100	Paperboard fiber drums with ends of any material	14	X	X	374 327	13	X	X	373 934
3222143	Fiber cans, tubes, and similar fiber products	N	X	X	1 657 352	N	X	X	1 290 836
32221431	Fiber cans, all fiber and composite	N	X	X	512 859	N	X	X	N
3222143111	Fiber cans, all fiber and composite	16	X	X	512 859	27	X	X	502 513
32221432	Fiber cores and tubes	N	X	X	1 021 670	N	X	X	N
3222143221	Fiber cores and tubes	54	X	¶ 212.6	1 021 670	58	X	¶ 799.9	576 893
32221433	Paperboard cones, reels, spools, bobbins, blocks, and all vulcanized fiber products	N	X	X	87 706	N	X	X	N
3222143331	Paperboard cones, reels, spools, bobbins, and blocks	11	X	X	D	15	X	X	65 265
3222143391	All vulcanized fiber products (boxes, cans, tubes, drums, etc.)	5	X	X	D	12	X	X	68 939
3222143Y	Fiber cans, tubes, and similar fiber products, nsk	N	X	X	35 117	N	X	X	N
3222143YWW	Fiber cans, tubes, and similar fiber products, nsk	N	X	X	35 117	N	X	X	77 226
322214W	Fiber cans, tubes, drums, and similar products, nsk, total	N	X	X	121 840	N	X	X	156 757
322214WY	Fiber cans, tubes, drums, and similar products, nsk, total	N	X	X	121 840	N	X	X	N
322214WYWW	Fiber cans, tubes, drums, and similar products, nsk, for nonadministrative-record establishments	N	X	X	24 643	N	X	X	139 722
322214WYWY	Fiber cans, tubes, drums, and similar products, nsk, for administrative-record establishments	N	X	X	97 197	N	X	X	17 035

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; ¶ 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222141	PAPERBOARD FIBER DRUMS WITH ENDS OF ANY MATERIAL		
	United States	374 327	373 934
	Georgia	41 383	N
	Illinois	54 616	35 062
	New Jersey	42 674	N
	New York	31 296	21 086
	Pennsylvania	25 244	N
3222143	FIBER CANS, TUBES, AND SIMILAR FIBER PRODUCTS		
	United States	1 657 352	1 290 836
	Alabama	60 565	27 306
	Arkansas	23 043	13 002
	California	69 892	57 953
	Florida	58 731	51 838
	Georgia	112 632	90 258
	Illinois	34 845	71 972
	Kentucky	21 246	13 505
	Louisiana	15 963	N
	Massachusetts	58 369	38 615
	Michigan	19 359	18 375

See footnotes at end of table.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992—Con.

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222143	FIBER CANS, TUBES, AND SIMILAR FIBER PRODUCTS—Con.		
	New Jersey	39 593	57 519
	New York	29 462	66 350
	North Carolina	103 215	58 875
	Ohio	151 674	127 661
	Pennsylvania	59 525	41 896
	Texas	91 207	54 012
	Wisconsin	120 046	93 447

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322214	FIBER CAN, TUBE, DRUM, & SIMILAR PRODUCTS MFG				
32210005	Paper and paperboard, except boxes and containers 1,000 s tons..	P1 590.7	683 671	1 112.1	423 980
32610021	Fabricated plastics products, including closures, ends, film, and strapping, etc.	X	21 771	X	13 816
33120017	Steel sheet and strip, including tin plate	X	60 738	X	N
33131503	Aluminum sheet, plate, and foil	X	6 508	X	N
33211500	Metal closures and crowns for containers	X	81 783	X	N
32410009	Petroleum wax mil lb..	S	280	S	1 105
32552003	Glues and adhesives	X	48 312	X	31 140
32591003	Printing ink mil lb..	S	1 119	S	5 242
00970099	All other materials and components, parts, containers, and supplies	X	207 608	X	239 860
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	107 035	X	142 270

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322214 FIBER CAN, TUBE, DRUM, AND SIMILAR PRODUCTS MANUFACTURING

This U.S. industry comprises establishments primarily engaged in converting paperboard into fiber cans, tubes, drums, and similar products without manufacturing paperboard.

The data published with NAICS code 322214 include the following SIC industry:

2655 Fiber cans, drums, and similar products

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710 pt	26710 pt	3222241YVW	2674100	2674100	3222911	26762	26761 pt
322221WYWW	2671000 pt	2671000 pt	322224311	267421	26742	3222911111	2676214	267614 pt
322221WYVY	2671002 pt	2671002 pt	322224321	2674212	2674212	3222911121	2676251	2676151 pt
3222221	26721	26721	3222243YVW	2674200	2674200	3222911YVW	2676200	2676100 pt
3222221111	2672113	2672113	3222244W	26740	26740	3222913 pt	26765	26763 pt
3222221121	2672153	2672153	3222244YVW	2674000	2674000	3222913111	38421 pt	38421 pt
3222221YVW	2672100	2672100	3222244YVWY	2674002	2674002	3222913121	3842133	3842132 pt
3222223	26722	26722	3222250 pt	34970 pt	34970 pt	3222913131	3842135	3842132 pt
3222223111	2672212	2672212	3222250YVW	34972	34972	3222913YVW pt	2676500 pt	2676300 pt
3222223121	2672230	2672230	3222250YVWY	3497210	3497210	3222913YVW pt	3842100 pt	3842100 pt
3222223YVW	2672200	2672200	3222250206	3497222	3497222	3222915	26766	26764 pt
3222225	26723	26723	3222250311	3497225	3497225	3222915111	2676611	2676411 pt
3222225111	2672313	2672313	3222250416	3497228	3497228	3222915221	2676625	2676425 pt
3222225221	2672343	2672343	3222250421	3497241	3497241	3222915225	2676627	2676427 pt
3222225331	2672333	2672333	3222250YVW pt	3497000 pt	3497000 pt	3222915225	2676633	2676433 pt
3222225341	2672345	2672345	3222250YVWY	3497200	3497200	3222915229	2676635	2676435 pt
3222225351	2672353	2672353	3222260 pt	26750 pt	26750 pt	3222915229	2676637	2676437 pt
3222225361	2672359	2672359	3222260100	26753	26753	3222915331	2676645	2676445 pt
3222225371	2672361	2672361	3222260100	2675300	2675300	3222915433	2676647	2676447 pt
3222225475	2672381	2672381	3222260YVW	2675000 pt	2675000 pt	3222915535	2676641	2676441 pt
3222225581	2672385	2672385	3222260YVWY	2675002 pt	2675002 pt	3222915541	2676643	2676443 pt
3222225585	2672375	2672375	3222311	26751	26751	3222915551	2676655	2676455 pt
3222225591	2672398	2672398	3222311111	2675110	2675110	3222915661	2676671	2676471 pt
3222225YVW	2672300	2672300	3222311121	2675111	2675111	3222915771	2676676	2676476 pt
3222226	26791	26791	3222311231	2675112	2675112	3222915773	2676677	2676477 pt
3222226111	2679122	2679122	3222311391 pt	2675191 pt	2675120	3222915881	2676681	2676481 pt
3222226121 pt	2679125 pt	2679126	3222311391 pt	2675191 pt	2675130	3222915891	2676699	2676499 pt
3222226121 pt	2679125 pt	2679128	3222311YVW	2675100	2675100	3222915YVW	2676600	2676400 pt
3222226131	2679134	2679134	3222313	26793	26793	322291W pt	26760 pt	26760 pt
3222226141	2679136	2679136	3222313111	2679311	2679311	322291W pt	38420 pt	38420 pt
3222226191	2679141	2679141	3222313191	2679331	2679331	322291WYVW pt	2676000 pt	2676002 pt
3222226YVW	2679100	2679100	3222313YVW	2679300	2679300	322291WYVWY pt	3842002 pt	3842002 pt
3222227	26792	26792	322231W pt	26750 pt	26750 pt	3222991	26794	26794
3222227111	2679282	2679282	322231W pt	26790 pt	26790 pt	3222991100	2679400	2679400
3222227121	2679291	2679291	322231WYVW pt	2675000 pt	2675000 pt	3222993 pt	26752	26752
3222227191	2679296	2679296	322231WYVWY pt	2679000 pt	2679000 pt	3222993 pt	26795	26795
3222227YVW	2679200	2679200	3222320	26770	26770	3222993 pt	39999 pt	39999 pt
3222229	26724	26724	3222320111	2677010	2677010	3222993111	2679521	2679521
3222229111	2672445	2672445	3222320121	2677021	2677021	3222993221	2679531	2679531
3222229121	2672453	2672453	3222320131	2677022	2677022	3222993231	2679541	2679541
3222229131	2672455	2672455	3222320141	2677040	2677040	3222993241	2679548	2679548
3222229141	2672456	2672456	3222320YVW	2677000	2677000	3222993351 pt	2679550 pt	2679551
3222229151	2672469	2672469	3222320YVWY	2677002	2677002	3222993351 pt	2679550 pt	2679555
3222229YVW	2672400	2672400	3222331	26781	26781	3222993361	2679561	2679561
322222W pt	26720	26720	3222331111	2678111	2678111	3222993471 pt	2675200 pt	2675200
322222W pt	26790 pt	26790 pt	3222331121	2678113	2678113	3222993471 pt	2675200 pt	2675297
322222WYVW pt	2672000	2672000	3222331131	2678121	2678121	3222993591 pt	2679598	2679598
322222WYVWY pt	2679000 pt	2679000 pt	3222331YVW	2678100	2678100	3222993591 pt	3999996 pt	3999913 pt
322222WYVWY pt	2672002	2672002	3222333	26782	26782	3222993591 pt	3999996 pt	3999999 pt
322222WYVWY pt	2679002 pt	2679002 pt	322233311	2678212	2678212	3222993YVW pt	2679500	2679500
3222231	26731	26731	3222333221 pt	2678225 pt	2678213	322299W pt	26750 pt	26750 pt
3222231100	2673100	2673100	3222333221 pt	2678225 pt	2678221	322299W pt	26790 pt	26790 pt
3222233	26733 pt	26733 pt	3222333331	2678235	2678235	322299W pt	39990 pt	39990 pt
3222233111	2673306	2673311 pt	3222333441	2678245	2678245	322299WYVWY pt	2675000 pt	2675000 pt
3222233121	2673312	2673312	3222333551	2678251	2678251	322299WYVWY pt	2679000 pt	2679000 pt
3222233131 pt	2673315 pt	2673311 pt	3222333691	2678298	2678298	322299WYVWY pt	3999000 pt	3999000 pt
3222233131 pt	2673315 pt	2673314 pt	3222333YVW	2678200	2678200	322299WYVWY pt	2675002 pt	2675002 pt
3222233YVW	2673300 pt	2673300 pt	322233W	26780	26780	322299WYVWY pt	2679002 pt	2679002 pt
322223W	26730 pt	26730 pt	322233W	2678000	2678000	322299WYVWY pt	3999002 pt	3999002 pt
322223WYVW	2673000 pt	2673000 pt	322233WYVW	2678002	2678002			
322223WYVWY	2673002 pt	2673002 pt						
3222241	26741	26741						
3222241111	2674111	2674111						
3222241221	2674112	2674112						
3222241231	2674113	2674113						
3222241341	2674115	2674115						

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322215	Nonfolding sanitary food container mfg	47	83	14 925	441 434	12 599	25 858	342 010	1 215 194	1 541 158	2 738 109	67 411
265600	Sanitary food containers	N	83	14 925	441 434	12 599	25 858	342 010	1 215 194	1 541 158	2 738 109	67 411

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322215, NONFOLDING SANITARY FOOD CONTAINER MFG												
United States	-	83	63	14 925	441 434	12 599	25 858	342 010	1 215 194	1 541 158	2 738 109	67 411
California	-	12	6	716	18 014	558	1 183	13 069	66 637	96 121	163 823	4 584
Illinois	-	4	4	1 513	41 086	1 385	2 816	35 340	127 664	120 951	246 139	4 672
Indiana	-	3	3	275	6 818	257	532	6 288	34 959	36 982	69 431	1 449
Michigan	-	4	4	755	19 615	594	1 041	12 824	48 958	71 708	116 321	4 417
Missouri	-	3	3	1 165	35 386	1 009	1 876	29 028	82 145	82 394	170 536	722
Ohio	-	5	4	726	25 229	597	1 378	18 331	61 656	90 051	150 762	4 586
Pennsylvania	-	4	4	722	21 029	629	1 489	16 952	64 418	100 589	165 277	3 819

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322215, NONFOLDING SANITARY FOOD CONTAINER MFG		322215, NONFOLDING SANITARY FOOD CONTAINER MFG—Con.	
Companies ¹	number.. 47	Value added	\$1,000.. 1 215 194
All establishments	number.. 83	Total inventories, beginning of year	\$1,000.. 441 529
Establishments with 1 to 19 employees	number.. 20	Finished goods inventories, beginning of year	\$1,000.. 228 358
Establishments with 20 to 99 employees	number.. 20	Work-in-process inventories, beginning of year	\$1,000.. 27 196
Establishments with 100 employees or more	number.. 43	Materials and supplies inventories, beginning of year	\$1,000.. 185 975
All employees	number.. 14 925	Total inventories, end of year	\$1,000.. 472 619
Total compensation ²	\$1,000.. 561 807	Finished goods inventories, end of year	\$1,000.. 245 089
Annual payroll	\$1,000.. 441 434	Work-in-process inventories, end of year	\$1,000.. 28 708
Total fringe benefits	\$1,000.. 120 373	Materials and supplies inventories, end of year	\$1,000.. 198 822
Production workers, average for year	number.. 12 599	Gross book value of total assets at beginning of year	\$1,000.. 1 119 272
Production workers on March 12	number.. 12 755	Total capital expenditures (new and used)	\$1,000.. 67 411
Production workers on May 12	number.. 12 750	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 8 473
Production workers on August 12	number.. 12 660	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 58 938
Production workers on November 12	number.. 12 231	Total retirements ²	\$1,000.. 24 524
Production-worker hours	1,000.. 25 858	Gross book value of total assets at end of year	\$1,000.. 1 162 159
Production-worker wages	\$1,000.. 342 010	Total depreciation during year ²	\$1,000.. 63 649
Total cost of materials	\$1,000.. 1 541 158	Total rental payments ²	\$1,000.. 16 551
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 398 356	Buildings and other structures rental payments ²	\$1,000.. 10 202
Cost of resales	\$1,000.. 92 348	Machinery and equipment rental payments ²	\$1,000.. 6 349
Cost of fuels	\$1,000.. 7 727	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 3 392
Cost of purchased electricity	\$1,000.. 36 819	Response coverage ratio ⁴	percent.. 96
Cost of contract work	\$1,000.. 5 908	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 27 036
Quantity of electricity purchased for heat and power	1,000 kWh.. 699 502	Response coverage ratio ⁴	percent.. 96
Quantity of electricity generated less sold for heat and power	1,000 kWh.. -	Cost of purchased communications services ³	\$1,000.. 2 935
Total value of shipments	\$1,000.. 2 738 109	Response coverage ratio ⁴	percent.. 96
Primary products value of shipments	\$1,000.. 2 299 082	Cost of purchased legal services ³	\$1,000.. 780
Secondary products value of shipments	\$1,000.. 310 684	Response coverage ratio ⁴	percent.. 96
Total miscellaneous receipts	\$1,000.. 128 343	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 102
Value of resales	\$1,000.. 115 458	Response coverage ratio ⁴	percent.. 96
Contract receipts	\$1,000.. -	Cost of purchased advertising services ³	\$1,000.. 487
Other miscellaneous receipts	\$1,000.. 12 885	Response coverage ratio ⁴	percent.. 96
Primary products specialization ratio	percent.. 88	Cost of purchased software and other data processing services ³	\$1,000.. 427
Value of primary products shipments made in all industries	\$1,000.. 2 514 168	Response coverage ratio ⁴	percent.. 96
Value of primary products shipments made in this industry	\$1,000.. 2 299 082	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 2 669
Value of primary products shipments made in other industries	\$1,000.. 215 086	Response coverage ratio ⁴	percent.. 96
Coverage ratio	percent.. 91		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322215, NONFOLDING SANITARY FOOD CONTAINER MFG												
All establishments	-	83	63	14 925	441 434	12 599	25 858	342 010	1 215 194	1 541 158	2 738 109	67 411
Establishments with 1 to 4 employees	9	10	-	27	632	23	45	558	1 472	3 593	5 179	136
Establishments with 5 to 9 employees	8	5	-	37	722	31	52	598	1 634	3 880	5 637	149
Establishments with 10 to 19 employees	9	5	-	69	1 800	57	116	1 379	4 227	9 539	14 019	331
Establishments with 20 to 49 employees	-	12	12	400	9 880	340	591	6 797	32 860	42 882	76 086	878
Establishments with 50 to 99 employees	-	8	8	605	15 169	523	984	11 551	52 461	78 716	132 711	1 937
Establishments with 100 to 249 employees	-	28	28	4 645	140 439	3 853	8 064	105 398	397 772	706 979	1 092 837	32 790
Establishments with 250 to 499 employees	-	8	8	2 661	77 545	2 284	4 251	60 579	270 423	280 432	539 032	16 934
Establishments with 500 to 999 employees	-	6	6	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	-	1	1	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	9	13	-	77	1 946	63	121	1 554	4 531	11 067	15 949	420

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322215	Nonfolding sanitary food container mfg	83	14 925	441 434	12 599	25 858	342 010	1 215 194	1 541 158	2 738 109	67 411
3222151	Milk and milk-type paperboard cartons, including juice, beverage, and other products	16	2 223	76 649	1 849	3 784	58 734	214 530	471 554	683 941	D
3222153	Cups and liquid-tight paper and paperboard containers	24	9 221	268 889	7 808	16 147	211 864	675 385	675 423	1 347 417	28 739
3222155	Other sanitary paper and paperboard food containers, boards, and trays, nec, except folding	23	3 185	88 478	2 671	5 412	64 681	293 990	358 392	641 882	12 354

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322215	Nonfolding sanitary food containers	N	X	X	2 514 168	N	X	X	2 461 334
3222151	Milk and milk-type paperboard cartons, including juice, beverage, and other products	N	X	X	672 333	N	X	X	677 955
32221511	Milk and milk-type paperboard cartons, including juice, beverage, and other products	N	X	X	672 333	N	X	X	N
3222151100	Milk and milk-type paperboard cartons, including juice, beverage, and other products 1,000 s tons ..	7	X		486.1 672 333	5	X	475.8	677 955
3222153	Cups and liquid-tight paper and paperboard containers	N	X	X	1 132 827	N	X	X	1 113 479
32221531	Cups and liquid-tight paper and paperboard containers	N	X	X	1 112 889	N	X	X	N
3222153111	Liquid-tight and round-nested paperboard food containers, including lids and tops	5	X	S	217 801	7	X	54.9	175 000
3222153121	Paperboard drinking cups and portion serving cups	20	X	S	895 088	17	X	690.7	929 879
3222153Y	Cups and liquid-tight paper and paperboard containers, nsk	N	X	X	19 938	N	X	X	N
3222153YVV	Cups and liquid-tight paper and paperboard containers, nsk	N	X	X	19 938	N	X	X	8 600
3222155	Other sanitary paper and paperboard food containers, boards, and trays, nec, except folding	N	X	X	645 543	N	X	X	617 720
32221551	Other sanitary paper and paperboard food containers, boards, and trays, nec, except folding	N	X	X	630 101	N	X	X	N
3222155111	Pressed paperboard plates, dishes, spoons, and similar products	16	X	S	435 893	22	X	298.7	465 059
3222155121	Other sanitary paper and paperboard items, including tablecloths, soda straws, and ovenable paperboard food trays	16	X	S	194 208	N	X	N	N
3222155Y	Other sanitary paper and paperboard food containers, boards, and trays, nec, except folding, nsk	N	X	X	15 442	N	X	X	N
3222155YVV	Other sanitary paper and paperboard food containers, boards, and trays, nec, except folding, nsk	N	X	X	15 442	N	X	X	18 753
322215W	Nonfolding sanitary food containers, nsk, total	N	X	X	63 465	N	X	X	52 180
322215WY	Nonfolding sanitary food containers, nsk, total	N	X	X	63 465	N	X	X	N
322215WYVV	Nonfolding sanitary food containers, nsk, for nonadministrative-record establishments	N	X	X	48 248	N	X	X	47 615
322215WYVY	Nonfolding sanitary food containers, nsk, for administrative-record establishments	N	X	X	15 217	N	X	X	4 565

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222151	MILK AND MILK-TYPE PAPERBOARD CARTONS, INCLUDING JUICE, BEVERAGE, AND OTHER PRODUCTS		
	United States	672 333	677 955
3222153	CUPS AND LIQUID-TIGHT PAPER AND PAPERBOARD CONTAINERS		
	United States	1 132 827	1 113 479
	California	87 287	66 210
	Illinois	232 148	140 977
	Pennsylvania	88 847	78 160

See footnotes at end of table.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992—Con.

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222155	OTHER SANITARY PAPER AND PAPERBOARD FOOD CONTAINERS, BOARDS, AND TRAYS, NEC, EXCEPT FOLDING		
	United States	645 543	617 720
	Michigan	55 024	53 521
	Wisconsin	59 112	58 829

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322215	NONFOLDING SANITARY FOOD CONTAINER MFG				
32210005	Paper and paperboard, except boxes and containers	P1 343.5	1 041 341	1 236.0	975 792
32610021	Fabricated plastics products, including closures, ends, film, and strapping, etc.	X	42 956	X	37 628
33120017	Steel sheet and strip, including tin plate	X	D	X	N
33131503	Aluminum sheet, plate, and foil	X	D	X	N
33211500	Metal closures and crowns for containers	X	-	X	N
32410009	Petroleum wax	90.5	29 168	115.6	36 247
32552003	Glues and adhesives	X	D	X	5 794
32591003	Printing ink	P12.1	39 258	P12.9	34 176
00970099	All other materials and components, parts, containers, and supplies	X	172 344	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	62 689	X	116 818

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322215 NONFOLDING SANITARY FOOD CONTAINER MANUFACTURING

This U.S. industry comprises establishments primarily engaged in converting sanitary foodboard into food containers (except folding).

The data published with NAICS code 322215 include the following SIC industry:

2656 Sanitary food containers

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G.

Comparability of Product Classes and Product Codes:

1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3221101	26111	26111	322121J	26767	26761 pt	3222110	26530	26530
322110100	2611100	2611100	322121J111	2676714	2676114 pt	3222110111	2653012	2653012
3221103	26113	26113	322121J121	2676751	2676151 pt	3222110114	2653014	2653014
3221103111	2611335	2611335	322121JYV	2676700	2676100 pt	3222110221	2653013	2653013
3221103121	2611343	2611343	322121L	26768	26763 pt	3222110341	2653016	2653016
3221103YV	2611300	2611300	322121L pt.	26768	26763 pt	3222110345	2653018	2653018
3221105	26114	26114	322121L1	38421 pt	38421 pt	3222110431	2653015	2653015
3221105111	2611432	2611432	322121L111	2676800 pt	2676300 pt	3222110433	2653021	2653021
3221105121	2611466	2611466	322121L121	3842134	3842132 pt	3222110435	2653022	2653022
3221105131	2611472	2611472	322121L131	3842136	3842132 pt	3222110437	2653030	2653030
3221105141	2611478	2611478	322121LYV	2676800 pt	2676300 pt	3222110551	2653067	2653067
3221105YV	2611400	2611400	322121LYV	3842100 pt	3842100 pt	3222110661	2653051	2653051
3221107	26115	26115	322121N	26769	26764 pt	3222110665	2653068	2653068
3221107111	2611511	2611511	322121N111	2676911	2676411 pt	3222110691	2653098	2653098
3221107121	2611513	2611513	322121N221	2676925	2676425 pt	3222110YV	2653002	2653002
3221107131	2611517	2611517	322121N223	2676927	2676427 pt	3222120	26570	26570
3221107141	2611519	2611519	322121N225	2676933	2676433 pt	3222120111	2657014	2657014
3221107YV	2611500	2611500	322121N227	2676935	2676435 pt	3222120221	2657021	2657021
322110W	26110	26110	322121N229	2676937	2676437 pt	3222120331	2657073	2657073 pt
322110WYV	2611000	2611000	322121N331	2676945	2676445 pt	3222120335	2657075	2657075 pt
322110YV	2611002	2611002	322121N433	2676947	2676447 pt	3222120441	2657081	2657081 pt
3221211	26213	26213	322121N535	2676941	2676441 pt	3222120551	2657084	2657084
3221211111	2621311 pt	2621315	322121N541	2676943	2676443 pt	3222120555	2657086	2657086
3221211111 pt	2621311 pt	2621329 pt	322121N551	2676955	2676455 pt	3222120661	2657015	2657015
322121221	2621321 pt	2621316	322121N661	2676971	2676471 pt	3222120663	2657061	2657061
322121221 pt	2621321 pt	2621329 pt	322121N771	2676976	2676476 pt	3222120665	2657088	2657088
322121231	2621323 pt	2621320	322121N773	2676977	2676477 pt	3222120667	2657090	2657090
322121231 pt	2621323 pt	2621329 pt	322121N881	2676981	2676481 pt	3222120671	2657095	2657095
322121231 pt	2621323 pt	2621329 pt	322121N891	2676989	2676499 pt	3222120673	2657082	2657099 pt
322121YV	2621300	2621300	322121NYV	2676900	2676400 pt	3222120675	2657031	2657031
3221213	26214	26214	322121W	26760	26760 pt	3222120677	2657041	2657041
3221213111	2621431	2621431	322121W pt.	26760 pt	26760 pt	3222120681	2657051	2657051
3221213115	2621432	2621432	322121W pt.	38420 pt	38420 pt	3222120683	2657096	2657096
3221213221	2621437	2621437	322121WYV	2621000 pt	2621000 pt	3222120691	2657098	2657099 pt
3221213225	2621441	2621441	322121WYV pt.	2621000 pt	2621000 pt	3222120YV	2657000	2657000
3221213231	2621447	2621447	322121WYV pt.	2621000 pt	2621000 pt	3222120YV pt.	2657002	2657002
3221213235	2621448	2621448	322121WYV pt.	3842000 pt	3842000 pt	3222130	26520	26520
3221213341	2621454	2621454	322121WYV pt.	2621002 pt	2621002 pt	3222130111	2652021	2652021
3221213345	2621455	2621455	322121WYV pt.	2621002 pt	2621002 pt	3222130121	2652031	2652031
3221213351	2621456	2621456	322121WYV pt.	3842002 pt	3842002 pt	3222130131	2652041	2652041
3221213461	2621460	2621460	322121WYV pt.	2621002 pt	2621002 pt	3222130141	2652051	2652051
3221213471	2621471	2621471	3221221	26211	26211	3222130191 pt	2652097 pt	2652097
3221213481	2621473	2621473	3221221100	2621100	2621100	3222130191 pt	2652097 pt	2652071
3221213491	2621489	2621489	3221223	26212	26212	3222130191 pt	2652097 pt	2652098
3221213YV	2621400	2621400	3221223111	2621213 pt	2621215	3222130YV	2652000	2652000
3221215	26215	26215	3221223111 pt	2621213 pt	2621219	3222130YV pt.	2652002	2652002
3221215111	2621531	2621531	3221223121	2621227	2621227	3222141	26551	26551
3221215121	2621532	2621532	3221223YV	2621200	2621200	3222141100	2655100	2655100
3221215131	2621537	2621537	322122W	26210 pt	26210 pt	3222143	26552	26552
3221215141	2621558	2621558	322122WYV	2621000 pt	2621000 pt	3222143111	2655221	2655221
3221215YV	2621500	2621500	322122WYV pt.	2621002 pt	2621002 pt	3222143221	2655231	2655231
3221217	26216	26216	3221301	26311	26311	3222143331	2655271	2655271
3221217111	2621615 pt	2621611	3221301111	2631110	2631110	3222143391	2655298	2655298
3221217111 pt	2621615 pt	2621619	3221301221	2631188	2631188	3222143YV	2655200	2655200
3221217121	2621627	2621627	3221301YV	2631100	2631100	3222144	26550	26550
3221217YV	2621600	2621600	3221303	26312	26312	3222144YV	2655000	2655002
3221219	26217	26217	3221303111	2631240	2631240	3222144YV pt.	2655002	2655002
3221219111	2621730	2621730	3221303221	2631261	2631261	3222151	26561	26561
3221219121	2621750	2621750	3221303331	2631210	2631210	3222151100	2656100	2656100
3221219131	2621760	2621760	3221303341	2631262	2631262	3222153	26562	26562
3221219191	2621768	2621768	3221303351	2631263	2631263	3222153111	2656233	2656233
3221219YV	2621700	2621700	3221303361	2631288	2631288	3222153121	2656235	2656235
322121A	26218	26218	3221303YV	2631200	2631200	3222153YV	2656200	2656200
322121A111	2621830	2621830	3221305	26313	26313	3222155	26563	26563
322121A121	2621850	2621850	3221305100	2631300	2631300	3222155111	2656310	2656310
322121A131	2621860	2621860	3221307	26314	26314	3222155121 pt	2656397 pt	2656312
322121A141	2621870 pt	2621864	3221307111	2631420	2631420	3222155121 pt	2656397 pt	2656319
322121A141 pt	2621870 pt	2621868	3221307221	2631410	2631410	3222155YV	2656300	2656300
322121A151	2621883	2621883	3221307331	2631430	2631430	322215W	26560	26560
322121AYV	2621800	2621800	3221307341	2631446	2631446	322215WYV	2656000	2656000
322121C	26219	26219	3221307451	2631443	2631443	322215WYV pt.	2656002	2656002
322121C100	2621900	2621900	3221307461 pt	2631441 pt	2631444	3222211	26711	26711
322121E	2621B	2621B	3221307461 pt	2631441 pt	2631444	3222211111	2671111	2671111
322121E111	2621B22	2621B22	3221307461 pt	2631441 pt	2631444	3222211121	2671115	2671115
322121E121	2621B28	2621B28	3221307571	2631450	2631450	3222211YV	2671100	2671100
322121EYV	2621B00	2621B00	3221307575	2631481	2631481	3222213 pt.	26715 pt	26713
322121G	2621A	2621A	3221307581	2631482	2631482	3222213111 pt	2671511 pt	2671300
322121G111	2621A11	2621A11	3221307591	2631488	2631488	3222213111 pt	2671511 pt	2671313
322121G221	2621A60	2621A60	3221307YV	2631400	2631400	3222213111 pt	2671511 pt	2671314
322121G331	2621A30	2621A30	3221309	26318	26318	3222213111 pt	2671511 pt	2671320
322121G341	2621A51	2621A51	3221309100	2631800	2631800	3222213221	2671521	2671411
322121G351	2621A73	2621A73	322130W	26310	26310	3222213YV	2671500	2671400 pt
322121G361	2621A78	2621A78	322130WYV	2631000	2631000			
322121G371	2621A81	2621A81	322130WYV pt.	2631000	2631000			
322121G391	2621A88	2621A88	322130WYV pt.	2631002	2631002			
322121GYV	2621A00	2621A00						

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710 pt	26710 pt	3222241YVW	2674100	2674100	3222911	26762	26761 pt
322221WYWW	2671000 pt	2671000 pt	322224311	267421	26742	3222911111	2676214	267614 pt
322221WYVW	2671002 pt	2671002 pt	322224321	2674212	2674212	3222911121	2676251	2676151 pt
3222221	26721	26721	3222243YVW	2674200	2674200	322291YVW	2676200	2676100 pt
3222221111	2672113	2672113	3222244W	26740	26740	3222913 pt	26765	26763 pt
3222221121	2672153	2672153	3222244YVW	2674000	2674000	3222913111	38421 pt	38421 pt
3222221YVW	2672100	2672100	3222244YVWY	2674002	2674002	3222913121	3842133	3842132 pt
3222223	26722	26722	3222250 pt	34970 pt	34970 pt	3222913131	3842135	3842132 pt
3222223111	2672212	2672212	3222250 pt	34972	34972	3222913YVW pt	2676500 pt	2676300 pt
3222223121	2672230	2672230	3222250101	3497210	3497210	3222913YVW pt	3842100 pt	3842100 pt
3222223YVW	2672200	2672200	3222250206	3497222	3497222	3222915	26766	26764 pt
3222225	26723	26723	3222250311	3497225	3497225	3222915111	2676611	2676411 pt
3222225111	2672313	2672313	3222250416	3497228	3497228	3222915221	2676625	2676425 pt
3222225221	2672343	2672343	3222250421	3497241	3497241	3222915225	2676627	2676427 pt
3222225331	2672333	2672333	3222250YVW pt	3497000 pt	3497000 pt	3222915225	2676633	2676433 pt
3222225341	2672345	2672345	3222250YVW pt	3497200	3497200	3222915229	2676635	2676435 pt
3222225351	2672353	2672353	3222250YVW pt	3497002 pt	3497002 pt	3222915229	2676637	2676437 pt
3222225361	2672359	2672359	3222260 pt	26750 pt	26750 pt	3222915331	2676645	2676445 pt
3222225371	2672361	2672361	3222260100	26753	26753	3222915433	2676647	2676447 pt
3222225475	2672381	2672381	3222260100	2675300	2675300	3222915535	2676641	2676441 pt
3222225581	2672385	2672385	3222260YVW	2675000 pt	2675000 pt	3222915541	2676643	2676443 pt
3222225585	2672375	2672375	3222260YVW	2675002 pt	2675002 pt	3222915551	2676655	2676455 pt
3222225591	2672398	2672398	3222261	26751	26751	3222915661	2676671	2676471 pt
3222225YVW	2672300	2672300	3222261111	2675110	2675110	3222915771	2676676	2676476 pt
3222226	26791	26791	3222261121	2675111	2675111	3222915773	2676677	2676477 pt
3222226111	2679122	2679122	3222261121 pt	2679125 pt	2679128	3222915881	2676681	2676481 pt
3222226121	2679125 pt	2679126	322226131	2679134	2679134	3222915891	2676699	2676499 pt
3222226121 pt	2679125 pt	2679128	322226131 pt	2679136	2679136	3222915YVW	2676600	2676400 pt
3222226131	2679134	2679134	322226141	2679141	2679141	322291W pt	26760 pt	26760 pt
3222226141	2679136	2679136	322226191	2679141	2679141	322291W pt	38420 pt	38420 pt
3222226191	2679141	2679141	322226YVW	2679100	2679100	322291WYVW pt	2676000 pt	2676000 pt
3222226YVW	2679100	2679100	322227	26792	26792	322291WYVW pt	3842000 pt	3842000 pt
3222227	26792	26792	322227111	2679282	2679282	322291WYVW pt	2676002 pt	2676002 pt
3222227111	2679282	2679282	3222271121	2679291	2679291	322291WYVW pt	3842002 pt	3842002 pt
3222227121	2679291	2679291	322227191	2679296	2679296	3222991	26794	26794
3222227191	2679296	2679296	322227YVW	2679200	2679200	3222991100	2679400	2679400
3222227YVW	2679200	2679200	3222229	26724	26724	3222993 pt	26752	26752
3222229	26724	26724	3222229111	2672445	2672445	3222993 pt	26795	26795
3222229111	2672445	2672445	3222229121	2672453	2672453	3222993 pt	39999 pt	39999 pt
3222229121	2672453	2672453	3222229131	2672455	2672455	3222993111	2679521	2679521
3222229131	2672455	2672455	3222229141	2672456	2672456	3222993221	2679531	2679531
3222229151	2672469	2672469	3222229YVW	2672400	2672400	3222993231	2679541	2679541
3222229YVW	2672400	2672400	322222W pt	26720	26720	3222993241	2679548	2679548
322222W pt	26720	26720	322222W pt	26790 pt	26790 pt	3222993351 pt	2679550 pt	2679551
322222W pt	26790 pt	26790 pt	322222WYVW pt	2672000	2672000	3222993351 pt	2679550 pt	2679555
322222WYVW pt	2672000	2672000	322222WYVW pt	2679000 pt	2679000 pt	3222993361	2679561	2679561
322222WYVW pt	2679000 pt	2679000 pt	322222WYVW pt	2672002	2672002	3222993471 pt	2675200 pt	2675200 pt
322222WYVW pt	2672002	2672002	322222WYVW pt	2679002 pt	2679002 pt	3222993471 pt	2675200 pt	267521
322222WYVW pt	2679002 pt	2679002 pt	3222231	26731	26731	3222993471 pt	2675200 pt	267527
3222231	26731	26731	3222231100	2673100	2673100	3222993471 pt	2675200 pt	2675297
3222231100	2673100	2673100	3222233	26733 pt	26733 pt	3222993591 pt	2679598	2679598
3222233	26733 pt	26733 pt	3222233111	2673306	2673311 pt	3222993591 pt	3999996 pt	3999913 pt
3222233111	2673306	2673311 pt	3222233121	2673312	2673312	3222993591 pt	3999996 pt	3999999 pt
3222233121	2673312	2673312	3222233131 pt	2673315 pt	2673311 pt	3222993YVW pt	2679500	2679500
3222233131 pt	2673315 pt	2673311 pt	3222233131 pt	2673315 pt	2673314 pt	3222993YVW pt	3999900 pt	3999900 pt
3222233131 pt	2673315 pt	2673314 pt	3222233YVW	2673300 pt	2673300 pt	322299W pt	26750 pt	26750 pt
3222233YVW	2673300 pt	2673300 pt	322223W	26730 pt	26730 pt	322299W pt	26790 pt	26790 pt
322223W	26730 pt	26730 pt	322223WYVW	2673000 pt	2673000 pt	322299W pt	39990 pt	39990 pt
322223WYVW	2673000 pt	2673000 pt	322223WYVW	2673002 pt	2673002 pt	322299WYVW pt	2675000 pt	2675000 pt
322223WYVW	2673002 pt	2673002 pt	3222241	26741	26741	322299WYVW pt	2679000 pt	2679000 pt
3222241	26741	26741	3222241111	2674111	2674111	322299WYVW pt	3999000 pt	3999000 pt
3222241111	2674111	2674111	3222241221	2674112	2674112	322299WYVW pt	2675002 pt	2675002 pt
3222241221	2674112	2674112	3222241231	2674113	2674113	322299WYVW pt	2679002 pt	2679002 pt
3222241231	2674113	2674113	3222241341	2674115	2674115	322299WYVW pt	3999002 pt	3999002 pt
3222241341	2674115	2674115						

Coated and Laminated Packaging Paper and Plastics Film Manufacturing

1997

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1997 Economic Census

Manufacturing

Industry Series



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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special

census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the

manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322221	Coated & laminated packaging paper & plastics film mfg	78	91	5 753	196 099	4 445	9 665	131 736	573 957	1 014 223	1 581 312	50 102
267110	Paper - coated & laminated, packaging (pt)	N	91	5 753	196 099	4 445	9 665	131 736	573 957	1 014 223	1 581 312	50 102

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322221, COATED & LAMINATED PACKAGING PAPER & PLASTICS FILM MFG												
United States	1	91	52	5 753	196 099	4 445	9 665	131 736	573 957	1 014 223	1 581 312	50 102
Illinois	-	5	4	255	9 038	196	465	6 657	21 381	27 606	48 743	2 515
Massachusetts	-	3	3	315	14 613	232	641	8 406	60 097	123 767	183 346	13 103
Michigan	1	6	4	404	11 880	306	653	8 061	39 697	65 471	103 818	2 126
Missouri	1	4	3	558	17 784	459	955	13 396	46 483	67 601	113 660	2 805
New York	9	6	2	120	3 933	90	188	2 766	11 923	18 037	29 963	1 219
Ohio	-	7	3	233	8 935	172	365	5 512	24 236	42 459	65 328	3 021
Tennessee	-	5	3	421	15 055	295	658	9 525	46 807	109 286	155 507	4 277
Texas	-	5	2	253	8 822	202	450	6 080	19 103	30 793	49 366	371
Wisconsin	-	4	4	518	18 547	386	743	10 620	50 032	85 141	135 362	2 278

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322221, COATED & LAMINATED PACKAGING PAPER & PLASTICS FILM MFG		322221, COATED & LAMINATED PACKAGING PAPER & PLASTICS FILM MFG—Con.	
Companies ¹	number.. 78	Value added .....	..\$1,000.. 573 957
All establishments	number.. 91	Total inventories, beginning of year .....	..\$1,000.. 187 124
Establishments with 1 to 19 employees	number.. 39	Finished goods inventories, beginning of year .....	..\$1,000.. 84 585
Establishments with 20 to 99 employees	number.. 26	Work-in-process inventories, beginning of year .....	..\$1,000.. 21 676
Establishments with 100 employees or more	number.. 26	Materials and supplies inventories, beginning of year .....	..\$1,000.. 80 863
All employees	number.. 5 753	Total inventories, end of year .....	..\$1,000.. 200 301
Total compensation ² .....	..\$1,000.. 247 922	Finished goods inventories, end of year .....	..\$1,000.. 89 251
Annual payroll .....	..\$1,000.. 196 099	Work-in-process inventories, end of year .....	..\$1,000.. 23 878
Total fringe benefits .....	..\$1,000.. 51 823	Materials and supplies inventories, end of year .....	..\$1,000.. 87 172
Production workers, average for year	number.. 4 445	Gross book value of total assets at beginning of year .....	..\$1,000.. 605 812
Production workers on March 15	number.. 4 346	Total capital expenditures (new and used) .....	..\$1,000.. 50 102
Production workers on May 15	number.. 4 490	Capital expenditures for buildings and other structures (new and used) .....	..\$1,000.. 5 176
Production workers on August 15	number.. 4 484	Capital expenditures for machinery and equipment (new and used) .....	..\$1,000.. 44 926
Production workers on November 15	number.. 4 460	Total retirements ² .....	..\$1,000.. 12 004
Production-worker hours .....	..1,000.. 9 665	Gross book value of total assets at end of year .....	..\$1,000.. 643 910
Production-worker wages .....	..\$1,000.. 131 736	Total depreciation during year ² .....	..\$1,000.. 49 274
Total cost of materials .....	..\$1,000.. 1 014 223	Total rental payments ² .....	..\$1,000.. 6 206
Cost of materials, parts, containers, etc., consumed .....	..\$1,000.. 955 662	Buildings and other structures rental payments ² .....	..\$1,000.. 3 389
Cost of resales .....	..\$1,000.. 29 329	Machinery and equipment rental payments ² .....	..\$1,000.. 2 817
Cost of fuels .....	..\$1,000.. 7 313	Cost of purchased services for the repair of buildings and other structures ³ .....	..\$1,000.. 3 322
Cost of purchased electricity .....	..\$1,000.. 16 711	Response coverage ratio ⁴	percent.. 91
Cost of contract work .....	..\$1,000.. 5 208	Cost of purchased services for the repair of machinery and equipment ³ .....	..\$1,000.. 22 699
Quantity of electricity purchased for heat and power .....	..1,000 kWh.. 284 047	Response coverage ratio ⁴	percent.. 91
Quantity of electricity generated less sold for heat and power .....	..1,000 kWh.. —	Cost of purchased communications services ³ .....	..\$1,000.. 2 332
Total value of shipments .....	..\$1,000.. 1 581 312	Response coverage ratio ⁴	percent.. 91
Primary products value of shipments .....	..\$1,000.. 1 268 742	Cost of purchased legal services ³ .....	..\$1,000.. 1 655
Secondary products value of shipments .....	..\$1,000.. 274 242	Response coverage ratio ⁴	percent.. 91
Total miscellaneous receipts .....	..\$1,000.. 38 328	Cost of purchased accounting and bookkeeping services ³ .....	..\$1,000.. 3 027
Value of resales .....	..\$1,000.. 33 754	Response coverage ratio ⁴	percent.. 91
Contract receipts .....	..\$1,000.. D	Cost of purchased advertising services ³ .....	..\$1,000.. 2 043
Other miscellaneous receipts .....	..\$1,000.. D	Response coverage ratio ⁴	percent.. 91
Primary products specialization ratio	percent.. 82	Cost of purchased software and other data processing services ³ .....	..\$1,000.. 1 540
Value of primary products shipments made in all industries .....	..\$1,000.. 1 541 006	Response coverage ratio ⁴	percent.. 91
Value of primary products shipments made in this industry .....	..\$1,000.. 1 268 742	Cost of purchased refuse removal (including hazardous waste) services ³ .....	..\$1,000.. 5 131
Value of primary products shipments made in other industries .....	..\$1,000.. 272 264	Response coverage ratio ⁴	percent.. 91
Coverage ratio	percent.. 82		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322221, COATED & LAMINATED PACKAGING PAPER & PLASTICS FILM MFG												
All establishments	1	91	52	5 753	196 099	4 445	9 665	131 736	573 957	1 014 223	1 581 312	50 102
Establishments with 1 to 4 employees	9	21	—	42	1 266	32	63	891	3 773	5 779	9 605	1 401
Establishments with 5 to 9 employees	6	9	—	55	2 491	36	80	1 364	3 823	5 063	8 952	392
Establishments with 10 to 19 employees	9	9	—	118	3 194	83	158	2 265	9 169	13 867	23 036	864
Establishments with 20 to 49 employees	1	15	15	514	16 526	362	712	9 257	48 810	78 198	126 656	3 338
Establishments with 50 to 99 employees	4	11	11	716	26 848	532	1 227	17 289	80 921	152 849	233 401	12 745
Establishments with 100 to 249 employees	—	23	23	3 393	118 405	2 614	5 759	79 250	334 533	617 046	945 085	27 441
Establishments with 250 to 499 employees	—	3	3	915	27 369	786	1 666	21 420	92 928	141 421	234 577	3 921
Establishments with 500 to 999 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	26	—	127	3 478	85	159	2 447	10 570	15 982	26 552	1 077

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322221	Coated & laminated packaging paper & plastics film mfg	91	5 753	196 099	4 445	9 665	131 736	573 957	1 014 223	1 581 312	50 102
3222211	Single-web paper, coated rolls and sheets, including waxed, for flexible packaging uses	39	3 561	120 502	2 744	5 955	77 923	362 514	655 467	1 015 219	25 592
3222213	Multiweb laminated rolls and sheets, except foil and film-film, for flexible packaging uses	15	1 643	58 090	1 300	2 918	41 827	163 385	276 993	436 300	19 084

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322221	Coated and laminated packaging paper and plastics film	N	X	X	1 541 006	N	X	X	N
3222211	Single-web paper, coated rolls and sheets, including waxed, for flexible packaging uses	N	X	X	965 470	N	X	X	820 481
32222111	Single-web paper, coated rolls and sheets, including waxed, for flexible packaging uses	N	X	X	944 587	N	X	X	N
322221111	Plastics-coated single-web paper, rolls and sheets, for flexible packaging uses	N	X	X	944 587	N	X	X	N
322221121	Coated single-web paper (other than plastics-coated), rolls and sheets, including waxed, for flexible packaging uses	31	X	P193.3	369 568	23	X	177.4	336 022
3222211Y	Single-web paper, coated rolls and sheets, including waxed, for flexible packaging uses, nsk	40	X	P227.5	575 019	44	X	P189.3	460 932
3222211YWV	Single-web paper, coated rolls and sheets, including waxed, for flexible packaging uses, nsk	N	X	X	20 883	N	X	X	N
3222213	Multiweb laminated rolls and sheets, except foil and film-film, for flexible packaging uses	N	X	X	20 883	N	X	X	23 527
32222131	Paper-paper multiweb laminated rolls and sheets, for flexible packaging uses	N	X	X	456 161	N	X	X	N
322221311	Paper-paper multiweb laminated rolls and sheets, for flexible packaging uses	N	X	X	267 623	N	X	X	N
32222132	Film-paper multiweb laminated rolls and sheets, for flexible packaging uses	18	X	Q160.3	267 623	N	X	N	N
3222213221	Film-paper multiweb laminated rolls and sheets, for flexible packaging uses	N	X	X	152 974	N	X	X	N
3222213Y	Multiweb laminated rolls and sheets, except foil and film-film, for flexible packaging uses, nsk	15	X	P37.3	152 974	17	X	S	130 360
3222213YWV	Multiweb laminated rolls and sheets, except foil and film-film, for flexible packaging uses, nsk	N	X	X	35 564	N	X	X	N
322221W	Coated and laminated packaging paper and plastics film, nsk, total	N	X	X	35 564	N	X	X	N
322221WY	Coated and laminated packaging paper and plastics film, nsk, total	N	X	X	119 375	N	X	X	N
322221WYWW	Coated and laminated packaging paper and plastics film, nsk, for nonadministrative-record establishments	N	X	X	119 375	N	X	X	N
322221WYWY	Coated and laminated packaging paper and plastics film, nsk, for administrative-record establishments	N	X	X	93 082	N	X	X	N
		N	X	X	26 293	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222211	SINGLE-WEB PAPER, COATED ROLLS AND SHEETS, INCLUDING WAXED, FOR FLEXIBLE PACKAGING USES		
	United States	965 470	820 481
	California	21 231	14 483
	Illinois	31 247	33 049
	Indiana	56 072	N
	Michigan	89 870	59 620
	New Jersey	22 673	27 334
	Ohio	34 796	52 701
	Pennsylvania	13 465	16 307
	Wisconsin	127 816	231 211

See footnotes at end of table.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992—Con.

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222213	MULTIWEB LAMINATED ROLLS AND SHEETS, EXCEPT FOIL AND FILM-FILM, FOR FLEXIBLE PACKAGING USES		
	United States	456 161	N
	California	3 660	N
	Illinois	30 736	N
	New Jersey	16 066	N
	Wisconsin	45 233	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322221	COATED & LAMINATED PACKAGING PAPER & PLASTICS FILM MFG				
32212007	Paper .....1,000 s tons..	533.6	511 054	N	N
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. ....mil lb..	135.2	76 944	N	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	76 512	X	N
33131509	Aluminum foil, plain	23.7	42 849	N	N
32552003	Glues and adhesives	X	10 785	X	N
32591003	Printing ink	P12.9	33 837	N	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	10 636	X	N
00970099	All other materials and components, parts, containers, and supplies	X	87 323	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	105 722	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322221 COATED AND LAMINATED PACKAGING PAPER AND PLASTICS FILM MANUFACTURING

This U.S. industry comprises establishments primarily engaged in performing one or more of the following activities associated with the manufacturing of packaging materials: (1) cutting and coating paper; and (2) cutting and laminating paper with other flexible materials (except

plastics to plastics or foil to paper laminates). The products made in this industry are made from purchased sheet materials and may be printed in the same establishment.

The data published with NAICS code 322221 include the following SIC industry:

2671 Paper - coated and laminated, packaging (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsk) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710 pt	26710 pt	3222241YVW	2674100	2674100	3222911	26762	26761 pt
322221WYWW	2671000 pt	2671000 pt	322224311	267421	26742	3222911111	2676214	267614 pt
322221WYVY	2671002 pt	2671002 pt	322224321	2674212	2674212	3222911121	2676251	2676151 pt
3222221	26721	26721	3222243YVW	2674200	2674200	3222911YVW	2676200	2676100 pt
3222221111	2672113	2672113	3222244W	26740	26740	3222913 pt	26765	26763 pt
3222221121	2672153	2672153	3222244YVW	2674000	2674000	3222913111	38421 pt	38421 pt
3222221YVW	2672100	2672100	3222244YVWY	2674002	2674002	3222913121	3842133	3842132 pt
3222223	26722	26722	3222250 pt	34970 pt	34970 pt	3222913131	3842135	3842132 pt
3222223111	2672212	2672212	3222250YVW pt	34972	34972	3222913YVW pt	2676500 pt	2676300 pt
3222223121	2672230	2672230	3222250YVWY	3497210	3497210	3222913YVW pt	3842100 pt	3842100 pt
3222223YVW	2672200	2672200	3222250206	3497222	3497222	3222915	26766	26764 pt
3222225	26723	26723	3222250311	3497225	3497225	3222915111	2676611	2676411 pt
3222225111	2672313	2672313	3222250416	3497228	3497228	3222915221	2676625	2676425 pt
3222225221	2672343	2672343	3222250421	3497241	3497241	3222915225	2676627	2676427 pt
3222225331	2672333	2672333	3222250YVW pt	3497000 pt	3497000 pt	3222915229	2676633	2676433 pt
3222225341	2672345	2672345	3222250YVWY	3497200	3497200	3222915331	2676635	2676435 pt
3222225351	2672353	2672353	3222260 pt	26750 pt	26750 pt	3222915331	2676637	2676437 pt
3222225361	2672359	2672359	3222260100	26753	26753	3222915433	2676645	2676445 pt
3222225371	2672361	2672361	3222260YVW	2675000 pt	2675000 pt	3222915535	2676647	2676447 pt
3222225475	2672381	2672381	3222260YVWY	2675002 pt	2675002 pt	3222915541	2676643	2676441 pt
3222225581	2672385	2672385	3222311	26751	26751	3222915551	2676655	2676455 pt
3222225585	2672375	2672375	3222311111	2675110	2675110	3222915661	2676671	2676471 pt
3222225591	2672398	2672398	3222311121	2675111	2675111	3222915771	2676676	2676476 pt
3222225YVW	2672300	2672300	3222311231	2675112	2675112	3222915773	2676677	2676477 pt
3222226	26791	26791	3222311391 pt	2675191 pt	2675120	3222915881	2676681	2676481 pt
3222226111	2679122	2679122	3222311391 pt	2675191 pt	2675130	3222915891	2676699	2676499 pt
3222226121 pt	2679125 pt	2679126	3222311YVW	2675100	2675100	3222915YVW	2676600	2676400 pt
3222226121 pt	2679125 pt	2679128	3222313	26793	26793	322291W pt	26760	26760 pt
3222226131	2679134	2679134	3222313111	2679311	2679311	322291WYVW pt	38420 pt	38420 pt
3222226141	2679136	2679136	3222313121	2679311	2679311	322291WYVWY pt	2676000 pt	2676002 pt
3222226191	2679141	2679141	3222313191 pt	2679331	2679331	322291WYVWY pt	3842002 pt	3842002 pt
3222226YVW	2679100	2679100	3222313YVW	2679300	2679300	3222991	26794	26794
3222227	26792	26792	322231W pt	26750 pt	26750 pt	3222991100	2679400	2679400
3222227111	2679282	2679282	322231W pt	26790 pt	26790 pt	3222993 pt	26752	26752
3222227121	2679291	2679291	322231WYVW pt	2679000 pt	2679000 pt	3222993 pt	26795	26795
3222227191	2679296	2679296	322231WYVWY pt	2679002 pt	2679002 pt	3222993 pt	39999 pt	39999 pt
3222227YVW	2679200	2679200	3222320	26770	26770	3222993111	2679521	2679521
3222229	26724	26724	3222320111	2677010	2677010	3222993221	2679531	2679531
3222229111	2672445	2672445	3222320121	2677021	2677021	3222993231	2679541	2679541
3222229121	2672453	2672453	3222320131	2677022	2677022	3222993241	2679548	2679548
3222229131	2672455	2672455	3222320141	2677040	2677040	3222993351 pt	2679550 pt	2679551
3222229141	2672456	2672456	3222320YVW	2677000	2677000	3222993361	2679551	2679551
3222229151	2672469	2672469	3222320YVWY	2677002	2677002	3222993471 pt	2675200 pt	2675200
3222229YVW	2672400	2672400	3222331	26781	26781	3222993471 pt	2675200 pt	267521
322222W pt	26720	26720	3222331111	2678111	2678111	3222993471 pt	2675200 pt	2675217
322222W pt	26790 pt	26790 pt	3222331121	2678113	2678113	3222993591 pt	2679598	2679598
322222WYVW pt	2672000	2672000	3222331131	2678121	2678121	3222993591 pt	3999996 pt	3999913 pt
322222WYVWY pt	2679000 pt	2679000 pt	3222331YVW	2678100	2678100	3222993591 pt	3999996 pt	3999999 pt
322222WYVWY pt	2672002	2672002	3222333	26782	26782	3222993YVW pt	2679500	2679500
322222WYVWY pt	2679002 pt	2679002 pt	3222333111	2678212	2678212	3222993YVW pt	3999900 pt	3999900 pt
3222231	26731	26731	3222333221 pt	2678225 pt	2678213	322299W pt	26750 pt	26750 pt
3222231100	2673100	2673100	3222333221 pt	2678225 pt	2678221	322299W pt	26790 pt	26790 pt
3222233	26733 pt	26733 pt	3222333331	2678235	2678235	322299W pt	39990 pt	39990 pt
3222233111	2673306	2673311 pt	3222333441	2678245	2678245	322299WYVW pt	2675000 pt	2675000 pt
3222233121	2673312	2673312	3222333551	2678251	2678251	322299WYVWY pt	2679000 pt	2679000 pt
3222233131 pt	2673315 pt	2673311 pt	3222333691	2678298	2678298	322299WYVWY pt	3999000 pt	3999000 pt
3222233131 pt	2673315 pt	2673314 pt	3222333YVW	2678200	2678200	322299WYVWY pt	2675002 pt	2675002 pt
3222233YVW	2673300 pt	2673300 pt	322233W	26780	26780	322299WYVWY pt	2679002 pt	2679002 pt
322223W	26730 pt	26730 pt	322233W	2678000	2678000	322299WYVWY pt	3999002 pt	3999002 pt
322223WYVW	2673000 pt	2673000 pt	322233W	2678002	2678002			
322223WYVWY	2673002 pt	2673002 pt						
3222241	26741	26741						
3222241111	2674111	2674111						
3222241221	2674112	2674112						
3222241231	2674113	2674113						
3222241341	2674115	2674115						

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1997 Economic Census

Manufacturing

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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special

census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the

manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322222	Coated & laminated paper mfg .	512	584	41 541	1 537 585	28 504	61 176	904 113	5 897 745	6 073 190	11 959 537	371 184
267200	Paper - coated & laminated, n.e.c.	N	506	35 099	1 332 277	23 842	51 176	779 091	5 305 246	5 490 281	10 785 119	329 500
267910	Converted paper products, n.e.c. (pt)	N	78	6 442	205 308	4 662	10 000	125 022	592 499	582 909	1 174 418	41 684

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)	
	E ¹	Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)					Wages (\$1,000)
322222, COATED & LAMINATED PAPER MFG												
United States	-	584	295	41 541	1 537 585	28 504	61 176	904 113	5 897 745	6 073 190	11 959 537	371 184
Alabama	-	4	1	159	5 441	122	275	3 949	19 829	22 403	43 194	1 242
California	1	62	29	2 493	82 017	1 371	2 623	38 278	194 889	270 287	468 869	20 802
Georgia	1	16	8	675	22 979	474	981	14 218	156 386	188 205	346 895	11 300
Illinois	1	42	27	3 091	112 910	1 805	3 736	60 173	472 611	353 622	830 816	25 480
Indiana	-	18	13	1 204	43 774	863	1 797	29 140	234 453	265 741	473 625	6 927
Kansas	-	5	2	202	5 487	119	262	2 808	15 791	21 409	37 172	534
Kentucky	-	10	5	1 410	44 439	1 095	2 314	29 668	232 634	292 897	507 133	27 476
Louisiana	5	5	2	480	7 509	398	832	4 479	18 390	23 190	40 240	1 428
Maryland	6	6	4	252	7 438	184	291	4 444	21 025	19 646	40 501	1 695
Massachusetts	-	37	23	3 674	154 798	2 349	5 416	81 099	374 504	481 385	859 891	25 728
Michigan	7	9	5	574	21 957	371	786	12 490	68 721	60 594	130 319	3 692
Minnesota	-	18	7	2 232	90 783	1 766	3 981	64 027	568 804	330 976	908 959	22 439
Missouri	5	14	4	494	15 340	344	847	8 722	37 527	59 430	98 457	3 071
New Hampshire	-	6	3	519	18 091	302	584	10 179	42 663	45 893	87 955	3 512
New Jersey	1	37	19	1 963	73 242	1 317	2 787	41 086	183 327	236 840	421 730	11 669
New York	-	40	13	1 723	55 535	1 205	2 393	37 215	138 503	177 090	323 634	9 015
North Carolina	-	12	7	868	27 098	738	1 554	19 899	70 691	140 473	211 988	6 673
Ohio	-	42	27	4 196	184 828	2 722	6 321	96 140	619 048	606 803	1 240 834	52 931
Pennsylvania	-	31	21	3 039	122 571	2 041	4 024	70 474	542 116	587 940	1 131 491	24 754
South Carolina	-	8	6	1 627	59 249	1 230	2 681	38 031	325 359	165 465	490 019	13 932
Tennessee	-	12	9	2 497	73 145	1 758	3 833	36 816	173 594	195 907	366 327	29 443
Texas	1	26	2	332	11 813	236	516	7 300	75 204	53 459	128 877	1 315
Virginia	-	7	4	504	16 067	312	725	7 320	77 441	125 332	197 787	3 786
Wisconsin	-	22	15	2 889	108 838	2 052	4 430	71 276	482 674	664 448	1 140 111	24 796

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322222, COATED & LAMINATED PAPER MFG		322222, COATED & LAMINATED PAPER MFG— Con.	
Companies ¹	number.. 512	Value added	\$1,000.. 5 897 745
All establishments	number.. 584	Total inventories, beginning of year	\$1,000.. 1 263 531
Establishments with 1 to 19 employees	number.. 289	Finished goods inventories, beginning of year	\$1,000.. 504 950
Establishments with 20 to 99 employees	number.. 181	Work-in-process inventories, beginning of year	\$1,000.. 260 785
Establishments with 100 employees or more	number.. 114	Materials and supplies inventories, beginning of year	\$1,000.. 497 796
All employees	number.. 41 541	Total inventories, end of year	\$1,000.. 1 297 412
Total compensation ²	\$1,000.. 1 938 046	Finished goods inventories, end of year	\$1,000.. 499 560
Annual payroll	\$1,000.. 1 537 585	Work-in-process inventories, end of year	\$1,000.. 277 573
Total fringe benefits	\$1,000.. 400 461	Materials and supplies inventories, end of year	\$1,000.. 520 279
Production workers, average for year	number.. 28 504	Gross book value of total assets at beginning of year	\$1,000.. 4 488 829
Production workers on March 12	number.. 27 656	Total capital expenditures (new and used)	\$1,000.. 371 184
Production workers on May 12	number.. 28 588	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 28 611
Production workers on August 12	number.. 29 276	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 342 573
Production workers on November 12	number.. 28 492	Total retirements ²	\$1,000.. 173 217
Production-worker hours	\$1,000.. 61 176	Gross book value of total assets at end of year	\$1,000.. 4 686 796
Production-worker wages	\$1,000.. 904 113	Total depreciation during year ²	\$1,000.. 328 420
Total cost of materials	\$1,000.. 6 073 190	Total rental payments ²	\$1,000.. 71 385
Cost of materials, parts, containers, etc., consumed	\$1,000.. 5 565 041	Buildings and other structures rental payments ²	\$1,000.. 41 465
Cost of resales	\$1,000.. 276 339	Machinery and equipment rental payments ²	\$1,000.. 29 920
Cost of fuels	\$1,000.. 74 128	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 14 656
Cost of purchased electricity	\$1,000.. 93 748	Response coverage ratio ⁴	percent.. 89
Cost of contract work	\$1,000.. 63 934	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 133 064
Quantity of electricity purchased for heat and power	1,000 kWh.. 1 673 527	Response coverage ratio ⁴	percent.. 89
Quantity of electricity generated less sold for heat and power	1,000 kWh.. D	Cost of purchased communications services ³	\$1,000.. 19 249
Total value of shipments	\$1,000.. 11 959 537	Response coverage ratio ⁴	percent.. 89
Primary products value of shipments	\$1,000.. 10 109 178	Cost of purchased legal services ³	\$1,000.. 10 426
Secondary products value of shipments	\$1,000.. 1 409 603	Response coverage ratio ⁴	percent.. 89
Total miscellaneous receipts	\$1,000.. 440 756	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 5 316
Value of resales	\$1,000.. 370 741	Response coverage ratio ⁴	percent.. 89
Contract receipts	\$1,000.. 44 669	Cost of purchased advertising services ³	\$1,000.. 16 610
Other miscellaneous receipts	\$1,000.. 25 346	Response coverage ratio ⁴	percent.. 89
Primary products specialization ratio	percent.. 87	Cost of purchased software and other data processing services ³	\$1,000.. 12 332
Value of primary products shipments made in all industries	\$1,000.. 11 496 971	Response coverage ratio ⁴	percent.. 89
Value of primary products shipments made in this industry	\$1,000.. 10 109 178	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 21 581
Value of primary products shipments made in other industries	\$1,000.. 1 387 793	Response coverage ratio ⁴	percent.. 89
Coverage ratio	percent.. 87		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322222, COATED & LAMINATED PAPER MFG												
All establishments	-	584	295	41 541	1 537 585	28 504	61 176	904 113	5 897 745	6 073 190	11 959 537	371 184
Establishments with 1 to 4 employees	8	110	-	228	5 896	174	258	3 763	13 356	24 455	41 060	1 643
Establishments with 5 to 9 employees	7	81	-	547	16 877	378	662	10 883	49 719	66 263	116 634	3 444
Establishments with 10 to 19 employees	5	98	-	1 430	46 272	1 002	1 911	27 986	126 319	153 955	281 257	7 600
Establishments with 20 to 49 employees	1	103	103	3 273	114 842	2 214	4 300	59 241	332 344	403 340	729 304	28 087
Establishments with 50 to 99 employees	-	78	78	5 585	189 281	3 893	8 110	109 006	576 504	803 083	1 380 706	47 970
Establishments with 100 to 249 employees	-	77	77	11 641	425 837	7 721	16 410	250 647	1 490 744	1 700 787	3 193 420	90 002
Establishments with 250 to 499 employees	-	24	24	8 126	298 923	5 121	11 042	158 916	1 034 781	1 105 832	2 115 383	75 741
Establishments with 500 to 999 employees	-	11	11	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	-	2	2	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	9	206	-	1 581	43 838	1 082	1 722	27 187	126 338	168 523	295 270	10 255

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322222	Coated & laminated paper mfg	584	41 541	1 537 585	28 504	61 176	904 113	5 897 745	6 073 190	11 959 537	371 184
3222221	Printing paper, coated at establishments other than where paper was produced	25	1 516	60 733	931	2 021	31 398	175 330	188 748	360 318	13 999
3222223	Gummed products	10	1 082	34 362	643	1 298	19 323	101 645	138 048	238 934	9 828
3222225	Pressure-sensitive products	175	22 852	901 118	15 542	34 476	523 057	3 850 952	3 592 749	7 441 381	234 610
3222226	Wallcoverings	34	2 902	104 612	2 092	4 494	69 795	309 117	239 124	560 303	14 741
3222227	Gift wrap paper	15	3 320	95 852	2 394	5 198	51 895	271 191	330 236	587 996	25 936
3222229	Other coated and processed papers, nec, except for packaging uses	62	6 415	244 723	4 486	9 364	150 281	922 874	1 274 932	2 195 657	51 589

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendices]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322222	Coated and laminated paper	N	X	X	11 496 971	N	X	X	N
3222221	Printing paper, coated at establishments other than where paper was produced	N	X	X	392 585	N	X	X	244 777
32222211	Printing paper, coated at establishments other than where paper was produced	N	X	X	372 185	N	X	X	N
3222221111	Printing paper, coated one side (for labels and similar uses), coated at establishments other than where paper was produced	31	X	X	270 549	23	X	X	99 573
3222221121	Printing paper, coated two sides (for printing of magazines, directories, catalogs, and similar uses), coated at establishments other than where paper was produced	11	X	X	101 636	16	X	X	134 864
3222221Y	Printing paper, coated at establishments other than where paper was produced, nsk	N	X	X	20 400	N	X	X	N
3222221YVW	Printing paper, coated at establishments other than where paper was produced, nsk	N	X	X	20 400	N	X	X	10 340
3222223	Gummed products	N	X	X	205 206	N	X	X	242 619
32222231	Gummed products	N	X	X	177 270	N	X	X	N
3222223111	Gummed sealing tape, paper base and reinforced base, used for sealing and securing	7	X	X	127 012	10	X	X	156 364
3222223121	Other gummed paper products, including flat gummed papers, unprinted stock labels, corrugators' kraft tapes, etc.	6	X	X	50 258	10	X	X	61 827
3222223Y	Gummed products, nsk	N	X	X	27 936	N	X	X	N
3222223YVW	Gummed products, nsk	N	X	X	27 936	N	X	X	24 428
3222225	Pressure-sensitive products	N	X	X	7 107 474	N	X	X	4 784 013
32222251	Pressure-sensitive single-faced tape, paper backing, excluding electrical	N	X	X	839 854	N	X	X	N
3222225111	Pressure-sensitive single-faced tape, paper backing, excluding electrical	35	X	X	839 854	24	X	X	544 170
32222252	Pressure-sensitive single-faced tape, film backing, excluding electrical	N	X	X	1 447 436	N	X	X	N
3222225221	Pressure-sensitive single-faced tape, film backing, excluding electrical	27	X	X	1 447 436	28	X	X	1 192 056
32222253	All other pressure-sensitive tape, excluding surgical and rubber-backed	N	X	X	1 145 846	N	X	X	N
3222225331	Pressure-sensitive single-faced tape, cloth backing, excluding surgical and electrical	15	X	X	174 072	12	X	X	127 703
3222225341	Pressure-sensitive single-faced tape, electrical, all backings (except rubber)	12	X	X	192 655	12	X	X	202 755
3222225351	Pressure-sensitive single-faced tape, reinforced and laminated, all backings, except surgical and rubber-backed	17	X	X	261 865	12	X	X	120 013
3222225361	Pressure-sensitive single-faced tape, other, excluding surgical and rubber-backed	21	X	X	154 763	12	X	X	107 463
3222225371	Pressure-sensitive double-faced tape, excluding surgical and rubber-backed	17	X	X	362 491	12	X	X	228 372
32222254	Pressure-sensitive base stock for labels	N	X	X	2 178 932	N	X	X	N
3222225475	Pressure-sensitive base stock for labels	53	X	X	2 178 932	42	X	X	1 219 670
32222255	Other pressure-sensitive products, nec, unprinted	N	X	X	1 120 987	N	X	X	N
3222225581	Pressure-sensitive base stock for other than labels	15	X	X	344 581	10	X	X	98 015
3222225585	Pressure-sensitive labels, unprinted	25	X	X	290 782	28	X	X	250 313
3222225591	Other pressure-sensitive products, nec, unprinted	21	X	X	485 624	21	X	X	285 078
3222225Y	Pressure-sensitive products, nsk	N	X	X	374 419	N	X	X	N
3222225YVW	Pressure-sensitive products, nsk	N	X	X	374 419	N	X	X	408 405
3222226	Wallcoverings	N	X	X	446 882	N	X	X	460 874
32222261	Wallcoverings	N	X	X	440 765	N	X	X	N
3222226111	Wallcoverings, paper with less than 2 mils of coating	15	X	X	93 158	16	X	X	143 814
3222226121	Wallcoverings, paper-coated or laminated with 2 mils or more of plastics, including prepasted and nonpasted	11	X	X	114 237	N	X	X	N
3222226131	Wallcoverings, fabric-backed, coated or laminated, woven	9	X	X	165 003	11	X	X	131 736
3222226141	Wallcoverings, fabric-backed, coated or laminated, nonwoven	7	X	X	60 216	9	X	X	92 366
3222226191	Other wallcoverings, including scenic and panel decorations (excluding rigid panels or tile form wallcoverings and wallcoverings that do not contain some paper or fabrics)	6	X	X	8 151	6	X	X	3 775

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322222	Coated and laminated paper—Con.								
3222226	Wallcoverings—Con.								
3222226Y	Wallcoverings, nsk	N	X	X	6 117	N	X	X	N
3222226YWW	Wallcoverings, nsk	N	X	X	6 117	N	X	X	19 243
3222227	Gift wrap paper	N	X	X	412 466	N	X	X	602 185
32222271	Gift wrap paper	N	X	X	412 466	N	X	X	N
3222227111	Gift wrap paper, retail counter items, all types and weights, in rolls	16	X	X	330 981	9	X	X	252 663
3222227121	Gift wrap paper, retail counter items, all types and weights, in folds	8	X	X	36 078	8	X	X	183 459
3222227191	Other paper gift wrapping (including counter rolls and flat sheets for stores' own use, and paper gift wrap materials shipped to other manufacturers for further processing)	11	X	X	45 407	8	X	X	153 461
3222227Y	Gift wrap paper, nsk	N	X	X	—	N	X	X	N
3222227YWW	Gift wrap paper, nsk	N	X	X	—	N	X	X	12 602
3222229	Other coated and processed papers, nec, except for packaging uses	N	X	X	2 358 548	N	X	X	1 530 036
32222291	Other coated and processed papers, except for packaging uses	N	X	X	2 188 466	N	X	X	N
3222229111	Processed papers (embossed, leatherette, etc.), except for packaging uses	11	X	X	128 092	9	X	X	55 279
3222229121	Waxed and wax-laminated paper for nonpackaging uses, including household	13	X	X	80 309	12	X	X	122 845
3222229131	Carbonless paper, coated at establishments other than where paper was produced	5	X	X	D	6	X	X	N
3222229141	Plastics-coated paper, except for packaging uses	18	X	X	72 551	14	X	X	70 466
3222229151	Other coated and processed papers, except for packaging uses, including oiled, soap impregnated, treated, etc., but excluding sensitized paper	47	X	X	D	54	X	X	N
3222229Y	Other coated and processed papers, except for packaging uses, nsk	N	X	X	170 082	N	X	X	N
3222229YWW	Other coated and processed papers, except for packaging uses, nsk	N	X	X	170 082	N	X	X	83 359
322222W	Coated and laminated paper, nsk, total	N	X	X	573 810	N	X	X	N
322222WY	Coated and laminated paper, nsk, total	N	X	X	573 810	N	X	X	N
322222WYWW	Coated and laminated paper, nsk, for nonadministrative-record establishments	N	X	X	301 205	N	X	X	N
322222WYWWY	Coated and laminated paper, nsk, for administrative-record establishments	N	X	X	272 605	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
		3222221	PRINTING PAPER, COATED AT ESTABLISHMENTS OTHER THAN WHERE PAPER WAS PRODUCED
	United States	392 585	244 777
	California	11 281	4 068
	New York	10 829	N
	Pennsylvania	53 692	N
	Wisconsin	114 425	100 243
3222223	GUMMED PRODUCTS		
	United States	205 206	242 619
	Ohio	21 641	N
	Wisconsin	95 814	67 538

See footnotes at end of table.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992—Con.

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222225	PRESSURE-SENSITIVE PRODUCTS		
	United States	7 107 474	4 784 013
	California	172 097	182 342
	Florida	24 215	N
	Illinois	564 714	519 187
	Kansas	34 583	N
	Maryland	6 619	N
	Massachusetts	478 747	141 063
	Michigan	135 721	129 414
	Missouri	148 258	49 518
	New Jersey	250 092	186 543
	New York	190 444	156 260
	North Carolina	196 924	N
	Ohio	867 588	506 600
	Pennsylvania	457 512	365 625
	South Carolina	273 687	N
	Tennessee	53 802	38 179
	Virginia	85 434	N
	Wisconsin	287 003	200 744
3222226	WALLCOVERINGS		
	United States	446 882	460 874
	Florida	7 725	5 865
	Illinois	3 752	7 929
	Indiana	26 354	N
	New Jersey	57 510	43 709
3222227	GIFT WRAP PAPER		
	United States	412 466	602 185
	Tennessee	246 108	225 994
3222229	OTHER COATED AND PROCESSED PAPERS, NEC, EXCEPT FOR PACKAGING USES		
	United States	2 358 548	1 530 036
	California	130 595	34 387
	Illinois	97 366	76 178
	Indiana	26 940	N
	Massachusetts	263 952	184 615
	Ohio	490 158	96 230
	Rhode Island	75 433	20 386
	South Carolina	21 940	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322222	COATED & LAMINATED PAPER MFG				
32212007	Paper	92 129.3	2 272 904	N	N
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	312 847	X	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	382 317	X	N
31332007	Coated or laminated fabrics, including vinyl coated	X	178 330	X	N
32552003	Glues and adhesives	X	471 887	X	N
32591003	Printing ink	X	75 999	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	146 604	X	N
00970099	All other materials and components, parts, containers, and supplies	X	1 073 157	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	650 996	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322222 COATED AND LAMINATED PAPER MANUFACTURING

This U.S. industry comprises establishments primarily engaged in performing one or more of the following activities associated with making products designed for purposes other than packaging: (1) cutting and coating paper; (2) cutting and laminating paper and other flexible materials (except plastics film to plastics film); and (3) manufacturing converted aluminum and other metal foils for non-packaging uses from purchased foils. The products made

in this industry are made from purchased sheet materials and may be printed in the same establishment.

The data published with NAICS code 322222 include the following SIC industries:

2672 Paper - coated and laminated, n.e.c.
2679 Converted paper products, n.e.c. (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsk) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3221101	26111	26111	322121J	26767	26761 pt	3222110	26530	26530
322110100	2611100	2611100	322121J111	2676714	2676114 pt	3222110111	2653012	2653012
3221103	26113	26113	322121J121	2676751	2676151 pt	3222110114	2653014	2653014
3221103111	2611335	2611335	322121JYVW	2676700	2676100 pt	3222110221	2653013	2653013
3221103121	2611343	2611343	322121L pt.	26768	26763 pt	3222110341	2653016	2653016
3221103YVW	2611300	2611300	322121L1 pt.	38421 pt	38421 pt	3222110345	2653018	2653018
3221105	26114	26114	322121L111	2676800 pt	2676300 pt	3222110431	2653015	2653015
3221105111	2611432	2611432	322121L121	3842134	3842132 pt	3222110433	2653021	2653021
3221105121	2611466	2611466	322121L131	3842136	3842132 pt	3222110435	2653022	2653022
3221105131	2611472	2611472	322121LYVW pt.	2676800 pt	2676300 pt	3222110437	2653030	2653030
3221105141	2611478	2611478	322121LYVW pt.	3842100 pt	3842100 pt	3222110551	2653067	2653067
3221105YVW	2611400	2611400	322121N	26769	26764 pt	3222110661	2653051	2653051
3221107	26115	26115	322121N111	2676911	2676411 pt	3222110665	2653068	2653068
3221107111	2611511	2611511	322121N221	2676925	2676425 pt	3222110691	2653098	2653098
3221107121	2611513	2611513	322121N223	2676927	2676427 pt	3222110YVW	2653000	2653000
3221107131	2611517	2611517	322121N225	2676933	2676433 pt	3222120	26570	26570
3221107141	2611519	2611519	322121N227	2676935	2676435 pt	3222120111	2657014	2657014
3221107YVW	2611500	2611500	322121N229	2676937	2676437 pt	3222120221	2657021	2657021
322110W	26110	26110	322121N331	2676945	2676445 pt	3222120331	2657073	2657071 pt
322110WYVW	2611000	2611000	322121N433	2676947	2676447 pt	3222120335	2657075	2657071 pt
322110YYVW	2611002	2611002	322121N535	2676941	2676441 pt	3222120441	2657081	2657081
3221211	26213	26213	322121N541	2676943	2676443 pt	3222120551	2657084	2657084
3221211111 pt	2621311 pt	2621315	322121N551	2676955	2676455 pt	3222120555	2657086	2657086
3221211111 pt	2621311 pt	2621329 pt	322121N661	2676971	2676471 pt	3222120661	2657015	2657015
322121221 pt	2621321 pt	2621316	322121N771	2676976	2676476 pt	3222120663	2657061	2657061
322121221 pt	2621321 pt	2621329 pt	322121N881	2676981	2676481 pt	3222120665	2657088	2657088
322121231 pt	2621323 pt	2621320	322121N891	2676989	2676499 pt	3222120667	2657090	2657090
322121231 pt	2621323 pt	2621329 pt	322121N9VW	2676900	2676400 pt	3222120671	2657095	2657095
322121YVW	2621300	2621300	322121W pt.	26210 pt	26210 pt	3222120673	2657082	2657099 pt
3221213	26214	26214	322121W pt.	26760 pt	26760 pt	3222120675	2657031	2657031
3221213111	2621431	2621431	322121WYVW pt.	38420 pt	38420 pt	3222120677	2657041	2657041
3221213115	2621432	2621432	322121WYVW pt.	2621000 pt	2621000 pt	3222120681	2657051	2657051
3221213221	2621437	2621437	322121WYVW pt.	2676000 pt	2676000 pt	3222120683	2657096	2657096
3221213225	2621441	2621441	322121WYVW pt.	3842000 pt	3842000 pt	3222120691	2657098	2657099 pt
3221213231	2621447	2621447	322121WYVY pt.	2621002 pt	2621002 pt	3222120YVW	2657000	2657000
3221213235	2621448	2621448	322121WYVY pt.	2676002 pt	2676002 pt	3222120YVW	2657002	2657002
3221213341	2621454	2621454	322121YVW pt.	3842002 pt	3842002 pt	3222130	26520	26520
3221213345	2621455	2621455	3221221	26211	26211	3222130111	2652021	2652021
3221213351	2621456	2621456	3221221100	2621100	2621100	3222130121	2652031	2652031
3221213461	2621460	2621460	3221223	26212	26212	3222130131	2652041	2652041
3221213471	2621471	2621471	3221223111 pt	2621213 pt	2621215	3222130141	2652051	2652051
3221213481	2621473	2621473	3221223121 pt	2621227 pt	2621227	3222130191 pt	2652097 pt	2652097 pt
3221213491	2621489	2621489	3221223YVW	2621200	2621200	3222130191 pt	2652097 pt	2652071
3221213YVW	2621400	2621400	322122W	26210 pt	26210 pt	3222130191 pt	2652097 pt	2652098
3221215	26215	26215	322122WYVW	2621000 pt	2621000 pt	3222130YVW	2652000	2652000
3221215111	2621531	2621531	322122WYVY	2621002 pt	2621002 pt	3222130YVW	2652002	2652002
3221215121	2621532	2621532	3221301	26311	26311	3222141	26551	26551
3221215131	2621537	2621537	3221301111	2631110	2631110	3222141100	2655100	2655100
3221215141	2621558	2621558	3221301221	2631188	2631188	3222143	26552	26552
3221215YVW	2621500	2621500	3221301YVW	2631100	2631100	3222143111	2655221	2655221
3221217	26216	26216	3221303	26312	26312	3222143221	2655231	2655231
3221217111 pt	2621615 pt	2621611	3221303111	2631240	2631240	3222143331	2655271	2655271
3221217111 pt	2621615 pt	2621619	3221303221	2631261	2631261	3222143391	2655298	2655298
3221217121	2621627	2621627	3221303331	2631262	2631262	3222143YVW	2655200	2655200
3221217YVW	2621600	2621600	3221303351	2631263	2631263	3222144W	26550	26550
3221219	26217	26217	3221303361	2631288	2631288	3222144YVW	2655000	2655000
3221219111	2621730	2621730	3221303YVW	2631200	2631200	3222144YVW	2655002	2655002
3221219121	2621750	2621750	3221305	26313	26313	3222151	26561	26561
3221219131	2621760	2621760	3221305100	2631300	2631300	3222151100	2656100	2656100
3221219191	2621768	2621768	3221307	26314	26314	3222153	26562	26562
3221219YVW	2621700	2621700	3221307111	2631420	2631420	3222153111	2656233	2656233
322121A	26218	26218	3221307221	2631410	2631410	3222153121	2656235	2656235
322121A111	2621830	2621830	3221307231	2631430	2631430	3222153YVW	2656200	2656200
322121A121	2621850	2621850	3221307341	2631446	2631446	3222155	26563	26563
322121A131	2621860	2621860	3221307351	2631443	2631443	3222155111	2656310	2656310
322121A141 pt	2621870 pt	2621864	3221307461 pt	2631441 pt	2631444	3222155121 pt	2656397 pt	2656312
322121A141 pt	2621870 pt	2621868	3221307461 pt	2631441 pt	2631445	3222155121 pt	2656397 pt	2656319
322121A151	2621883	2621883	3221307571	2631450	2631450	3222155YVW	2656300	2656300
322121AYVW	2621800	2621800	3221307575	2631481	2631481	322215W	26560	26560
322121C	26219	26219	3221307581	2631482	2631482	322215WYVW	2656000	2656000
322121C100	2621900	2621900	3221307591	2631488	2631488	322215WYVW	2656002	2656002
322121E	2621B	2621B	3221307YVW	2631400	2631400	3222211	26711	26711
322121E111	2621B22	2621B22	3221309	26318	26318	3222211111	2671111	2671111
322121E121	2621B28	2621B28	3221309100	2631800	2631800	3222211121	2671115	2671115
322121EYVW	2621B00	2621B00	322130W	26310	26310	3222211YVW	2671100	2671100
322121G	2621A	2621A	322130WYVW	2631000	2631000	3222213 pt.	26715 pt	26715
322121G111	2621A11	2621A11	322130WYVY	2631002	2631002	3222213111 pt	2671511 pt	2671300
322121G221	2621A60	2621A60				3222213111 pt	2671511 pt	2671313
322121G331	2621A30	2621A30				3222213111 pt	2671511 pt	2671314
322121G341	2621A51	2621A51				3222213111 pt	2671511 pt	2671320
322121G351	2621A73	2621A73				3222213221	2671521	2671411
322121G361	2621A78	2621A78				3222213YVW	2671500	2671400 pt
322121G371	2621A81	2621A81						
322121G391	2621A88	2621A88						
322121GYVW	2621A00	2621A00						

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710 pt	26710 pt	3222241YVW	2674100	2674100	3222911	26762	26761 pt
322221WYWW	2671000 pt	2671000 pt	322224311	2674211	2674211	3222911111	2676214	267614 pt
322221WYVY	2671002 pt	2671002 pt	322224321	2674212	2674212	3222911121	2676251	2676151 pt
3222221	26721	26721	3222243YVW	2674200	2674200	3222911YVW	2676200	2676100 pt
3222221111	2672113	2672113	3222244W	26740	26740	3222913 pt	26765	26763 pt
3222221121	2672153	2672153	3222244YVW	2674000	2674000	3222913111	38421 pt	38421 pt
3222221YVW	2672100	2672100	3222244YVWY	2674002	2674002	3222913121	3842133	3842132 pt
3222223	26722	26722	3222250 pt	34970 pt	34970 pt	3222913131	3842135	3842132 pt
3222223111	2672212	2672212	3222250 pt	34972	34972	3222913YVW pt	2676500 pt	2676300 pt
3222223121	2672230	2672230	3222250101	3497210	3497210	3222913YVW pt	3842100 pt	3842100 pt
3222223YVW	2672200	2672200	3222250206	3497222	3497222	3222915	26766	26764 pt
3222225	26723	26723	3222250311	3497225	3497225	3222915111	2676611	2676411 pt
3222225111	2672313	2672313	3222250416	3497228	3497228	3222915221	2676625	2676425 pt
3222225221	2672343	2672343	3222250421	3497241	3497241	3222915225	2676627	2676427 pt
3222225331	2672333	2672333	3222250YVW pt	3497000 pt	3497000 pt	3222915229	2676633	2676433 pt
3222225341	2672345	2672345	3222250YVW pt	3497200	3497200	3222915331	2676635	2676435 pt
3222225351	2672353	2672353	3222250YVY	3497002 pt	3497002 pt	3222915433	2676637	2676437 pt
3222225361	2672359	2672359	3222260 pt	26750 pt	26750 pt	3222915535	2676645	2676445 pt
3222225371	2672361	2672361	3222260100	26753	26753	3222915541	2676647	2676447 pt
3222225475	2672381	2672381	3222260YVW	2675300	2675300	3222915551	2676649	2676449 pt
3222225581	2672385	2672385	3222260YVY	2675000 pt	2675000 pt	3222915661	2676655	2676455 pt
3222225585	2672375	2672375	3222260YVY	2675002 pt	2675002 pt	3222915667	2676671	2676471 pt
3222225591	2672398	2672398	3222311	26751	26751	3222915771	2676676	2676476 pt
3222225YVW	2672300	2672300	3222311111	2675110	2675110	3222915773	2676677	2676477 pt
3222226	26791	26791	3222311121	2675111	2675111	3222915881	2676681	2676481 pt
3222226111	2679122	2679122	3222311121	2675112	2675112	3222915891	2676699	2676499 pt
3222226121 pt	2679125 pt	2679126	3222311311	2675121	2675121	3222915YVW	2676600	2676400 pt
3222226121 pt	2679125 pt	2679128	3222311391 pt	2675191 pt	2675120	322291W pt	26760	26760 pt
3222226131	2679134	2679134	3222311391 pt	2675191 pt	2675130	322291W pt	26760	26760 pt
3222226141	2679136	2679136	3222311YVW	2675100	2675100	322291W pt	38420 pt	38420 pt
3222226191	2679141	2679141	3222313	26793	26793	322291WYVW pt	2676000 pt	2676000 pt
3222226YVW	2679100	2679100	3222313111	2679311	2679311	322291WYVWY pt	3842000 pt	3842000 pt
3222227	26792	26792	3222313121	2679331	2679331	322291WYVWY pt	2676002 pt	2676002 pt
3222227111	2679282	2679282	3222313191	2679331	2679331	322291WYVWY pt	3842002 pt	3842002 pt
3222227121	2679291	2679291	3222313YVW	2679300	2679300	3222991	26794	26794
3222227191	2679296	2679296	322231W pt	26750 pt	26750 pt	3222991100	2679400	2679400
3222227YVW	2679200	2679200	322231W pt	26790 pt	26790 pt	3222993 pt	26752	26752
3222229	26724	26724	322231WYVW pt	2679000 pt	2679000 pt	3222993 pt	26795	26795
3222229111	2672445	2672445	322231WYVWY pt	2679002 pt	2679002 pt	3222993 pt	39999 pt	39999 pt
3222229121	2672453	2672453	3222320	26770	26770	3222993111	2679521	2679521
3222229131	2672455	2672455	3222320111	2677010	2677010	3222993221	2679531	2679531
3222229141	2672456	2672456	3222320121	2677021	2677021	3222993231	2679541	2679541
3222229151	2672469	2672469	3222320131	2677022	2677022	3222993241	2679548	2679548
3222229YVW	2672400	2672400	3222320141	2677040	2677040	3222993351 pt	2679550 pt	2679551
3222229W pt	26720	26720	3222320YVW	2677000	2677000	3222993361	2679551	2679551
3222229W pt	26790 pt	26790 pt	3222320YVY	2677002	2677002	3222993471 pt	2675200 pt	2675200 pt
3222229WYVW pt	2672000	2672000	3222331	26781	26781	3222993471 pt	2675200 pt	2675271
3222229WYVWY pt	2679000 pt	2679000 pt	3222331111	2678111	2678111	3222993471 pt	2675200 pt	2675297
3222229WYVY pt	2672002	2672002	3222331121	2678113	2678113	3222993591 pt	2679598	2679598
3222229YVW pt	2679002 pt	2679002 pt	3222331131	2678121	2678121	3222993591 pt	3999996 pt	3999913 pt
3222231	26731	26731	3222331YVW	2678100	2678100	3222993591 pt	3999996 pt	3999999 pt
3222231100	2673100	2673100	3222333	26782	26782	3222993YVW pt	2679500	2679500
3222233	26733 pt	26733 pt	3222333111	2678212	2678212	3222993YVW pt	3999900 pt	3999900 pt
3222233111	2673306	2673311 pt	3222333221 pt	2678225 pt	2678213	322299W pt	26750 pt	26750 pt
3222233121	2673312	2673312	3222333221 pt	2678225 pt	2678221	322299W pt	26790 pt	26790 pt
3222233131 pt	2673315 pt	2673311 pt	3222333331	2678235	2678235	322299W pt	26790 pt	26790 pt
3222233131 pt	2673315 pt	2673314 pt	3222333441	2678245	2678245	322299W pt	39990 pt	39990 pt
3222233YVW	2673300 pt	2673300 pt	3222333551	2678251	2678251	322299WYVW pt	2675000 pt	2675000 pt
322223W	26730 pt	26730 pt	3222333691	2678298	2678298	322299WYVWY pt	2679000 pt	2679000 pt
322223WYVW	2673000 pt	2673000 pt	3222333YVW	2678200	2678200	322299WYVWY pt	3999000 pt	3999000 pt
322223WYVWY	2673002 pt	2673002 pt	322233W	26780	26780	322299WYVWY pt	2675002 pt	2675002 pt
3222241	26741	26741	322233WYVW	2678000	2678000	322299WYVWY pt	2679002 pt	2679002 pt
3222241111	2674111	2674111	322233WYVY	2678002	2678002	322299WYVY pt	3999002 pt	3999002 pt
3222241221	2674112	2674112						
3222241231	2674113	2674113						
3222241341	2674115	2674115						

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special

census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the

manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322223	Plastics, foil, & coated paper bag mfg	41	43	3 305	104 174	2 398	4 905	60 565	245 207	266 980	511 960	19 887
267310	Bags - plastics, laminated, & coated (pt)	N	43	3 305	104 174	2 398	4 905	60 565	245 207	266 980	511 960	19 887

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322223, PLASTICS, FOIL, & COATED PAPER BAG MFG												
United States	-	43	27	3 305	104 174	2 398	4 905	60 565	245 207	266 980	511 960	19 887
California	1	3	2	206	5 699	141	323	3 161	11 529	15 438	27 153	1 044
Florida	5	3	2	154	3 655	136	261	2 828	7 354	8 683	16 236	1 783
New Jersey	-	4	2	309	10 249	189	393	4 889	22 247	23 602	45 667	1 935
Pennsylvania	-	3	3	526	20 199	392	841	12 183	49 977	52 896	102 251	2 965

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322223, PLASTICS, FOIL, & COATED PAPER BAG MFG		322223, PLASTICS, FOIL, & COATED PAPER BAG MFG—Con.	
Companies ¹	number.. 41	Value added	\$1,000.. 245 207
All establishments	number.. 43	Total inventories, beginning of year	\$1,000.. 68 142
Establishments with 1 to 19 employees	number.. 16	Finished goods inventories, beginning of year	\$1,000.. 29 287
Establishments with 20 to 99 employees	number.. 14	Work-in-process inventories, beginning of year	\$1,000.. 7 083
Establishments with 100 employees or more	number.. 13	Materials and supplies inventories, beginning of year	\$1,000.. 31 772
All employees	number.. 3 305	Total inventories, end of year	\$1,000.. 64 308
Total compensation ²	\$1,000.. 132 300	Finished goods inventories, end of year	\$1,000.. 28 820
Annual payroll	\$1,000.. 104 174	Work-in-process inventories, end of year	\$1,000.. 7 777
Total fringe benefits	\$1,000.. 28 126	Materials and supplies inventories, end of year	\$1,000.. 27 711
Production workers, average for year	number.. 2 398	Gross book value of total assets at beginning of year	\$1,000.. 198 159
Production workers on March 15	number.. 2 438	Total capital expenditures (new and used)	\$1,000.. 19 887
Production workers on May 15	number.. 2 441	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 2 014
Production workers on August 15	number.. 2 372	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 17 873
Production workers on November 15	number.. 2 341	Total retirements ²	\$1,000.. 5 063
Production-worker hours	1,000.. 4 905	Gross book value of total assets at end of year	\$1,000.. 212 983
Production-worker wages	\$1,000.. 60 565	Total depreciation during year ²	\$1,000.. 15 493
Total cost of materials	\$1,000.. 266 980	Total rental payments ²	\$1,000.. 8 653
Cost of materials, parts, containers, etc., consumed	\$1,000.. 241 818	Buildings and other structures rental payments ²	\$1,000.. 4 997
Cost of resales	\$1,000.. 11 705	Machinery and equipment rental payments ²	\$1,000.. 3 656
Cost of fuels	\$1,000.. 1 651	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 1 709
Cost of purchased electricity	\$1,000.. 4 799	Response coverage ratio ⁴	percent.. 97
Cost of contract work	\$1,000.. 7 007	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 4 894
Quantity of electricity purchased for heat and power	1,000 kWh.. 70 730	Response coverage ratio ⁴	percent.. 97
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 1 473
Total value of shipments	\$1,000.. 511 960	Response coverage ratio ⁴	percent.. 97
Primary products value of shipments	\$1,000.. 416 960	Cost of purchased legal services ³	\$1,000.. 726
Secondary products value of shipments	\$1,000.. 76 755	Response coverage ratio ⁴	percent.. 97
Total miscellaneous receipts	\$1,000.. 18 245	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 583
Value of resales	\$1,000.. 15 936	Response coverage ratio ⁴	percent.. 97
Contract receipts	\$1,000.. D	Cost of purchased advertising services ³	\$1,000.. 963
Other miscellaneous receipts	\$1,000.. D	Response coverage ratio ⁴	percent.. 97
Primary products specialization ratio	percent.. 84	Cost of purchased software and other data processing services ³	\$1,000.. 927
Value of primary products shipments made in all industries	\$1,000.. 589 704	Response coverage ratio ⁴	percent.. 97
Value of primary products shipments made in this industry	\$1,000.. 416 960	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 1 209
Value of primary products shipments made in other industries	\$1,000.. 172 744	Response coverage ratio ⁴	percent.. 97
Coverage ratio	percent.. 70		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322223, PLASTICS, FOIL, & COATED PAPER BAG MFG												
All establishments	-	43	27	3 305	104 174	2 398	4 905	60 565	245 207	266 980	511 960	19 887
Establishments with 1 to 4 employees	9	6	-	12	304	11	19	216	728	922	1 652	93
Establishments with 5 to 9 employees	7	5	-	37	890	29	51	632	2 170	3 026	5 180	239
Establishments with 10 to 19 employees	9	5	-	63	1 933	52	101	1 372	4 635	5 862	10 505	594
Establishments with 20 to 49 employees	-	6	6	175	3 647	143	238	2 156	7 466	11 302	18 397	1 239
Establishments with 50 to 99 employees	1	8	8	561	17 451	397	840	9 046	38 705	34 208	73 119	3 251
Establishments with 100 to 249 employees	-	12	12	D	D	D	D	D	D	D	D	D
Establishments with 250 to 499 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 500 to 999 employees	-	1	1	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	9	15	-	104	2 981	88	163	2 116	7 144	9 040	16 200	916

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322223	Plastics, foil, & coated paper bag mfg	43	3 305	104 174	2 398	4 905	60 565	245 207	266 980	511 960	19 887
3222231	Specialty bags, pouches, and liners, coated single-web paper	8	983	30 087	667	1 239	15 651	59 581	64 700	123 514	3 657
3222233	Specialty bags, pouches, and liners, multiweb laminations and foil, except film-film	18	2 030	66 289	1 485	3 222	39 378	166 937	178 631	346 066	13 833

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322223	Plastics, foil, and coated paper bags	N	X	X	589 704	N	X	X	N
3222231	Specialty bags, pouches, and liners, coated single-web paper	N	X	X	133 514	N	X	X	226 235
32222311	Specialty bags, pouches, and liners, coated single-web paper	N	X	X	133 514	N	X	X	N
3222231100	Specialty bags, pouches, and liners, coated single-web paper 1,000 s tons ..	28	X	61.9	133 514	39	X	S	226 235
3222233	Specialty bags, pouches, and liners, multiweb laminations and foil, except film-film	N	X	X	418 288	N	X	X	N
32222331	Specialty bags, pouches, and liners, multiweb laminations and foil, except film-film	N	X	X	418 288	N	X	X	N
3222233111	Paper-film multiweb specialty bags, pouches, and liners 1,000 s tons ..	17	X	S	159 672	N	X	N	N
3222233121	Foil specialty bags, pouches, and liners, and all paper or film combinations with foil 1,000 s tons ..	18	X	S	69 931	16	X	P18.2	53 443
3222233131	Other multiweb specialty bags, pouches, and liners, except film-film 1,000 s tons ..	18	X	S	188 685	N	X	N	N
3222233Y	Specialty bags, pouches, and liners, multiweb laminations and foil, except film-film, nsk	N	X	X	-	N	X	X	N
3222233YVW	Specialty bags, pouches, and liners, multiweb laminations and foil, except film-film, nsk	N	X	X	-	N	X	X	N
322223W	Plastics, foil, and coated paper bags, nsk, total	N	X	X	37 902	N	X	X	N
322223WY	Plastics, foil, and coated paper bags, nsk, total	N	X	X	37 902	N	X	X	N
322223WYWW	Plastics, foil, and coated paper bags, nsk, for nonadministrative-record establishments	N	X	X	22 049	N	X	X	N
322223WYWY	Plastics, foil, and coated paper bags, nsk, for administrative-record establishments	N	X	X	15 853	N	X	X	N

Additional information is available for this item; see Appendix F.
 @ Additional data are available for this item in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222231	SPECIALTY BAGS, POUCHES, AND LINERS, COATED SINGLE-WEB PAPER		
	United States	133 514	226 235
	New Jersey	9 769	N
3222233	SPECIALTY BAGS, POUCHES, AND LINERS, MULTIWEB LAMINATIONS AND FOIL, EXCEPT FILM-FILM		
	United States	418 288	N
	California	16 360	N
	Illinois	44 442	N
	New Jersey	26 866	N
	Pennsylvania	74 976	N

Additional information is available for this item; see Appendix F.
 @ Additional data are available for this item in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322223	PLASTICS, FOIL, & COATED PAPER BAG MFG				
32212007	Paper .....1,000 s tons...	P106.7	125 445	N	N
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. ....mil lb...	P12.8	7 392	N	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	26 601	X	N
33131509	Aluminum foil, plain .....mil lb..	3.1	4 333	N	N
32552003	Glues and adhesives	X	11 321	X	N
32591003	Printing ink .....mil lb..	4.2	10 853	N	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	5 962	X	N
00970099	All other materials and components, parts, containers, and supplies	X	27 511	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	22 400	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322223 PLASTICS, FOIL, AND COATED PAPER BAG MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing bags of coated paper, of metal foil, or of laminated or coated combinations of plastics, foil, and paper, whether or not printed.

The data published with NAICS code 322223 include the following SIC industry:

2673 Bags - plastics, laminated, and coated (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3221101	26111	26111	322121J	26767	26761 pt	3222110	26530	26530
322110100	2611100	2611100	322121J111	2676714	2676114 pt	3222110111	2653012	2653012
3221103	26113	26113	322121J121	2676751	2676151 pt	3222110114	2653014	2653014
3221103111	2611335	2611335	322121JYVW	2676700	2676100 pt	3222110221	2653013	2653013
3221103121	2611343	2611343	322121L pt.	26768	26763 pt	3222110341	2653016	2653016
3221103YVW	2611300	2611300	322121L1 pt.	38421 pt	38421 pt	3222110345	2653018	2653018
3221105	26114	26114	322121L111	2676800 pt	2676300 pt	3222110431	2653015	2653015
3221105111	2611432	2611432	322121L121	3842134	3842132 pt	3222110433	2653021	2653021
3221105121	2611466	2611466	322121L131	3842136	3842132 pt	3222110435	2653022	2653022
3221105131	2611472	2611472	322121LYVW pt.	2676800 pt	2676300 pt	3222110437	2653030	2653030
3221105141	2611478	2611478	322121LYVW pt.	3842100 pt	3842100 pt	3222110551	2653067	2653067
3221105YVW	2611400	2611400	322121N	26769	26764 pt	3222110661	2653051	2653051
3221107	26115	26115	322121N111	2676911	2676411 pt	3222110665	2653068	2653068
3221107111	2611511	2611511	322121N221	2676925	2676425 pt	3222110691	2653098	2653098
3221107121	2611513	2611513	322121N223	2676927	2676427 pt	3222110YVW	2653002	2653002
3221107131	2611517	2611517	322121N225	2676933	2676433 pt	3222120	26570	26570
3221107141	2611519	2611519	322121N227	2676935	2676435 pt	3222120111	2657014	2657014
3221107YVW	2611500	2611500	322121N229	2676937	2676437 pt	3222120221	2657021	2657021
322110W	26110	26110	322121N331	2676945	2676445 pt	3222120331	2657073	2657071 pt
322110WYVW	2611000	2611000	322121N433	2676947	2676447 pt	3222120335	2657075	2657071 pt
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3221213491	2621489	2621489	3221223111 pt	2621213 pt	2621215	3222130191 pt	2652097 pt	2652071
3221213YVW	2621400	2621400	3221223121	2621227	2621227	3222130191 pt	2652097 pt	2652098
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3221217111 pt	2621615 pt	2621619	3221303	26312	26312	3222143391	2655298	2655298
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322221WYVW	2671002 pt	2671002 pt	322224321	2674212	2674212	3222911121	2676251	2676151 pt
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3222227YVW	2679200	2679200	322231W pt	26790 pt	26790 pt	3222993 pt	26752	26752
3222229	26724	26724	322231W pt	2679000 pt	2679000 pt	3222993 pt	26795	26795
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3222229121	2672453	2672453	322231WYVW pt	2675002 pt	2675002 pt	3222993111	2679521	2679521
3222229131	2672455	2672455	322231WYVW pt	2679002 pt	2679002 pt	3222993221	2679531	2679531
3222229141	2672456	2672456	322231WYVW pt	2679000 pt	2679000 pt	3222993231	2679541	2679541
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3222241221	2674112	2674112	322233WYVW	2678000	2678000	322299WYVW pt	2679002 pt	2679002 pt
3222241231	2674113	2674113	322233WYVW	2678002	2678002	322299WYVW pt	3999002 pt	3999002 pt
3222241341	2674115	2674115						

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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special

census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the

manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322224	Uncoated paper & multiwall bag mfg	94	144	16 858	464 316	14 249	30 631	348 668	1 145 090	1 713 280	2 850 079	86 241
267400	Bags - uncoated paper & multiwall	N	144	16 858	464 316	14 249	30 631	348 668	1 145 090	1 713 280	2 850 079	86 241

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322224, UNCOATED PAPER & MULTIWALL BAG MFG												
United States	1	144	107	16 858	464 316	14 249	30 631	348 668	1 145 090	1 713 280	2 850 079	86 241
California	-	7	5	540	15 510	447	974	10 971	40 392	67 739	107 276	1 761
Florida	2	7	5	799	21 626	676	1 429	16 453	53 582	88 656	141 383	4 848
Georgia	-	3	3	897	22 558	778	1 657	16 966	36 649	92 889	128 636	1 872
Illinois	-	11	9	872	25 365	724	1 695	20 282	82 030	86 804	168 883	2 032
Iowa	-	3	3	677	17 333	582	1 120	13 036	45 075	64 917	110 733	1 024
Kentucky	3	4	4	1 311	36 448	1 110	2 694	28 844	93 093	132 000	224 308	7 428
Texas	-	9	5	388	8 341	311	627	5 628	33 110	59 767	93 205	2 024
Virginia	2	3	2	359	9 883	326	821	8 670	20 993	40 494	62 566	832
Wisconsin	-	6	3	234	6 087	194	488	4 486	19 507	30 130	49 788	1 008

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322224, UNCOATED PAPER & MULTIWALL BAG MFG		322224, UNCOATED PAPER & MULTIWALL BAG MFG—Con.	
Companies ¹	number.. 94	Value added	\$1,000.. 1 145 090
All establishments	number.. 144	Total inventories, beginning of year	\$1,000.. 409 408
Establishments with 1 to 19 employees	number.. 37	Finished goods inventories, beginning of year	\$1,000.. 141 891
Establishments with 20 to 99 employees	number.. 49	Work-in-process inventories, beginning of year	\$1,000.. 31 482
Establishments with 100 employees or more	number.. 58	Materials and supplies inventories, beginning of year	\$1,000.. 236 035
All employees	number.. 16 858	Total inventories, end of year	\$1,000.. 426 429
Total compensation ²	\$1,000.. 591 850	Finished goods inventories, end of year	\$1,000.. 147 269
Annual payroll	\$1,000.. 464 316	Work-in-process inventories, end of year	\$1,000.. 34 395
Total fringe benefits	\$1,000.. 127 534	Materials and supplies inventories, end of year	\$1,000.. 244 765
Production workers, average for year	number.. 14 249	Gross book value of total assets at beginning of year	\$1,000.. 797 167
Production workers on March 12	number.. 14 383	Total capital expenditures (new and used)	\$1,000.. 86 241
Production workers on May 12	number.. 14 213	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 4 480
Production workers on August 12	number.. 14 047	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 81 761
Production workers on November 12	number.. 14 353	Total retirements ²	\$1,000.. 25 023
Production-worker hours	1,000.. 30 631	Gross book value of total assets at end of year	\$1,000.. 858 385
Production-worker wages	\$1,000.. 348 668	Total depreciation during year ²	\$1,000.. 49 552
Total cost of materials	\$1,000.. 1 713 280	Total rental payments ²	\$1,000.. 29 230
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 610 304	Buildings and other structures rental payments ²	\$1,000.. 13 646
Cost of resales	\$1,000.. 68 372	Machinery and equipment rental payments ²	\$1,000.. 15 584
Cost of fuels	\$1,000.. 6 416	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 2 988
Cost of purchased electricity	\$1,000.. 22 111	Response coverage ratio ⁴	percent.. 88
Cost of contract work	\$1,000.. 6 077	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 24 729
Quantity of electricity purchased for heat and power	1,000 kWh.. 413 356	Response coverage ratio ⁴	percent.. 88
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 2 762
Total value of shipments	\$1,000.. 2 850 079	Response coverage ratio ⁴	percent.. 88
Primary products value of shipments	\$1,000.. 2 537 916	Cost of purchased legal services ³	\$1,000.. 821
Secondary products value of shipments	\$1,000.. 221 746	Response coverage ratio ⁴	percent.. 88
Total miscellaneous receipts	\$1,000.. 90 417	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 600
Value of resales	\$1,000.. 80 623	Response coverage ratio ⁴	percent.. 88
Contract receipts	\$1,000.. 2 118	Cost of purchased advertising services ³	\$1,000.. 1 085
Other miscellaneous receipts	\$1,000.. 7 676	Response coverage ratio ⁴	percent.. 88
Primary products specialization ratio	percent.. 91	Cost of purchased software and other data processing services ³	\$1,000.. 993
Value of primary products shipments made in all industries	\$1,000.. 2 649 317	Response coverage ratio ⁴	percent.. 88
Value of primary products shipments made in this industry	\$1,000.. 2 537 916	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 2 384
Value of primary products shipments made in other industries	\$1,000.. 111 401	Response coverage ratio ⁴	percent.. 88
Coverage ratio	percent.. 95		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322224. UNCOATED PAPER & MULTIWALL BAG MFG												
All establishments	1	144	107	16 858	464 316	14 249	30 631	348 668	1 145 090	1 713 280	2 850 079	86 241
Establishments with 1 to 4 employees	9	11	—	22	447	18	31	356	1 265	2 037	3 287	52
Establishments with 5 to 9 employees	7	13	—	91	2 321	77	139	1 843	6 712	13 213	19 826	452
Establishments with 10 to 19 employees	2	13	—	186	5 064	143	271	2 829	13 266	20 161	33 221	774
Establishments with 20 to 49 employees	—	24	24	773	20 618	574	1 137	12 334	58 567	89 226	148 411	3 682
Establishments with 50 to 99 employees	1	25	25	1 710	43 477	1 460	2 934	33 226	118 312	190 515	309 859	7 088
Establishments with 100 to 249 employees	—	33	33	5 551	154 876	4 709	9 994	119 354	394 828	598 959	988 168	38 741
Establishments with 250 to 499 employees	—	24	24	D	D	D	D	D	D	D	D	D
Establishments with 500 to 999 employees	9	1	1	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	24	—	151	3 191	129	211	2 534	9 005	14 550	23 464	373

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322224	Uncoated paper & multiwall bag mfg	144	16 858	464 316	14 249	30 631	348 668	1 145 090	1 713 280	2 850 079	86 241
3222241	Uncoated single-web paper grocers' bags and sacks and variety and shopping bags	49	5 967	165 834	5 090	11 661	125 412	438 896	649 797	1 083 593	35 038
3222243	Shipping sacks and multiwall bags, all materials except textiles	64	10 499	289 045	8 822	18 333	215 763	679 487	1 020 330	1 696 888	50 066

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322224	Uncoated paper and multiwall bags	N	X	X	2 649 317	N	X	X	2 624 812
3222241	Uncoated single-web paper grocers' bags and sacks and variety and shopping bags	N	X	X	1 015 601	N	X	X	1 128 288
32222411	Uncoated paper grocers' bags and sacks	N	X	X	557 131	N	X	X	N
3222241111	Uncoated paper grocers' bags and sacks .....1,000 s tons	14	X	686.9	557 131	19	X	P1 143.2	767 076
32222412	Uncoated paper variety bags and pouches (merchandise) and shopping bags	N	X	X	198 542	N	X	X	N
3222241221	Uncoated paper variety bags and pouches (merchandise) .....1,000 s tons	14	X	P57.6	95 303	18	X	P71.2	89 560
3222241231	Uncoated paper shopping bags .....1,000 s tons	7	X	P45.3	103 239	8	X	S	110 096
32222413	Other uncoated paper bags and pouches, nec, including specialty bags, mothproof bags, etc.	N	X	X	210 957	N	X	X	N
3222241341	Other uncoated paper bags and pouches, nec, including specialty bags, mothproof bags, etc. ....1,000 s tons	23	X	71.2	210 957	24	X	S	139 785
3222241Y	Uncoated paper grocers' bags and sacks and variety and shopping bags, nsk	N	X	X	48 971	N	X	X	N
3222241YWV	Uncoated paper grocers' bags and sacks and variety and shopping bags, nsk	N	X	X	48 971	N	X	X	21 771
3222243	Shipping sacks and multiwall bags, all materials except textiles	N	X	X	1 580 360	N	X	X	1 464 521
32222431	Single and double wall shipping sacks and bags, all materials except textiles	N	X	X	207 117	N	X	X	N
3222243111	Single and double wall shipping sacks and bags, all materials except textiles .....1,000 s tons	36	X	Q173.5	207 117	28	X	Q192.5	238 211
32222432	Multiwall (three-ply or more) shipping sacks and bags, all materials except textiles	N	X	X	1 326 029	N	X	X	N
3222243221	Multiwall (three-ply or more) shipping sacks and bags, all materials except textiles .....1,000 s tons	28	X	891.3	1 326 029	28	X	1 047.7	1 192 213
3222243Y	Shipping sacks and multiwall bags, all materials except textiles, nsk	N	X	X	47 214	N	X	X	N
3222243YWV	Shipping sacks and multiwall bags, all materials except textiles, nsk	N	X	X	47 214	N	X	X	34 097
322224W	Uncoated paper and multiwall bags, nsk, total	N	X	X	53 356	N	X	X	32 003
322224WY	Uncoated paper and multiwall bags, nsk, total	N	X	X	53 356	N	X	X	N
322224WYWW	Uncoated paper and multiwall bags, nsk, for nonadministrative-record establishments	N	X	X	31 023	N	X	X	27 599
322224WYWY	Uncoated paper and multiwall bags, nsk, for administrative-record establishments	N	X	X	22 333	N	X	X	4 404

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222241	UNCOATED SINGLE-WEB PAPER GROCERS' BAGS AND SACKS AND VARIETY AND SHOPPING BAGS		
	United States	1 015 601	1 128 288
	California	42 342	48 674
	New Jersey	125 558	90 162
	New York	66 093	78 066
	Ohio	5 172	N
	Oregon	27 819	43 390
	Texas	80 206	93 015
	Wisconsin	40 710	N

See footnotes at end of table.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992—Con.

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222243	SHIPPING SACKS AND MULTIWALL BAGS, ALL MATERIALS EXCEPT TEXTILES		
	United States	1 580 360	1 464 521
	Arkansas	273 389	263 930
	Georgia	118 100	109 507
	Illinois	71 272	97 213
	Missouri	118 756	107 989
	Ohio	123 716	N
	Tennessee	76 071	N
	Virginia	9 217	N
	Washington	63 159	N
	Wisconsin	2 535	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322224	UNCOATED PAPER & MULTIWALL BAG MFG				
32212007	Paper	P1 742.8	1 052 955	P2 380.4	1 318 532
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. ....mil lb..	P104.0	50 380	P227.0	91 529
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	D	X	47 076
33131509	Aluminum foil, plain	D	D	N	N
32552003	Glues and adhesives	X	49 359	X	44 768
32591003	Printing ink	Q34.4	68 259	P40.0	64 570
32221001	Paperboard containers, boxes, and corrugated paperboard	X	29 517	X	25 900
00970099	All other materials and components, parts, containers, and supplies	X	111 763	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	186 398	X	34 529

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322224 UNCOATED PAPER AND MULTIWALL BAG MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing uncoated paper bags or multi-wall bags and sacks.

The data published with NAICS code 322224 include the following SIC industry:

2674 Bags - uncoated paper and multiwall

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3221101	26111	26111	322121J	26767	26761 pt	3222110	26530	26530
322110100	2611100	2611100	322121J11	2676714	2676114 pt	3222110111	2653012	2653012
3221103	26113	26113	322121J121	2676751	2676151 pt	3222110114	2653014	2653014
3221103111	2611335	2611335	322121JYVW	2676700	2676100 pt	3222110221	2653013	2653013
3221103121	2611343	2611343				3222110341	2653016	2653016
3221103YVW	2611300	2611300	322121L pt.	26768	26763 pt	3222110345	2653018	2653018
3221105	26114	26114	322121L pt.	38421 pt	38421 pt	3222110431	2653015	2653015
3221105111	2611432	2611432	322121L111	2676800 pt	2676300 pt	3222110433	2653021	2653021
3221105121	2611466	2611466	322121L121	3842134	3842132 pt	3222110435	2653022	2653022
3221105131	2611472	2611472	322121L131	3842136	3842132 pt	3222110437	2653030	2653030
3221105141	2611478	2611478	322121LYVW pt.	2676800 pt	2676300 pt	3222110551	2653067	2653067
3221105YVW	2611400	2611400	322121LYVW pt.	3842100 pt	3842100 pt	3222110661	2653051	2653051
3221107	26115	26115	322121N	26769	26764 pt	3222110665	2653068	2653068
3221107111	2611511	2611511	322121N111	2676911	2676411 pt	3222110691	2653098	2653098
3221107121	2611513	2611513	322121N221	2676925	2676425 pt	3222110YVW	2653002	2653002
3221107131	2611517	2611517	322121N223	2676927	2676427 pt	3222120	26570	26570
3221107141	2611519	2611519	322121N225	2676933	2676433 pt	3222120111	2657014	2657014
3221107YVW	2611500	2611500	322121N227	2676935	2676435 pt	3222120221	2657021	2657021
322110W	26110	26110	322121N229	2676937	2676437 pt	3222120331	2657073	2657073 pt
322110WYVW	2611000	2611000	322121N331	2676945	2676445 pt	3222120335	2657075	2657075 pt
322110YYVW	2611002	2611002	322121N433	2676947	2676447 pt	3222120441	2657081	2657081 pt
			322121N535	2676941	2676441 pt	3222120551	2657084	2657084
3221211	26213	26213	322121N541	2676943	2676443 pt	3222120555	2657086	2657086
3221211111	2621311 pt.	2621315	322121N551	2676955	2676455 pt	3222120661	2657015	2657015
3221211111 pt.	2621311 pt.	2621329 pt	322121N661	2676971	2676471 pt	3222120663	2657061	2657061
322121221	2621321 pt.	2621316	322121N771	2676976	2676476 pt	3222120665	2657088	2657088
322121221 pt.	2621321 pt.	2621329 pt	322121N773	2676977	2676477 pt			
322121231	2621323 pt.	2621320	322121N881	2676981	2676481 pt	3222120667	2657090	2657090
322121231 pt.	2621323 pt.	2621329 pt	322121N891	2676989	2676499 pt	3222120671	2657095	2657095
322121YVW	2621300	2621300	322121NYVW	2676900	2676400 pt	3222120673	2657082	2657082 pt
						3222120675	2657031	2657031
3221213	26214	26214	322121W pt.	26210 pt.	26210 pt	3222120677	2657041	2657041
3221213111	2621431	2621431	322121W pt.	26760 pt.	26760 pt	3222120681	2657051	2657051
3221213115	2621432	2621432	322121W pt.	38420 pt.	38420 pt	3222120683	2657096	2657096
3221213221	2621437	2621437	322121WYVW pt.	2621000 pt.	2621000 pt	3222120691	2657098	2657098 pt
3221213225	2621441	2621441	322121WYVW pt.	2676000 pt.	2676000 pt	3222120YVW	2657000	2657000
3221213231	2621447	2621447	322121WYVW pt.	3842000 pt.	3842000 pt	3222120YWV	2657002	2657002
3221213235	2621448	2621448	322121WYVY pt.	2621002 pt.	2621002 pt			
3221213341	2621454	2621454	322121WYVY pt.	2676002 pt.	2676002 pt	3222130	26520	26520
3221213345	2621455	2621455	322121WYVY pt.	3842002 pt.	3842002 pt	3222130111	2652021	2652021
3221213351	2621456	2621456				3222130121	2652031	2652031
3221213461	2621460	2621460				3222130131	2652041	2652041
3221213471	2621471	2621471				3222130141	2652051	2652051
3221213481	2621473	2621473	3221221	26211	26211	3222130191 pt.	2652097 pt.	2652097
3221213491	2621489	2621489	3221221100	2621100	2621100	3222130191 pt.	2652097 pt.	2652071
3221213YVW	2621400	2621400				3222130191 pt.	2652097 pt.	2652098
						3222130YVW	2652000	2652000
3221215	26215	26215	3221223	26212	26212	3222130YVW	2652002	2652002
3221215111	2621531	2621531	3221223111 pt.	2621213 pt.	2621215			
3221215121	2621532	2621532	3221223111 pt.	2621213 pt.	2621219	3222141	26551	26551
3221215131	2621537	2621537	3221223121	2621227	2621227	3222141100	2655100	2655100
3221215141	2621558	2621558	3221223YVW	2621200	2621200			
3221215YVW	2621500	2621500				3222143	26552	26552
						3222143111	2655221	2655221
3221217	26216	26216	322122W	26210 pt.	26210 pt	3222143221	2655231	2655231
3221217111	2621615 pt.	2621611	322122WYVW	2621000 pt.	2621000 pt	3222143331	2655271	2655271
3221217111 pt.	2621615 pt.	2621619	322122WYVY	2621002 pt.	2621002 pt	3222143391	2655298	2655298
3221217121	2621627	2621627				3222143YVW	2655200	2655200
3221217YVW	2621600	2621600						
			3221301	26311	26311	3222144	26550	26550
3221219	26217	26217	3221301111	2631110	2631110	3222144YVW	2655000	2655000
3221219111	2621730	2621730	3221301221	2631188	2631188	3222144YVY	2655002	2655002
3221219121	2621750	2621750	3221301YVW	2631100	2631100			
3221219131	2621760	2621760				3222151	26561	26561
3221219191	2621768	2621768	3221303	26312	26312	3222151100	2656100	2656100
3221219YVW	2621700	2621700	3221303111	2631240	2631240			
			3221303321	2631261	2631261	3222153	26562	26562
322121A	26218	26218	3221303331	2631262	2631262	3222153111	2656233	2656233
322121A111	2621830	2621830	3221303341	2631263	2631263	3222153121	2656235	2656235
322121A121	2621850	2621850	3221303351	2631288	2631288	3222153YVW	2656200	2656200
322121A131	2621860	2621860	3221303361	2631288	2631288			
322121A141 pt.	2621870 pt.	2621864	3221303YVW	2631200	2631200			
322121A141 pt.	2621870 pt.	2621868				3222155	26563	26563
322121A151	2621883	2621883	3221305	26313	26313	3222155111	2656310	2656310
322121AYVW	2621800	2621800	3221305100	2631300	2631300	3222155121 pt.	2656397 pt.	2656312
						322215521 pt.	2656397 pt.	2656319
322121C	26219	26219	3221307	26314	26314	3222155YVW	2656300	2656300
322121C100	2621900	2621900	3221307111	2631420	2631420			
			3221307221	2631410	2631410	322215W	26560	26560
322121E	2621B	2621B	3221307331	2631430	2631430	322215WYVW	2656000	2656000
322121E111	2621B22	2621B22	3221307341	2631446	2631446	322215WYVY	2656002	2656002
322121E121	2621B28	2621B28	3221307451	2631443	2631443			
322121EYVW	2621B00	2621B00	3221307461 pt.	2631441 pt.	2631444	3222211	26711	26711
			3221307461 pt.	2631441 pt.	2631445	3222211111	2671111	2671111
322121G	2621A	2621A	3221307571	2631450	2631450	3222211121	2671115	2671115
322121G111	2621A11	2621A11	3221307575	2631481	2631481	3222211YVW	2671100	2671100
322121G221	2621A60	2621A60	3221307581	2631482	2631482			
322121G331	2621A30	2621A30	3221307591	2631488	2631488	3222213 pt.	26715 pt.	26713
322121G341	2621A51	2621A51	3221307YVW	2631400	2631400			
322121G351	2621A73	2621A73				3222213111 pt.	2671511 pt.	2671300
322121G361	2621A78	2621A78	3221309	26318	26318	3222213111 pt.	2671511 pt.	2671313
322121G371	2621A81	2621A81	3221309100	2631800	2631800	3222213111 pt.	2671511 pt.	2671314
322121G391	2621A88	2621A88				3222213111 pt.	2671511 pt.	2671320
322121GYVW	2621A00	2621A00	322130W	26310	26310	3222213221	2671521	2671411
			322130WYVW	2631000	2631000	3222213YVW	2671500	2671400 pt
			322130WYVY	2631002	2631002			

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710	26710	3222241YVW	2674100	2674100	3222911	26762	26761
322221WYWW	2671000	2671000	322224311	2674211	2674211	3222911111	2676214	2676114
322221WYVW	2671002	2671002	322224321	2674212	2674212	3222911121	2676251	2676151
3222221	26721	26721	3222243YVW	2674200	2674200	3222911YVW	2676200	2676100
3222221111	2672113	2672113	322224W	26740	26740	3222913	26765	26763
3222221121	2672153	2672153	322224WYWW	2674000	2674000	3222913111	38421	38421
3222221YVW	2672100	2672100	322224WYVW	2674002	2674002	3222913121	3842133	3842132
3222223	26722	26722	3222250	34970	34970	3222913131	3842135	3842132
3222223111	2672212	2672212	3222250 pt.	34972	34972	3222913YVW	2676500	2676300
3222223121	2672230	2672230	3222250101	3497210	3497210	3222913YVW pt.	3842100	3842100
3222223YVW	2672200	2672200	3222250206	3497222	3497222	3222915	26766	26764
3222225	26723	26723	3222250311	3497225	3497225	3222915111	2676611	2676411
3222225111	2672313	2672313	3222250311	3497225	3497225	3222915221	2676625	2676425
3222225221	2672343	2672343	3222250416	3497228	3497228	3222915223	2676627	2676427
3222225331	2672333	2672333	3222250421	3497241	3497241	3222915225	2676633	2676433
3222225341	2672345	2672345	3222250YVW pt.	3497000	3497000	3222915227	2676635	2676435
3222225351	2672353	2672353	3222250YVW pt.	3497200	3497200	3222915229	2676637	2676437
3222225361	2672359	2672359	3222250YVW	3497002	3497002	3222915331	2676645	2676445
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3222225475	2672381	2672381	3222260100	2675300	2675300	3222915535	2676641	2676441
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3222226111	2679122	2679122	322226121	2679125	2679126	3222915881	2676681	2676481
3222226121	2679125	2679126	322226121 pt.	2679125	2679128	3222915891	2676699	2676499
3222226131	2679134	2679134	322226131	2679134	2679134	3222915YVW	2676600	2676400
3222226141	2679136	2679136	322226131 pt.	2679136	2679136	322291W	26760	26760
3222226191	2679141	2679141	322226191	2679141	2679141	322291W pt.	26760	26760
3222226YVW	2679100	2679100	3222262	26792	26792	322291W pt.	38420	38420
3222227	26792	26792	322226211	2679282	2679282	322291WYVW	2676000	2676000
3222227111	2679282	2679282	3222262121	2679291	2679291	322291WYVW pt.	3842000	3842000
3222227121	2679291	2679291	3222262121 pt.	2679291	2679298	322291WYVW pt.	2676002	2676002
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3222227YVW	2679200	2679200	3222262131 pt.	2679296	2679296	3222991	26794	26794
3222229	26724	26724	3222262191	2679141	2679141	32229911100	2679400	2679400
3222229111	2672445	2672445	3222262YVW	2679100	2679100	3222993	26752	26752
3222229121	2672453	2672453	322222W	26720	26720	3222993 pt.	26795	26795
3222229131	2672455	2672455	322222W pt.	26720	26720	3222993 pt.	39999	39999
3222229141	2672456	2672456	322222W pt.	26790	26790	3222993111	2679521	2679521
3222229151	2672469	2672469	322222WYVW	2672000	2672000	3222993221	2679531	2679531
3222229YVW	2672400	2672400	322222WYVW pt.	2672002	2672002	3222993231	2679541	2679541
322222W	26720	26720	322222WYVW pt.	2679000	2679000	3222993241	2679548	2679548
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3222231	26731	26731	3222233	26733	26733	3222993471 pt.	2675200	2675200
3222231100	2673100	2673100	3222233111	2673306	2673311	3222993591	2679598	2679598
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3222233121	2673312	2673312	3222233131	2673315	2673314	3222993YVW	2679500	2679500
3222233121 pt.	2673312	2673312	3222233131 pt.	2673300	2673300	3222993YVW pt.	3999900	3999900
3222233131	2673315	2673311	3222233YVW	2673000	2673000	322299W	26750	26750
3222233131 pt.	2673315	2673314	322223W	26730	26730	322299W pt.	26790	26790
3222233YVW	2673300	2673300	322223WYVW	2673000	2673000	322299W pt.	39990	39990
322223W	26730	26730	322223WYVW pt.	2673002	2673002	322299WYVW	2675000	2675000
322223WYVW	2673000	2673000	3222241	26741	26741	322299WYVW pt.	2679000	2679000
322223WYVW pt.	2673002	2673002	3222241111	2674111	2674111	322299WYVW pt.	3999000	3999000
3222241	26741	26741	3222241111	2674111	2674111	322299WYVW pt.	2675002	2675002
3222241111	2674111	2674111	3222241221	2674112	2674112	322299WYVW pt.	2679002	2679002
3222241221	2674112	2674112	3222241231	2674113	2674113	322299WYVW pt.	2679002	2679002
3222241231	2674113	2674113	3222241341	2674115	2674115	322299WYVW pt.	3999002	3999002
3222241341	2674115	2674115						

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econgguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322225	Laminated aluminum foil mfg for flexible packaging uses . . .	32	39	4 560	196 284	3 445	7 778	136 419	546 622	914 693	1 447 757	34 062
349710	Metal foil & leaf (pt)	N	39	4 560	196 284	3 445	7 778	136 419	546 622	914 693	1 447 757	34 062

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)	
	E ¹	Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)					Wages (\$1,000)
322225, LAMINATED ALUMINUM FOIL MFG FOR FLEXIBLE PACKAGING USES												
United States	—	39	34	4 560	196 284	3 445	7 778	136 419	546 622	914 693	1 447 757	34 062
Georgia	2	4	4	305	11 963	221	542	7 954	34 030	56 072	86 181	3 012
Illinois	—	7	6	276	10 530	211	445	6 278	30 188	38 260	68 099	1 999

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322225, LAMINATED ALUMINUM FOIL MFG FOR FLEXIBLE PACKAGING USES		322225, LAMINATED ALUMINUM FOIL MFG FOR FLEXIBLE PACKAGING USES—Con.	
Companies ¹	number.. 32	Value added	\$1,000.. 546 622
All establishments	number.. 39	Total inventories, beginning of year	\$1,000.. 190 329
Establishments with 1 to 19 employees	number.. 5	Finished goods inventories, beginning of year	\$1,000.. 73 249
Establishments with 20 to 99 employees	number.. 17	Work-in-process inventories, beginning of year	\$1,000.. 32 072
Establishments with 100 employees or more	number.. 17	Materials and supplies inventories, beginning of year	\$1,000.. 85 008
All employees	number.. 4 560	Total inventories, end of year	\$1,000.. 200 140
Total compensation ²	\$1,000.. 266 633	Finished goods inventories, end of year	\$1,000.. 85 613
Annual payroll	\$1,000.. 196 284	Work-in-process inventories, end of year	\$1,000.. 33 266
Total fringe benefits	\$1,000.. 70 349	Materials and supplies inventories, end of year	\$1,000.. 81 261
Production workers, average for year	number.. 3 445	Gross book value of total assets at beginning of year	\$1,000.. 598 073
Production workers on March 12	number.. 3 427	Total capital expenditures (new and used)	\$1,000.. 34 062
Production workers on May 12	number.. 3 433	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 3 357
Production workers on August 12	number.. 3 431	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 30 705
Production workers on November 12	number.. 3 489	Total retirements ²	\$1,000.. 5 900
Production-worker hours	1,000.. 7 778	Gross book value of total assets at end of year	\$1,000.. 626 235
Production-worker wages	\$1,000.. 136 419	Total depreciation during year ²	\$1,000.. 42 116
Total cost of materials	\$1,000.. 914 693	Total rental payments ²	\$1,000.. 6 519
Cost of materials, parts, containers, etc., consumed	\$1,000.. 883 232	Buildings and other structures rental payments ²	\$1,000.. 3 245
Cost of resales	\$1,000.. 9 284	Machinery and equipment rental payments ²	\$1,000.. 3 274
Cost of fuels	\$1,000.. 8 775	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 3 556
Cost of purchased electricity	\$1,000.. 11 935	Response coverage ratio ⁴	percent.. 93
Cost of contract work	\$1,000.. 1 467	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 19 883
Quantity of electricity purchased for heat and power	1,000 kWh.. 212 503	Response coverage ratio ⁴	percent.. 93
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 1 753
Total value of shipments	\$1,000.. 1 447 757	Response coverage ratio ⁴	percent.. 93
Primary products value of shipments	\$1,000.. 1 035 493	Cost of purchased legal services ³	\$1,000.. 1 845
Secondary products value of shipments	\$1,000.. 388 331	Response coverage ratio ⁴	percent.. 93
Total miscellaneous receipts	\$1,000.. 23 933	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 784
Value of resales	\$1,000.. 12 580	Response coverage ratio ⁴	percent.. 93
Contract receipts	\$1,000.. D	Cost of purchased advertising services ³	\$1,000.. 110
Other miscellaneous receipts	\$1,000.. D	Response coverage ratio ⁴	percent.. 93
Primary products specialization ratio	percent.. 72	Cost of purchased software and other data processing services ³	\$1,000.. 4 925
Value of primary products shipments made in all industries	\$1,000.. 1 394 023	Response coverage ratio ⁴	percent.. 93
Value of primary products shipments made in this industry	\$1,000.. 1 035 493	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 5 975
Value of primary products shipments made in other industries	\$1,000.. 358 530	Response coverage ratio ⁴	percent.. 93
Coverage ratio	percent.. 74		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322225, LAMINATED ALUMINUM FOIL MFG FOR FLEXIBLE PACKAGING USES												
All establishments	-	39	34	4 560	196 284	3 445	7 778	136 419	546 622	914 693	1 447 757	34 062
Establishments with 1 to 4 employees	9	1	-	D	D	D	D	D	D	D	D	D
Establishments with 5 to 9 employees	6	2	-	D	D	D	D	D	D	D	D	D
Establishments with 10 to 19 employees	5	2	-	D	D	D	D	D	D	D	D	D
Establishments with 20 to 49 employees	-	8	8	276	10 384	215	463	6 868	29 446	69 112	96 178	1 933
Establishments with 50 to 99 employees	1	9	9	576	22 347	428	924	13 878	66 383	81 826	147 883	4 203
Establishments with 100 to 249 employees	-	13	13	2 084	88 933	1 551	3 633	61 475	239 093	438 260	672 231	18 945
Establishments with 250 to 499 employees	-	3	3	D	D	D	D	D	D	D	D	D
Establishments with 500 to 999 employees	-	1	1	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	9	2	-	12	353	9	15	257	906	1 578	2 486	102

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322225	Laminated aluminum foil mfg for flexible packaging uses	39	4 560	196 284	3 445	7 778	136 419	546 622	914 693	1 447 757	34 062

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322225	Laminated aluminum foil for flexible packaging uses	N	X	X	1 394 023	N	X	X	N
3222250	Laminated aluminum foil rolls and sheets for flexible packaging uses	N	X	X	1 394 023	N	X	X	N
32222501	Laminated aluminum film-foil (without paper) rolls and sheets for flexible packaging uses	N	X	X	444 679	N	X	X	N
3222250101	Laminated aluminum film-foil (without paper) rolls and sheets for flexible packaging uses mil lb.	26	X	S	444 679	33	X	P183.2	451 426
32222502	Extrusion laminated aluminum foil-paper combination rolls and sheets for flexible packaging uses	N	X	X	226 872	N	X	X	N
3222250206	Extrusion laminated aluminum foil-paper combination rolls and sheets for flexible packaging uses mil lb.	21	X	94.9	226 872	20	X	S	272 141
32222503	Adhesive or wax laminated aluminum foil-paper combination rolls and sheets for flexible packaging uses	N	X	X	411 603	N	X	X	N
3222250311	Adhesive or wax laminated aluminum foil-paper combination rolls and sheets for flexible packaging uses mil lb.	19	X	P205.7	411 603	24	X	P214.4	368 879
32222504	Other laminated aluminum foils and gift wrap	N	X	X	196 668	N	X	X	N
3222250416	Laminated aluminum foil-film-paper combination rolls and sheets for flexible packaging uses	23	X	X	190 804	21	X	X	287 362
3222250421	Laminated aluminum foil gift wrap	4	X	X	5 864	5	X	X	19 195
3222250Y	Laminated aluminum foil rolls and sheets for flexible packaging uses, nsk, total	N	X	X	114 201	N	X	X	N
3222250YWW	Laminated aluminum foil rolls and sheets for flexible packaging uses, nsk, for nonadministrative-record establishments	N	X	X	111 840	N	X	X	N
3222250YWY	Laminated aluminum foil rolls and sheets for flexible packaging uses, nsk, for administrative-record establishments	N	X	X	2 361	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Not applicable for this report]

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322225	LAMINATED ALUMINUM FOIL MFG FOR FLEXIBLE PACKAGING USES				
33131507	Aluminum and aluminum-base alloy plain foil mil lb..	81.4	118 503	N	N
32222503	Aluminum foil, converted (quantity represents metal content) mil lb..	77.2	128 867	N	N
33200089	Other fabricated metal products (except forgings) mil lb..	D	D	N	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	228 578	X	N
32500069	Other chemicals and allied products mil lb..	D	D	N	N
32552005	Glues and adhesives, including synthetic resin adhesives mil lb..	28.4	38 311	N	N
32591003	Printing ink mil lb..	26.7	55 049	N	N
32220017	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	X	113 528	X	N
00970099	All other materials and components, parts, containers, and supplies	X	111 502	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	21 781	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: ^p 10 to 19 percent estimated; ^q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322225 LAMINATED ALUMINUM FOIL MANUFACTURING FOR FLEXIBLE PACKAGING USES

This U.S. industry comprises establishments primarily engaged in laminating aluminum and other metal foil into products with flexible packaging uses or gift wrap and other packaging wrap applications.

The data published with NAICS code 322225 include the following SIC industry:

3497 Metal foil and leaf (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G.

Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3221101	26111	26111	322121J	26767	26761 pt	3222110	26530	26530
322110100	2611100	2611100	322121J111	2676714	2676114 pt	3222110111	2653012	2653012
3221103	26113	26113	322121J121	2676751	2676151 pt	3222110114	2653014	2653014
3221103111	2611335	2611335	322121JYVW	2676700	2676100 pt	3222110221	2653013	2653013
3221103121	2611343	2611343	322121L pt.	26768	26763 pt	3222110341	2653016	2653016
3221103YVW	2611300	2611300	322121L1 pt.	38421 pt	38421 pt	3222110345	2653018	2653018
3221105	26114	26114	322121L111	2676800 pt	2676300 pt	3222110431	2653015	2653015
3221105111	2611432	2611432	322121L121	3842134	3842132 pt	3222110433	2653021	2653021
3221105121	2611466	2611466	322121L131	3842136	3842132 pt	3222110435	2653022	2653022
3221105131	2611472	2611472	322121LYVW pt	2676800 pt	2676300 pt	3222110437	2653030	2653030
3221105141	2611478	2611478	322121LYVW pt	3842100 pt	3842100 pt	3222110551	2653067	2653067
3221105YVW	2611400	2611400	322121N	26769	26764 pt	3222110661	2653051	2653051
3221107	26115	26115	322121N111	2676911	2676411 pt	3222110665	2653068	2653068
3221107111	2611511	2611511	322121N221	2676925	2676425 pt	3222110691	2653098	2653098
3221107121	2611513	2611513	322121N223	2676927	2676427 pt	3222110YVW	2653002	2653002
3221107131	2611517	2611517	322121N225	2676933	2676433 pt	3222120	26570	26570
3221107141	2611519	2611519	322121N227	2676935	2676435 pt	3222120111	2657014	2657014
3221107YVW	2611500	2611500	322121N229	2676937	2676437 pt	3222120221	2657021	2657021
322110W	26110	26110	322121N331	2676945	2676445 pt	3222120331	2657073	2657073 pt
322110WYVW	2611000	2611000	322121N433	2676947	2676447 pt	3222120335	2657075	2657075 pt
322110YVW	2611002	2611002	322121N535	2676941	2676441 pt	3222120441	2657081	2657081 pt
3221211	26213	26213	322121N541	2676943	2676443 pt	3222120551	2657084	2657084
3221211111 pt	2621311 pt	2621315	322121N551	2676955	2676455 pt	3222120555	2657086	2657086
3221211111 pt	2621311 pt	2621329 pt	322121N661	2676971	2676471 pt	3222120661	2657015	2657015
322121221 pt	2621321 pt	2621316	322121N671	2676976	2676476 pt	3222120663	2657061	2657061
322121221 pt	2621321 pt	2621329 pt	322121N773	2676977	2676477 pt	3222120665	2657088	2657088
322121231 pt	2621323 pt	2621320	322121N881	2676981	2676481 pt	3222120667	2657090	2657090
322121231 pt	2621323 pt	2621329 pt	322121N891	2676989	2676499 pt	3222120671	2657095	2657095
322121YVW	2621300	2621300	322121NYVW	2676900	2676400 pt	3222120673	2657082	2657099 pt
3221213	26214	26214	322121W pt	26210 pt	26210 pt	3222120675	2657031	2657031
3221213111	2621431	2621431	322121W pt	26760 pt	26760 pt	3222120677	2657041	2657041
3221213115	2621432	2621432	322121WYVW pt.	38420 pt	38420 pt	3222120681	2657051	2657051
3221213221	2621437	2621437	322121WYVW pt.	2621000 pt	2621000 pt	3222120683	2657096	2657096
3221213225	2621441	2621441	322121WYVW pt.	2676000 pt	2676000 pt	3222120691	2657098	2657099 pt
3221213231	2621447	2621447	322121WYVW pt.	3842000 pt	3842000 pt	3222120YVW	2657000	2657000
3221213235	2621448	2621448	322121WYVY pt	2621002 pt	2621002 pt	3222120YVY	2657002	2657002
3221213341	2621454	2621454	322121WYVY pt	2676002 pt	2676002 pt	3222130	26520	26520
3221213345	2621455	2621455	322121WYVY pt	3842002 pt	3842002 pt	3222130111	2652021	2652021
3221213351	2621456	2621456	3221221	26211	26211	3222130121	2652031	2652031
3221213461	2621460	2621460	3221221100	2621100	2621100	3222130131	2652041	2652041
3221213471	2621471	2621471	3221223	26212	26212	3222130141	2652051	2652051
3221213481	2621473	2621473	3221223111 pt	2621213 pt	2621215	3222130191 pt	2652097 pt	2652097 pt
3221213491	2621489	2621489	3221223111 pt	2621213 pt	2621219	3222130191 pt	2652097 pt	2652071
3221213YVW	2621400	2621400	3221223121	2621227	2621227	3222130191 pt	2652097 pt	2652098
3221215	26215	26215	3221223YVW	2621200	2621200	3222130YVW	2652000	2652000
3221215111	2621531	2621531	322122W	26210 pt	26210 pt	3222130YVY	2652002	2652002
3221215121	2621532	2621532	322122WYVW	2621000 pt	2621000 pt	3222141	26551	26551
3221215131	2621537	2621537	322122WYVY	2621002 pt	2621002 pt	3222141100	2655100	2655100
3221215141	2621558	2621558	3221301	26311	26311	3222143	26552	26552
3221215YVW	2621500	2621500	3221301111	2631110	2631110	3222143111	2655221	2655221
3221217	26216	26216	3221301221	2631188	2631188	3222143221	2655231	2655231
3221217111 pt	2621615 pt	2621611	3221301YVW	2631100	2631100	3222143331	2655271	2655271
3221217111 pt	2621615 pt	2621619	3221303	26312	26312	3222143391	2655298	2655298
3221217121	2621627	2621627	3221303111	2631240	2631240	3222143YVW	2655200	2655200
3221217YVW	2621600	2621600	3221303221	2631261	2631261	3222144YVW	26550	26550
3221219	26217	26217	3221303331	2631210	2631210	3222144YVY	2655000	2655000
3221219111	2621730	2621730	3221303341	2631262	2631262	3222144YVY	2655002	2655002
3221219121	2621750	2621750	3221303351	2631263	2631263	3222151	26561	26561
3221219131	2621760	2621760	3221303361	2631288	2631288	3222151100	2656100	2656100
3221219191	2621768	2621768	3221303YVW	2631200	2631200	3222153	26562	26562
3221219YVW	2621700	2621700	3221305	26313	26313	3222153111	2656233	2656233
322121A	26218	26218	3221305100	2631300	2631300	3222153121	2656235	2656235
322121A111	2621830	2621830	3221307	26314	26314	3222153YVW	2656200	2656200
322121A121	2621850	2621850	3221307111	2631420	2631420	3222155	26563	26563
322121A131	2621860	2621860	3221307221	2631410	2631410	3222155111	2656310	2656310
322121A141 pt	2621870 pt	2621864	3221307331	2631430	2631430	3222155121 pt	2656397 pt	2656312
322121A141 pt	2621870 pt	2621868	3221307341	2631446	2631446	3222155121 pt	2656397 pt	2656319
322121A151	2621883	2621883	3221307451	2631443	2631443	3222155YVW	2656300	2656300
322121AYVW	2621800	2621800	3221307461 pt	2631441 pt	2631444	322215W	26560	26560
322121C	26219	26219	3221307461 pt	2631441 pt	2631444	322215WYVW	2656000	2656000
322121C100	2621900	2621900	3221307461 pt	2631441 pt	2631445	322215WYVY	2656002	2656002
322121E	2621B	2621B	3221307571	2631450	2631450	3222211	26711	26711
322121E111	2621B22	2621B22	3221307575	2631481	2631481	3222211111	2671111	2671111
322121E121	2621B28	2621B28	3221307581	2631482	2631482	3222211121	2671115	2671115
322121EYVW	2621B00	2621B00	3221307591	2631488	2631488	3222211YVW	2671100	2671100
322121G	2621A	2621A	3221307YVW	2631400	2631400	3222213 pt.	26715 pt	26713
322121G111	2621A11	2621A11	3221309	26318	26318	3222213 pt.	26715 pt	26714 pt
322121G221	2621A60	2621A60	3221309100	2631800	2631800	3222213111 pt	2671511 pt	2671300
322121G331	2621A30	2621A30	322130W	26310	26310	3222213111 pt	2671511 pt	2671313
322121G341	2621A51	2621A51	322130WYVW	2631000	2631000	3222213111 pt	2671511 pt	2671314
322121G351	2621A73	2621A73	322130WYVY	2631002	2631002	3222213111 pt	2671511 pt	2671320
322121G361	2621A78	2621A78				3222213221	2671521	2671411
322121G371	2621A81	2621A81				3222213YVW	2671500	2671400 pt
322121G391	2621A88	2621A88						
322121GYVW	2621A00	2621A00						

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710 pt	26710 pt	3222241YVW	2674100	2674100	3222911	26762	26761 pt
322221WYWW	2671000 pt	2671000 pt	322224311	267421	26742	3222911111	2676214	267614 pt
322221WYVW	2671002 pt	2671002 pt	322224321	2674212	2674212	3222911121	2676251	2676151 pt
3222221	26721	26721	3222243YVW	2674200	2674200	3222911YVW	2676200	2676100 pt
3222221111	2672113	2672113	3222244W	26740	26740	3222913 pt	26765	26763 pt
3222221121	2672153	2672153	3222244YVW	2674000	2674000	3222913111	38421 pt	38421 pt
3222221YVW	2672100	2672100	3222244YVW	2674002	2674002	3222913121	3842133	3842132 pt
3222223	26722	26722	3222250 pt	34970 pt	34970 pt	3222913131	3842135	3842132 pt
3222223111	2672212	2672212	3222250YVW	34972	34972	3222913YVW pt	2676500 pt	2676300 pt
3222223121	2672230	2672230	3222250YVW	3497210	3497210	3222913YVW pt	3842100 pt	3842100 pt
3222223YVW	2672200	2672200	3222250206	3497222	3497222	3222915	26766	26764 pt
3222225	26723	26723	3222250311	3497225	3497225	3222915111	2676611	2676411 pt
3222225111	2672313	2672313	3222250416	3497228	3497228	3222915221	2676625	2676425 pt
3222225221	2672343	2672343	3222250421	3497241	3497241	3222915225	2676627	2676427 pt
3222225331	2672333	2672333	3222250YVW pt	3497000 pt	3497000 pt	3222915229	2676633	2676433 pt
3222225341	2672345	2672345	3222250YVW pt	3497200	3497200	3222915331	2676635	2676435 pt
3222225351	2672353	2672353	3222250YVW	3497002 pt	3497002 pt	3222915433	2676637	2676437 pt
3222225361	2672359	2672359	3222260 pt	26750 pt	26750 pt	3222915535	2676645	2676445 pt
3222225371	2672361	2672361	3222260100	26753	26753	3222915541	2676647	2676447 pt
3222225475	2672381	2672381	3222260YVW	2675300	2675300	3222915551	2676649	2676449 pt
3222225581	2672385	2672385	3222260YVW	2675000 pt	2675000 pt	3222915561	2676655	2676455 pt
3222225585	2672375	2672375	3222260YVW	2675002 pt	2675002 pt	3222915661	2676671	2676471 pt
3222225591	2672398	2672398	3222311	26751	26751	3222915771	2676676	2676476 pt
3222225YVW	2672300	2672300	3222311111	2675110	2675110	3222915773	2676677	2676477 pt
3222226	26791	26791	3222311121	2675111	2675111	3222915881	2676681	2676481 pt
3222226111	2679122	2679122	3222311121	2675112	2675112	3222915891	2676699	2676499 pt
3222226121 pt	2679125 pt	2679126	3222311311	2675121	2675121	3222915YVW	2676600	2676400 pt
3222226121 pt	2679125 pt	2679128	3222311391 pt	2675191 pt	2675120	322291W pt	26760 pt	26760 pt
3222226131	2679134	2679134	3222311391 pt	2675191 pt	2675130	322291W pt	26760 pt	26760 pt
3222226141	2679136	2679136	3222311YVW	2675100	2675100	322291W pt	38420 pt	38420 pt
3222226191	2679141	2679141	3222313	26793	26793	322291WYVW pt	2676000 pt	2676000 pt
3222226YVW	2679100	2679100	3222313111	2679311	2679311	322291WYVW pt	3842000 pt	3842000 pt
3222227	26792	26792	3222313121	2679331	2679331	322291WYVW pt	2676002 pt	2676002 pt
3222227111	2679282	2679282	3222313191	2679331	2679331	322291WYVW pt	3842002 pt	3842002 pt
3222227121	2679291	2679291	3222313YVW	2679300	2679300	3222991	26794	26794
3222227191	2679296	2679296	322231W pt	26750 pt	26750 pt	3222991100	2679400	2679400
3222227YVW	2679200	2679200	322231W pt	26790 pt	26790 pt	3222993 pt	26752	26752
3222229	26724	26724	322231W pt	2679000 pt	2679000 pt	3222993 pt	26795	26795
3222229111	2672445	2672445	322231WYVW pt	2675000 pt	2675000 pt	3222993 pt	39999 pt	39999 pt
3222229121	2672453	2672453	322231WYVW pt	2675002 pt	2675002 pt	3222993111	2679521	2679521
3222229131	2672455	2672455	322231WYVW pt	2679002 pt	2679002 pt	3222993221	2679531	2679531
3222229141	2672456	2672456	3222320	26770	26770	3222993231	2679541	2679541
3222229151	2672469	2672469	3222320111	2677010	2677010	3222993241	2679548	2679548
3222229YVW	2672400	2672400	3222320121	2677021	2677021	3222993351 pt	2679550 pt	2679551
322222W pt	26720	26720	3222320131	2677022	2677022	3222993351 pt	2679550 pt	2679555
322222W pt	26790 pt	26790 pt	3222320141	2677040	2677040	3222993361	2679561	2679561
322222WYVW pt	2672000	2672000	3222320YVW	2677000	2677000	3222993471 pt	2675200 pt	2675200 pt
322222WYVW pt	2679000 pt	2679000 pt	3222320YVW	2677002	2677002	3222993471 pt	2675200 pt	2675211
322222WYVW pt	2672002	2672002	3222331	26781	26781	3222993471 pt	2675200 pt	2675211
322222WYVW pt	2679002 pt	2679002 pt	3222331111	2678111	2678111	3222993471 pt	2675200 pt	2675297
3222231	26731	26731	3222331121	2678113	2678113	3222993591 pt	2679598	2679598
3222231100	2673100	2673100	3222331131	2678121	2678121	3222993591 pt	3999996 pt	3999913 pt
3222233	26733 pt	26733 pt	3222331YVW	2678100	2678100	3222993591 pt	3999996 pt	3999999 pt
3222233111	2673306	2673311 pt	3222333	26782	26782	3222993YVW pt	2679500	2679500
3222233121	2673312	2673312	3222333111	2678212	2678212	3222993YVW pt	3999900 pt	3999900 pt
3222233131 pt	2673315 pt	2673311 pt	3222333221 pt	2678225 pt	2678213	322299W pt	26750 pt	26750 pt
3222233131 pt	2673315 pt	2673314 pt	3222333221 pt	2678225 pt	2678221	322299W pt	26790 pt	26790 pt
3222233YVW	2673300 pt	2673300 pt	3222333331	2678235	2678235	322299W pt	26790 pt	26790 pt
322223W	26730 pt	26730 pt	3222333441	2678245	2678245	322299W pt	39990 pt	39990 pt
322223WYVW	2673000 pt	2673000 pt	3222333551	2678251	2678251	322299WYVW pt	2675000 pt	2675000 pt
322223WYVW	2673002 pt	2673002 pt	3222333691	2678298	2678298	322299WYVW pt	2679000 pt	2679000 pt
3222241	26741	26741	3222333YVW	2678200	2678200	322299WYVW pt	3999000 pt	3999000 pt
3222241111	2674111	2674111	322233W	26780	26780	322299WYVW pt	2675002 pt	2675002 pt
3222241221	2674112	2674112	322233WYVW	2678000	2678000	322299WYVW pt	2679002 pt	2679002 pt
3222241231	2674113	2674113	322233WYVW	2678002	2678002	322299WYVW pt	3999002 pt	3999002 pt
3222241341	2674115	2674115						

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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special

census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the

manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322226	Surface-coated paperboard mfg	43	56	3 314	126 785	2 490	5 455	75 876	355 957	800 159	1 155 716	14 137
267510	Die-cut paper & board (pt)	N	56	3 314	126 785	2 490	5 455	75 876	355 957	800 159	1 155 716	14 137

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)	
	E ¹	Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)					Wages (\$1,000)
322226, SURFACE-COATED PAPERBOARD MFG												
United States	-	56	39	3 314	126 785	2 490	5 455	75 876	355 957	800 159	1 155 716	14 137
Illinois	-	5	3	416	21 871	252	676	8 222	105 168	58 670	164 097	1 900
New Jersey	-	5	4	295	9 725	220	468	5 637	24 299	43 419	67 541	743
New York	-	5	3	179	6 767	135	274	3 504	15 223	11 674	26 724	495

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322226, SURFACE-COATED PAPERBOARD MFG		322226, SURFACE-COATED PAPERBOARD MFG— Con.	
Companies ¹	43	Value added	\$1,000.. 355 957
All establishments	56	Total inventories, beginning of year	\$1,000.. 83 490
Establishments with 1 to 19 employees	17	Finished goods inventories, beginning of year	\$1,000.. 30 495
Establishments with 20 to 99 employees	29	Work-in-process inventories, beginning of year	\$1,000.. 9 355
Establishments with 100 employees or more	10	Materials and supplies inventories, beginning of year	\$1,000.. 43 640
All employees	3 314	Total inventories, end of year	\$1,000.. 81 609
Total compensation ²	156 463	Finished goods inventories, end of year	\$1,000.. 30 465
Annual payroll	126 785	Work-in-process inventories, end of year	\$1,000.. 9 785
Total fringe benefits	29 678	Materials and supplies inventories, end of year	\$1,000.. 41 359
Production workers, average for year	2 490	Gross book value of total assets at beginning of year	\$1,000.. 259 543
Production workers on March 15	2 493	Total capital expenditures (new and used)	\$1,000.. 14 137
Production workers on May 15	2 478	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 1 458
Production workers on August 15	2 509	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 12 679
Production workers on November 15	2 480	Total retirements ²	\$1,000.. 5 193
Production-worker hours	5 455	Gross book value of total assets at end of year	\$1,000.. 268 487
Production-worker wages	75 876	Total depreciation during year ²	\$1,000.. 16 663
Total cost of materials	\$1,000.. 800 159	Total rental payments ²	\$1,000.. 9 414
Cost of materials, parts, containers, etc., consumed	\$1,000.. 767 216	Buildings and other structures rental payments ²	\$1,000.. 6 089
Cost of resales	\$1,000.. 18 370	Machinery and equipment rental payments ²	\$1,000.. 3 325
Cost of fuels	\$1,000.. 2 609	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 528
Cost of purchased electricity	\$1,000.. 8 716	Response coverage ratio ⁴	percent.. 94
Cost of contract work	\$1,000.. 3 248	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 7 825
Quantity of electricity purchased for heat and power	1,000 kWh.. 152 922	Response coverage ratio ⁴	percent.. 94
Quantity of electricity generated less sold for heat and power	1,000 kWh.. -	Cost of purchased communications services ³	\$1,000.. 1 099
Total value of shipments	\$1,000.. 1 155 716	Response coverage ratio ⁴	percent.. 94
Primary products value of shipments	\$1,000.. 1 081 286	Cost of purchased legal services ³	\$1,000.. 406
Secondary products value of shipments	\$1,000.. 38 788	Response coverage ratio ⁴	percent.. 94
Total miscellaneous receipts	\$1,000.. 35 642	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 273
Value of resales	\$1,000.. 22 615	Response coverage ratio ⁴	percent.. 94
Contract receipts	\$1,000.. 6 190	Cost of purchased advertising services ³	\$1,000.. 163
Other miscellaneous receipts	\$1,000.. 6 837	Response coverage ratio ⁴	percent.. 94
Primary products specialization ratio	percent.. 96	Cost of purchased software and other data processing services ³	\$1,000.. 336
Value of primary products shipments made in all industries	\$1,000.. 1 131 697	Response coverage ratio ⁴	percent.. 94
Value of primary products shipments made in this industry	\$1,000.. 1 081 286	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 800
Value of primary products shipments made in other industries	\$1,000.. 50 411	Response coverage ratio ⁴	percent.. 94
Coverage ratio	percent.. 95		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322226, SURFACE-COATED PAPERBOARD MFG												
All establishments	-	56	39	3 314	126 785	2 490	5 455	75 876	355 957	800 159	1 155 716	14 137
Establishments with 1 to 4 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 5 to 9 employees	1	4	-	28	891	22	49	546	2 414	4 363	6 805	49
Establishments with 10 to 19 employees	-	13	-	190	5 880	134	294	3 244	15 584	25 223	40 520	930
Establishments with 20 to 49 employees	1	15	15	424	14 937	307	658	7 668	36 366	50 582	85 774	996
Establishments with 50 to 99 employees	-	14	14	1 109	39 242	872	1 819	26 784	115 514	309 217	428 876	4 107
Establishments with 100 to 249 employees	-	9	9	D	D	D	D	D	D	D	D	D
Establishments with 250 to 499 employees	-	1	1	D	D	D	D	D	D	D	D	D
Establishments with 500 to 999 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 1,000 to 2,499 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	-	-	-	-	-	-	-	-	-	-	-	-

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322226	Surface-coated paperboard mfg	56	3 314	126 785	2 490	5 455	75 876	355 957	800 159	1 155 716	14 137

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322226	Surface-coated paperboard	N	X	X	1 131 697	N	X	X	N
3222260	Pasted, lined, laminated, or surface-coated paperboard	N	X	X	1 131 697	N	X	X	N
32222601	Pasted, lined, laminated, or surface-coated paperboard	N	X	X	1 131 164	N	X	X	N
3222260100	Pasted, lined, laminated, or surface-coated paperboard .....1,000 s tons..	62	X	1 419.7	1 131 164	49	X	912.1	742 707
3222260Y	Pasted, lined, laminated, or surface-coated paperboard, nsk, total	N	X	X	533	N	X	X	N
3222260YWW	Pasted, lined, laminated, or surface-coated paperboard, nsk, for nonadministrative-record establishments	N	X	X	533	N	X	X	N
3222260YWY	Pasted, lined, laminated, or surface-coated paperboard, nsk, for administrative-record establishments	N	X	X	-	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for this item in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Not applicable for this report]

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322226	SURFACE-COATED PAPERBOARD MFG				
32210005	Paper and paperboard, except boxes and containers .....1,000 s tons..	1 021.9	598 677	N	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	94 274	X	N
32552003	Glues and adhesives	X	17 001	X	N
32591003	Printing ink	X	3 470	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	7 678	X	N
00970099	All other materials and components, parts, containers, and supplies	X	37 017	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	9 099	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322226 SURFACE-COATED PAPERBOARD MANUFACTURING

This U.S. industry comprises establishments primarily engaged in laminating, lining, or surface coating purchased paperboard to make other paperboard products.

The data published with NAICS code 322226 include the following SIC industry:

2675 Die-cut paper and board (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3221101	26111	26111	322121J	26767	26761 pt	3222110	26530	26530
322110100	2611100	2611100	322121J111	2676714	2676114 pt	3222110111	2653012	2653012
3221103	26113	26113	322121J121	2676751	2676151 pt	3222110114	2653014	2653014
3221103111	2611335	2611335	322121JYVW	2676700	2676100 pt	3222110221	2653013	2653013
3221103121	2611343	2611343	322121L pt.	26768	26763 pt	3222110341	2653016	2653016
3221103YVW	2611300	2611300	322121L1 pt.	38421 pt	38421 pt	3222110345	2653018	2653018
3221105	26114	26114	322121L111	2676800 pt	2676300 pt	3222110431	2653015	2653015
3221105111	2611432	2611432	322121L121	3842134	3842132 pt	3222110433	2653021	2653021
3221105121	2611466	2611466	322121L131	3842136	3842132 pt	3222110435	2653022	2653022
3221105131	2611472	2611472	322121LYVW pt.	2676800 pt	2676300 pt	3222110551	2653030	2653030
3221105141	2611478	2611478	322121LYVW pt.	3842100 pt	3842100 pt	3222110661	2653067	2653067
3221105YVW	2611400	2611400	322121N	26769	26764 pt	3222110665	2653051	2653051
3221107	26115	26115	322121N111	2676911	2676411 pt	3222110691	2653068	2653068
3221107111	2611511	2611511	322121N221	2676925	2676425 pt	3222110699	2653098	2653098
3221107121	2611513	2611513	322121N223	2676927	2676427 pt	3222110YVW	2653000	2653000
3221107131	2611517	2611517	322121N225	2676933	2676433 pt	32221120	26570	26570
3221107141	2611519	2611519	322121N227	2676935	2676435 pt	3222120111	2657014	2657014
3221107YVW	2611500	2611500	322121N229	2676937	2676437 pt	3222120221	2657021	2657021
322110W	26110	26110	322121N331	2676945	2676445 pt	3222120331	2657073	2657071 pt
322110WYVW	2611000	2611000	322121N433	2676947	2676447 pt	3222120335	2657075	2657071 pt
322110YVW	2611002	2611002	322121N535	2676941	2676441 pt	3222120441	2657081	2657081
3221211	26213	26213	322121N541	2676943	2676443 pt	3222120551	2657084	2657084
3221211111 pt.	2621311 pt.	2621315	322121N551	2676955	2676455 pt	3222120555	2657086	2657086
3221211111 pt.	2621311 pt.	2621329 pt	322121N661	2676971	2676471 pt	3222120661	2657088	2657088
3221211221 pt.	2621321 pt.	2621316	322121N671	2676976	2676476 pt	3222120663	2657090	2657090
3221211221 pt.	2621321 pt.	2621329 pt	322121N773	2676977	2676477 pt	3222120665	2657095	2657095
3221211231 pt.	2621323 pt.	2621320	322121N881	2676981	2676481 pt	3222120667	2657098	2657098
3221211231 pt.	2621323 pt.	2621329 pt	322121N891	2676989	2676499 pt	3222120671	2657099	2657099
3221211YVW	2621300	2621300	322121NYVW	2676900	2676400 pt	3222120673	2657031	2657031
3221213	26214	26214	322121W pt.	26210 pt	26210 pt	3222120675	2657041	2657041
3221213111	2621431	2621431	322121W pt.	26760 pt	26760 pt	3222120677	2657051	2657051
3221213115	2621432	2621432	322121WYVW pt.	38420 pt	38420 pt	3222120681	2657096	2657096
3221213221	2621437	2621437	322121WYVW pt.	2621000 pt	2621000 pt	3222120683	2657098	2657098
3221213225	2621441	2621441	322121WYVW pt.	2676000 pt	2676000 pt	3222120691	2657099	2657099
3221213231	2621447	2621447	322121WYVW pt.	3842000 pt	3842000 pt	3222120YVW	2657000	2657000
3221213235	2621448	2621448	322121WYVW pt.	2621002 pt	2621002 pt	3222120YVW	2657002	2657002
3221213341	2621454	2621454	322121WYVW pt.	2676002 pt	2676002 pt	3222130	26520	26520
3221213345	2621455	2621455	322121WYVW pt.	3842002 pt	3842002 pt	3222130111	2652021	2652021
3221213351	2621456	2621456	322121WYVW pt.	2621100	2621100	3222130121	2652031	2652031
3221213461	2621460	2621460	3221221	26211	26211	3222130131	2652041	2652041
3221213471	2621471	2621471	3221221100	2621100	2621100	3222130141	2652051	2652051
3221213481	2621473	2621473	3221223	26212	26212	3222130191 pt.	2652097 pt.	2652097 pt.
3221213491	2621489	2621489	3221223111 pt.	2621213 pt.	2621215	3222130191 pt.	2652097 pt.	2652097 pt.
3221213YVW	2621400	2621400	3221223121	2621227	2621227	3222130191 pt.	2652098	2652098
3221215	26215	26215	3221223YVW	2621200	2621200	3222130YVW	2652000	2652000
3221215111	2621531	2621531	322122W	26210 pt	26210 pt	3222130YVW	2652002	2652002
3221215121	2621532	2621532	322122WYVW	2621000 pt.	2621000 pt	3222141	26551	26551
3221215131	2621537	2621537	322122WYVW	2621002 pt.	2621002 pt	3222141100	2655100	2655100
3221215141	2621558	2621558	3221301	26311	26311	3222143	26552	26552
3221215YVW	2621500	2621500	3221301111	2631110	2631110	3222143111	2655221	2655221
3221217	26216	26216	3221301221	2631188	2631188	3222143221	2655231	2655231
3221217111 pt.	2621615 pt.	2621611	3221301YVW	2631100	2631100	3222143331	2655271	2655271
3221217111 pt.	2621615 pt.	2621619	3221303	26312	26312	3222143391	2655298	2655298
3221217121	2621627	2621627	3221303111	2631240	2631240	3222143YVW	2655200	2655200
3221217YVW	2621600	2621600	3221303221	2631261	2631261	3222144	26550	26550
3221219	26217	26217	3221303331	2631262	2631262	3222144YVW	2655000	2655000
3221219111	2621730	2621730	3221303341	2631263	2631263	3222144YVW	2655002	2655002
3221219121	2621750	2621750	3221303351	2631288	2631288	3222151	26561	26561
3221219131	2621760	2621760	3221303361	2631288	2631288	3222151100	2656100	2656100
3221219191	2621768	2621768	3221303YVW	2631200	2631200	3222153	26562	26562
3221219YVW	2621700	2621700	3221305	26313	26313	3222153111	2656233	2656233
322121A	26218	26218	3221305100	2631300	2631300	3222153121	2656235	2656235
322121A111	2621830	2621830	3221307	26314	26314	3222153YVW	2656200	2656200
322121A121	2621850	2621850	3221307111	2631420	2631420	3222155	26563	26563
322121A131	2621860	2621860	3221307221	2631410	2631410	3222155111	2656310	2656310
322121A141 pt.	2621870 pt.	2621864	3221307331	2631430	2631430	3222155121 pt.	2656397 pt.	2656312
322121A141 pt.	2621870 pt.	2621868	3221307341	2631446	2631446	322215521 pt.	2656397 pt.	2656319
322121A151	2621883	2621883	3221307451	2631443	2631443	3222155YVW	2656300	2656300
322121AYVW	2621800	2621800	3221307461 pt.	2631441 pt.	2631444	322215W	26560	26560
322121C	26219	26219	3221307461 pt.	2631441 pt.	2631444	322215WYVW	2656000	2656000
322121C100	2621900	2621900	3221307461 pt.	2631441 pt.	2631445	322215WYVW	2656002	2656002
322121E	2621B	2621B	3221307571	2631450	2631450	3222211	26711	26711
322121E111	2621B22	2621B22	3221307575	2631481	2631481	3222211111	2671111	2671111
322121E121	2621B28	2621B28	3221307581	2631482	2631482	3222211121	2671115	2671115
322121EYVW	2621B00	2621B00	3221307591	2631488	2631488	3222211YVW	2671100	2671100
322121G	2621A	2621A	3221307YVW	2631400	2631400	3222213 pt.	26715 pt.	26713
322121G111	2621A11	2621A11	3221309	26318	26318	3222213111 pt.	2671511 pt.	2671300
322121G221	2621A60	2621A60	3221309100	2631800	2631800	3222213111 pt.	2671511 pt.	2671313
322121G331	2621A30	2621A30	322130W	26310	26310	3222213111 pt.	2671511 pt.	2671314
322121G341	2621A51	2621A51	322130WYVW	2631000	2631000	3222213221	2671521	2671320
322121G351	2621A73	2621A73	322130WYVW	2631002	2631002	3222213YVW	2671500	2671400 pt
322121G361	2621A78	2621A78						
322121G371	2621A81	2621A81						
322121G391	2621A88	2621A88						
322121GYVW	2621A00	2621A00						

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710 pt	26710 pt	3222241YVW	2674100	2674100	3222911	26762	26761 pt
322221WYWW	2671000 pt	2671000 pt	322224311	267421	26742	3222911111	2676214	267614 pt
322221WYVW	2671002 pt	2671002 pt	322224321	2674212	2674212	3222911121	2676251	2676151 pt
3222221	26721	26721	3222243YVW	2674200	2674200	3222911YVW	2676200	2676100 pt
3222221111	2672113	2672113	3222244W	26740	26740	3222913 pt	26765	26763 pt
3222221121	2672153	2672153	3222244YVW	2674000	2674000	3222913111	38421 pt	38421 pt
3222221YVW	2672100	2672100	3222244YVW	2674002	2674002	3222913121	3842133	3842132 pt
3222223	26722	26722	3222250 pt	34970 pt	34970 pt	3222913131	3842135	3842132 pt
3222223111	2672212	2672212	3222250YVW	34972	34972	3222913YVW pt	2676500 pt	2676300 pt
3222223121	2672230	2672230	3222250YVW	3497210	3497210	3222913YVW pt	3842100 pt	3842100 pt
3222223YVW	2672200	2672200	3222250206	3497222	3497222	3222915	26766	26764 pt
3222225	26723	26723	3222250311	3497225	3497225	3222915111	2676611	2676411 pt
3222225111	2672313	2672313	3222250416	3497228	3497228	3222915221	2676625	2676425 pt
3222225221	2672343	2672343	3222250421	3497241	3497241	3222915225	2676627	2676427 pt
3222225331	2672333	2672333	3222250YVW pt	3497000 pt	3497000 pt	3222915229	2676633	2676433 pt
3222225341	2672345	2672345	3222250YVW pt	3497200	3497200	3222915331	2676635	2676435 pt
3222225351	2672353	2672353	3222250YVW	3497002 pt	3497002 pt	3222915433	2676637	2676437 pt
3222225361	2672359	2672359	3222260 pt	26750 pt	26750 pt	3222915535	2676645	2676445 pt
3222225371	2672361	2672361	3222260100	26753	26753	3222915541	2676647	2676447 pt
3222225475	2672381	2672381	3222260YVW	2675300	2675300	3222915551	2676649	2676449 pt
3222225581	2672385	2672385	3222260YVW	2675000 pt	2675000 pt	3222915661	2676655	2676455 pt
3222225585	2672375	2672375	3222260YVW	2675002 pt	2675002 pt	3222915661	2676671	2676471 pt
3222225591	2672398	2672398	3222311	26751	26751	3222915771	2676676	2676476 pt
3222225YVW	2672300	2672300	3222311111	2675110	2675110	3222915773	2676677	2676477 pt
3222226	26791	26791	3222311121	2675111	2675111	3222915881	2676681	2676481 pt
3222226111	2679122	2679122	3222311121	2675112	2675112	3222915891	2676699	2676499 pt
3222226121 pt	2679125 pt	2679126	3222311311	2675112	2675112	3222915YVW	2676600	2676400 pt
3222226121 pt	2679125 pt	2679128	3222311391 pt	2675191 pt	2675120	322291W pt	26760 pt	26760 pt
3222226131	2679134	2679134	3222311391 pt	2675191 pt	2675130	322291W pt	26760 pt	26760 pt
3222226141	2679136	2679136	3222311YVW	2675100	2675100	322291W pt	38420 pt	38420 pt
3222226191	2679141	2679141	3222313	26793	26793	322291WYVW pt	2676000 pt	2676000 pt
3222226YVW	2679100	2679100	3222313111	2679311	2679311	322291WYVW pt	3842000 pt	3842000 pt
3222227	26792	26792	3222313121	2679331	2679331	322291WYVW pt	2676002 pt	2676002 pt
3222227111	2679282	2679282	3222313191	2679331	2679331	322291WYVW pt	3842002 pt	3842002 pt
3222227121	2679291	2679291	3222313YVW	2679300	2679300	3222991	26794	26794
3222227191	2679296	2679296	322231W pt	26750 pt	26750 pt	32229911100	2679400	2679400
3222227YVW	2679200	2679200	322231W pt	26790 pt	26790 pt	3222993 pt	26752	26752
3222229	26724	26724	322231W pt	2679000 pt	2679000 pt	3222993 pt	26795	26795
3222229111	2672445	2672445	322231WYVW pt	2675000 pt	2675000 pt	3222993 pt	39999 pt	39999 pt
3222229121	2672453	2672453	322231WYVW pt	2679000 pt	2679000 pt	3222993111	2679521	2679521
3222229131	2672455	2672455	322231WYVW pt	2675002 pt	2675002 pt	3222993221	2679531	2679531
3222229141	2672456	2672456	322231WYVW pt	2679002 pt	2679002 pt	3222993231	2679541	2679541
3222229151	2672469	2672469	3222320	26770	26770	3222993241	2679548	2679548
3222229YVW	2672400	2672400	3222320111	2677010	2677010	3222993351 pt	2679550 pt	2679551
322222W pt	26720	26720	3222320121	2677021	2677021	3222993351 pt	2679550 pt	2679555
322222W pt	26790 pt	26790 pt	3222320131	2677022	2677022	3222993361	2679561	2679561
322222WYVW pt	2672000	2672000	3222320141	2677040	2677040	3222993471 pt	2675200 pt	2675200
322222WYVW pt	2679000 pt	2679000 pt	3222320YVW	2677000	2677000	3222993471 pt	2675200 pt	2675261
322222WYVW pt	2672002	2672002	3222320YVW	2677002	2677002	3222993471 pt	2675200 pt	2675271
322222WYVW pt	2679002 pt	2679002 pt	3222331	26781	26781	3222993471 pt	2675200 pt	2675297
3222231	26731	26731	3222331111	2678111	2678111	3222993591 pt	2679598	2679598
3222231100	2673100	2673100	3222331121	2678113	2678113	3222993591 pt	3999996 pt	3999913 pt
3222233	26733 pt	26733 pt	3222331131	2678121	2678121	3222993591 pt	3999996 pt	3999999 pt
3222233111	2673306	2673311 pt	3222333	26782	26782	3222993YVW pt	2679500	2679500
3222233121	2673312	2673312	3222333111	2678212	2678212	3222993YVW pt	3999900 pt	3999900 pt
3222233131 pt	2673315 pt	2673311 pt	3222333221 pt	2678225 pt	2678213	322299W pt	26750 pt	26750 pt
3222233131 pt	2673315 pt	2673314 pt	3222333221 pt	2678225 pt	2678221	322299W pt	26790 pt	26790 pt
3222233YVW	2673300 pt	2673300 pt	3222333331	2678235	2678235	322299W pt	39990 pt	39990 pt
322223W	26730 pt	26730 pt	3222333441	2678245	2678245	322299WYVW pt	2675000 pt	2675000 pt
322223WYVW	2673000 pt	2673000 pt	3222333551	2678251	2678251	322299WYVW pt	2679000 pt	2679000 pt
322223WYVW	2673002 pt	2673002 pt	3222333691	2678298	2678298	322299WYVW pt	3999000 pt	3999000 pt
3222241	26741	26741	3222333YVW	2678200	2678200	322299WYVW pt	2675002 pt	2675002 pt
3222241111	2674111	2674111	322233W	26780	26780	322299WYVW pt	2679002 pt	2679002 pt
3222241221	2674112	2674112	322233WYVW	2678000	2678000	322299WYVW pt	3999002 pt	3999002 pt
3222241231	2674113	2674113	322233WYVW	2678002	2678002	322299WYVW pt	3999002 pt	3999002 pt
3222241341	2674115	2674115						

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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special

census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the

manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322231	Die-cut paper & paperboard office supplies mfg.	335	356	12 208	328 294	9 683	19 721	219 718	976 813	1 130 065	2 076 629	53 231
267520	Die-cut paper & board (pt)	N	316	10 025	268 723	7 999	16 601	181 689	776 093	641 644	1 417 251	41 698
267920	Converted paper products, n.e.c. (pt)	N	40	2 183	59 571	1 684	3 120	38 029	200 720	488 421	659 378	11 533

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments			All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
	E ¹	Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322231, DIE-CUT PAPER & PAPERBOARD OFFICE SUPPLIES MFG												
United States	1	356	123	12 208	328 294	9 683	19 721	219 718	976 813	1 130 065	2 076 629	53 231
California	3	60	20	1 659	45 001	1 301	2 673	31 264	129 065	123 195	256 465	4 258
Florida	4	17	2	148	3 468	133	228	2 747	8 552	10 523	19 107	547
Illinois	2	20	7	852	23 197	735	1 660	17 879	114 972	46 181	159 298	3 786
Indiana	-	8	3	192	4 016	149	296	2 853	28 502	45 851	74 488	695
Massachusetts	-	11	5	978	33 397	756	1 873	20 669	85 249	113 986	175 429	848
Michigan	3	12	1	162	3 895	130	237	2 296	8 006	8 565	16 673	184
New Jersey	3	21	8	454	14 882	356	707	8 178	23 456	21 707	45 138	1 038
New York	3	39	16	1 142	26 137	927	1 679	17 590	53 736	31 251	85 297	2 240
North Carolina	2	5	2	205	4 726	144	265	2 759	12 064	22 713	34 831	1 103
Ohio	-	16	7	892	21 447	752	1 446	16 323	57 300	56 606	114 126	3 093
Pennsylvania	1	20	8	413	11 441	260	539	6 721	31 739	117 871	149 998	3 357
Tennessee	-	5	3	631	14 375	529	806	10 209	40 163	62 059	101 130	2 652
Texas	1	21	5	625	16 571	505	917	10 411	55 441	36 156	88 126	3 225
Wisconsin	5	12	6	520	14 829	401	880	9 968	47 171	49 728	96 963	1 865

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322231, DIE-CUT PAPER & PAPERBOARD OFFICE SUPPLIES MFG		322231, DIE-CUT PAPER & PAPERBOARD OFFICE SUPPLIES MFG—Con.	
Companies ¹	number.. 335	Value added .....	..\$1,000.. 976 813
All establishments	number.. 356	Total inventories, beginning of year .....	..\$1,000.. 186 670
Establishments with 1 to 19 employees	number.. 233	Finished goods inventories, beginning of year .....	..\$1,000.. 93 525
Establishments with 20 to 99 employees	number.. 95	Work-in-process inventories, beginning of year .....	..\$1,000.. 27 729
Establishments with 100 employees or more	number.. 28	Materials and supplies inventories, beginning of year .....	..\$1,000.. 65 416
All employees	number.. 12 208	Total inventories, end of year .....	..\$1,000.. 232 134
Total compensation ² .....	..\$1,000.. 410 619	Finished goods inventories, end of year .....	..\$1,000.. 128 671
Annual payroll .....	..\$1,000.. 328 294	Work-in-process inventories, end of year .....	..\$1,000.. 22 832
Total fringe benefits .....	..\$1,000.. 82 325	Materials and supplies inventories, end of year .....	..\$1,000.. 80 631
Production workers, average for year	number.. 9 683	Gross book value of total assets at beginning of year .....	..\$1,000.. 472 595
Production workers on March 15	number.. 9 586	Total capital expenditures (new and used) .....	..\$1,000.. 53 231
Production workers on May 15	number.. 9 678	Capital expenditures for buildings and other structures (new and used) .....	..\$1,000.. 7 170
Production workers on August 15	number.. 9 726	Capital expenditures for machinery and equipment (new and used) .....	..\$1,000.. 46 061
Production workers on November 15	number.. 9 742	Total retirements ² .....	..\$1,000.. 21 436
Production-worker hours .....	..1,000.. 19 721	Gross book value of total assets at end of year .....	..\$1,000.. 504 390
Production-worker wages .....	..\$1,000.. 219 718	Total depreciation during year ² .....	..\$1,000.. 28 516
Total cost of materials .....	..\$1,000.. 1 130 065	Total rental payments ² .....	..\$1,000.. 23 915
Cost of materials, parts, containers, etc., consumed .....	..\$1,000.. 996 192	Buildings and other structures rental payments ² .....	..\$1,000.. 12 894
Cost of resales .....	..\$1,000.. 104 440	Machinery and equipment rental payments ² .....	..\$1,000.. 11 021
Cost of fuels .....	..\$1,000.. 2 303	Cost of purchased services for the repair of buildings and other structures ³ .....	..\$1,000.. 1 288
Cost of purchased electricity .....	..\$1,000.. 9 734	Response coverage ratio ⁴	percent.. 68
Cost of contract work .....	..\$1,000.. 17 396	Cost of purchased services for the repair of machinery and equipment ³ .....	..\$1,000.. 7 275
Quantity of electricity purchased for heat and power .....	..1,000 kWh.. 145 682	Response coverage ratio ⁴	percent.. 68
Quantity of electricity generated less sold for heat and power .....	..1,000 kWh.. -	Cost of purchased communications services ³ .....	..\$1,000.. 2 169
Total value of shipments .....	..\$1,000.. 2 076 629	Response coverage ratio ⁴	percent.. 68
Primary products value of shipments .....	..\$1,000.. 1 724 424	Cost of purchased legal services ³ .....	..\$1,000.. 702
Secondary products value of shipments .....	..\$1,000.. 145 163	Response coverage ratio ⁴	percent.. 68
Total miscellaneous receipts .....	..\$1,000.. 207 042	Cost of purchased accounting and bookkeeping services ³ .....	..\$1,000.. 399
Value of resales .....	..\$1,000.. 152 213	Response coverage ratio ⁴	percent.. 68
Contract receipts .....	..\$1,000.. 47 912	Cost of purchased advertising services ³ .....	..\$1,000.. 10 369
Other miscellaneous receipts .....	..\$1,000.. 6 917	Response coverage ratio ⁴	percent.. 68
Primary products specialization ratio	percent.. 92	Cost of purchased software and other data processing services ³ .....	..\$1,000.. 1 146
Value of primary products shipments made in all industries .....	..\$1,000.. 2 185 812	Response coverage ratio ⁴	percent.. 68
Value of primary products shipments made in this industry .....	..\$1,000.. 1 724 424	Cost of purchased refuse removal (including hazardous waste) services ³ .....	..\$1,000.. 690
Value of primary products shipments made in other industries .....	..\$1,000.. 461 388	Response coverage ratio ⁴	percent.. 68
Coverage ratio	percent.. 78		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322231, DIE-CUT PAPER & PAPERBOARD OFFICE SUPPLIES MFG												
All establishments	1	356	123	12 208	328 294	9 683	19 721	219 718	976 813	1 130 065	2 076 629	53 231
Establishments with 1 to 4 employees	9	106	—	248	6 523	201	388	4 869	16 990	22 669	39 901	1 069
Establishments with 5 to 9 employees	8	71	—	480	11 761	374	694	8 355	29 980	39 720	69 806	2 077
Establishments with 10 to 19 employees	4	56	—	776	18 845	574	1 015	11 640	44 755	54 480	99 459	3 808
Establishments with 20 to 49 employees	1	73	73	2 365	62 089	1 800	3 385	38 809	148 232	207 644	351 779	12 550
Establishments with 50 to 99 employees	1	22	22	1 475	40 537	1 122	2 221	24 416	95 082	178 818	273 534	3 490
Establishments with 100 to 249 employees	1	20	20	3 040	81 271	2 426	5 135	54 590	275 590	354 014	602 501	18 379
Establishments with 250 to 499 employees	—	6	6	D	D	D	D	D	D	D	D	D
Establishments with 500 to 999 employees	—	2	2	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	166	—	917	20 773	722	1 321	15 335	54 894	74 309	129 599	3 459

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322231	Die-cut paper & paperboard office supplies mfg	356	12 208	328 294	9 683	19 721	219 718	976 813	1 130 065	2 076 629	53 231
3222311	Die-cut paper and paperboard office supplies	79	7 496	205 262	5 994	12 778	136 905	627 655	491 408	1 118 220	34 020
3222313	Paper supplies for business machines and other miscellaneous unprinted paper office supplies, nec	32	2 028	55 662	1 559	2 899	35 287	191 724	478 191	639 930	10 719

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322231	Die-cut paper and paperboard office supplies	N	X	X	2 185 812	N	X	X	N
3222311	Die-cut paper and paperboard office supplies	N	X	X	1 174 589	N	X	X	903 770
32223111	Hanging and expandable file folders, all types and materials	N	X	X	379 127	N	X	X	N
3222311111	Hanging file folders, all types and materials	23	X	S	244 137	22	X	P1 019.7	170 934
3222311121	Expanding file folders (including wallets), all types and materials	17	X	S	134 990	18	X	P102.2	95 045
32223112	Other file folders (including file jackets and file pockets), all types and materials	N	X	X	416 300	N	X	X	N
3222311231	Other file folders (including file jackets and file pockets), all types and materials	41	X	S	416 300	48	X	P3 594.5	354 100
32223113	Other die-cut paper and paperboard office supplies, including index, guide, and tabulating cards, presentation and report covers, etc.	N	X	X	305 246	N	X	X	N
3222311391	Other die-cut paper and paperboard office supplies, including index, guide, and tabulating cards (including guide cards for file folders), presentation and report covers (except looseleaf), etc.	77	X	6 028.1	305 246	N	X	N	N
3222311Y	Die-cut paper and paperboard office supplies, nsk	N	X	X	73 916	N	X	X	N
3222311YWV	Die-cut paper and paperboard office supplies, nsk	N	X	X	73 916	N	X	X	44 345
3222313	Paper supplies for business machines and other miscellaneous unprinted paper office supplies, nec	N	X	X	747 978	N	X	X	422 895
32223131	Paper supplies for business machines and other miscellaneous unprinted paper office supplies, nec	N	X	X	702 578	N	X	X	N
3222313111	Paper rolls for adding and other business machines, except rolls for facsimile and photocopy machines	21	X	X	233 958	18	X	X	182 361
3222313191	Other unprinted paper supplies, including photocopy, laser, safety, facsimile, teletype, etc. (excluding sensitized paper)	22	X	X	468 620	17	X	X	161 405
3222313Y	Paper supplies for business machines and other miscellaneous unprinted paper office supplies, nec., nsk	N	X	X	45 400	N	X	X	N
3222313YWV	Paper supplies for business machines and other miscellaneous unprinted paper office supplies, nec., nsk	N	X	X	45 400	N	X	X	79 129
322231W	Die-cut paper and paperboard office supplies, nsk, total	N	X	X	263 245	N	X	X	N
322231WY	Die-cut paper and paperboard office supplies, nsk, total	N	X	X	263 245	N	X	X	N
322231WYWW	Die-cut paper and paperboard office supplies, nsk, for nonadministrative-record establishments	N	X	X	144 782	N	X	X	N
322231WYWY	Die-cut paper and paperboard office supplies, nsk, for administrative-record establishments	N	X	X	118 463	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for this item in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222311	DIE-CUT PAPER AND PAPERBOARD OFFICE SUPPLIES		
	United States	1 174 589	903 770
	Arkansas	4 834	N
	California	127 942	119 781
	Illinois	149 799	90 596
	Maryland	2 465	6 650
	Massachusetts	101 209	N
	Michigan	11 129	N
	Minnesota	71 577	70 029
	Mississippi	35 777	N
	New Jersey	19 112	30 867
	New York	41 035	41 297
	Ohio	98 070	89 117
	Pennsylvania	29 274	47 200
	Tennessee	2 989	N
	Texas	67 679	51 435
	Washington	6 460	N
	Wisconsin	57 209	32 795
3222313	PAPER SUPPLIES FOR BUSINESS MACHINES AND OTHER MISCELLANEOUS UNPRINTED PAPER OFFICE SUPPLIES, NEC		
	United States	747 978	422 895
	Arizona	10 805	N
	California	33 474	46 001
	Massachusetts	115 339	25 375
	Tennessee	175 379	N
	Texas	18 510	30 870

Additional information is available for this item; see Appendix F.
 @ Additional data are available for this item in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322231	DIE-CUT PAPER & PAPERBOARD OFFICE SUPPLIES MFG				
32210005	Paper and paperboard, except boxes and containers	929.5	645 119	N	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	16 501	X	N
32552003	Glues and adhesives	X	6 007	X	N
32591003	Printing ink	X	9 211	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	50 908	X	N
00970099	All other materials and components, parts, containers, and supplies	X	73 529	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	194 917	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322231 DIE-CUT PAPER AND PAPERBOARD OFFICE SUPPLIES MANUFACTURING

This U.S. industry comprises establishments primarily engaged in converting paper rollstock or paperboard into die-cut paper or paperboard office supplies. For the purpose of this industry, office supplies are defined as office products, such as filing folders, index cards, rolls for adding machines, file separators and dividers, tabulating cards, and other paper and paperboard office supplies.

The data published with NAICS code 322231 include the following SIC industries:

- 2675 Die-cut paper and board (pt)
- 2679 Converted paper products, n.e.c. (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsk) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3221101	26111	26111	322121J	26767	26761 pt	3222110	26530	26530
322110100	2611100	2611100	322121J111	2676714	2676114 pt	3222110111	2653012	2653012
3221103	26113	26113	322121J121	2676751	2676151 pt	3222110114	2653014	2653014
3221103111	2611335	2611335	322121JYVW	2676700	2676100 pt	3222110221	2653013	2653013
3221103121	2611343	2611343	322121L pt.	26768	26763 pt	3222110341	2653016	2653016
3221103YVW	2611300	2611300	322121L1 pt.	38421 pt	38421 pt	3222110345	2653018	2653018
3221105	26114	26114	322121L111	2676800 pt	2676300 pt	3222110431	2653015	2653015
3221105111	2611432	2611432	322121L121	3842134	3842132 pt	3222110433	2653021	2653021
3221105121	2611466	2611466	322121L131	3842136	3842132 pt	3222110435	2653022	2653022
3221105131	2611472	2611472	322121LYVW pt.	2676800 pt	2676300 pt	3222110437	2653030	2653030
3221105141	2611478	2611478	322121LYVW pt.	3842100 pt	3842100 pt	3222110551	2653067	2653067
3221105YVW	2611400	2611400	322121N	26769	26764 pt	3222110661	2653051	2653051
3221107	26115	26115	322121N111	2676911	2676411 pt	3222110665	2653068	2653068
3221107111	2611511	2611511	322121N221	2676925	2676425 pt	3222110691	2653098	2653098
3221107121	2611513	2611513	322121N223	2676927	2676427 pt	3222110YVW	2653000	2653000
3221107131	2611517	2611517	322121N225	2676933	2676433 pt	3222120	26570	26570
3221107141	2611519	2611519	322121N227	2676935	2676435 pt	3222120111	2657014	2657014
3221107YVW	2611500	2611500	322121N229	2676937	2676437 pt	3222120221	2657021	2657021
322110W	26110	26110	322121N331	2676945	2676445 pt	3222120331	2657073	2657073 pt
322110WYVW	2611000	2611000	322121N433	2676947	2676447 pt	3222120335	2657075	2657075 pt
322110YVW	2611002	2611002	322121N535	2676941	2676441 pt	3222120441	2657081	2657081
3221211	26213	26213	322121N541	2676943	2676443 pt	3222120551	2657084	2657084
3221211111 pt.	2621311 pt.	2621315	322121N551	2676955	2676455 pt	3222120555	2657086	2657086
3221211111 pt.	2621311 pt.	2621329 pt.	322121N661	2676971	2676471 pt	3222120661	2657015	2657015
322121221 pt.	2621321 pt.	2621316	322121N671	2676976	2676476 pt	3222120663	2657061	2657061
322121221 pt.	2621321 pt.	2621329 pt.	322121N773	2676977	2676477 pt	3222120665	2657088	2657088
322121231 pt.	2621323 pt.	2621320	322121N881	2676981	2676481 pt	3222120667	2657090	2657090
322121231 pt.	2621323 pt.	2621329 pt.	322121N891	2676989	2676499 pt	3222120671	2657095	2657095
322121YVW	2621300	2621300	322121NYVW	2676900	2676400 pt	3222120673	2657082	2657099 pt
3221213	26214	26214	322121W pt.	26760	26210 pt	3222120675	2657031	2657031
3221213111	2621431	2621431	322121W pt.	38420 pt	38420 pt	3222120677	2657041	2657041
3221213115	2621432	2621432	322121WYVW pt.	2621000 pt.	2621000 pt	3222120681	2657051	2657051
3221213221	2621437	2621437	322121WYVW pt.	2676000 pt.	2676000 pt	3222120683	2657096	2657096
3221213225	2621441	2621441	322121WYVW pt.	3842000 pt.	3842000 pt	3222120691	2657098	2657099 pt
3221213231	2621447	2621447	322121WYVW pt.	2621002 pt.	2621002 pt	3222120YVW	2657000	2657000
3221213235	2621448	2621448	322121WYVW pt.	2621002 pt.	2621002 pt	3222120YVW	2657002	2657002
3221213341	2621454	2621454	322121YVW pt.	3842002 pt.	3842002 pt	3222130	26520	26520
3221213345	2621455	2621455	322121YVW pt.	2621002 pt.	2621002 pt	3222130111	2652021	2652021
3221213351	2621456	2621456	322121YVW pt.	3842002 pt.	3842002 pt	3222130121	2652031	2652031
3221213461	2621460	2621460	3221221	26211	26211	3222130131	2652041	2652041
3221213471	2621471	2621471	3221221100	2621100	2621100	3222130141	2652051	2652051
3221213481	2621473	2621473	3221223	26212	26212	3222130191 pt.	2652097 pt.	2652097 pt.
3221213491	2621489	2621489	3221223111 pt.	2621213 pt.	2621215	3222130191 pt.	2652097 pt.	2652071
3221213YVW	2621400	2621400	3221223121 pt.	2621227 pt.	2621227	3222130191 pt.	2652097 pt.	2652098
3221215	26215	26215	3221223YVW	2621200	2621200	3222130YVW	2652000	2652000
3221215111	2621531	2621531	322122W	26210 pt.	26210 pt.	3222130YVW	2652002	2652002
3221215121	2621532	2621532	322122WYVW	2621000 pt.	2621000 pt.	3222141	26551	26551
3221215131	2621537	2621537	322122WYVW	2621002 pt.	2621002 pt.	3222141100	2655100	2655100
3221215141	2621558	2621558	3221301	26311	26311	3222143	26552	26552
3221215YVW	2621500	2621500	3221301111	2631110	2631110	3222143111	2655221	2655221
3221217	26216	26216	3221301221	2631188	2631188	3222143221	2655231	2655231
3221217111 pt.	2621615 pt.	2621611	3221301YVW	2631100	2631100	3222143331	2655271	2655271
3221217111 pt.	2621615 pt.	2621619	3221303	26312	26312	3222143391	2655298	2655298
3221217121	2621627	2621627	3221303111	2631240	2631240	3222143YVW	2655200	2655200
3221217YVW	2621600	2621600	3221303221	2631261	2631261	3222144YVW	26550	26550
3221219	26217	26217	3221303331	2631210	2631210	3222144YVW	2655000	2655000
3221219111	2621730	2621730	3221303341	2631262	2631262	3222144YVW	2655002	2655002
3221219121	2621750	2621750	3221303351	2631263	2631263	3222151	26561	26561
3221219131	2621760	2621760	3221303361	2631288	2631288	3222151100	2656100	2656100
3221219191	2621768	2621768	3221303YVW	2631200	2631200	3222153	26562	26562
3221219YVW	2621700	2621700	3221305	26313	26313	3222153111	2656233	2656233
322121A	26218	26218	3221305100	2631300	2631300	3222153121	2656235	2656235
322121A111	2621830	2621830	3221307	26314	26314	3222153YVW	2656200	2656200
322121A121	2621850	2621850	3221307111	2631420	2631420	3222155	26563	26563
322121A131	2621860	2621860	3221307221	2631410	2631410	3222155111	2656310	2656310
322121A141 pt.	2621870 pt.	2621864	3221307331	2631430	2631430	3222155121 pt.	2656397 pt.	2656312
322121A141 pt.	2621870 pt.	2621868	3221307341	2631446	2631446	322215521 pt.	2656397 pt.	2656319
322121A151	2621883	2621883	3221307451	2631443	2631443	3222155YVW	2656300	2656300
322121A151	2621880	2621880	3221307461 pt.	2631441 pt.	2631444	322215W	26560	26560
322121C	26219	26219	3221307461 pt.	2631441 pt.	2631445	322215WYVW	2656000	2656000
322121C100	2621900	2621900	3221307641 pt.	2631441 pt.	2631445	322215WYVW	2656002	2656002
322121E	2621B	2621B	3221307571	2631450	2631450	3222211	26711	26711
322121E111	2621B22	2621B22	3221307575	2631481	2631481	3222211111	2671111	2671111
322121E121	2621B28	2621B28	3221307581	2631482	2631482	3222211121	2671115	2671115
322121EYVW	2621B00	2621B00	3221307591	2631488	2631488	3222211YVW	2671100	2671100
322121G	2621A	2621A	3221307YVW	2631400	2631400	3222213 pt.	26715 pt.	26713
322121G111	2621A11	2621A11	3221309	26318	26318	3222213111 pt.	2671511 pt.	2671300
322121G221	2621A60	2621A60	3221309100	2631800	2631800	3222213111 pt.	2671511 pt.	2671313
322121G331	2621A30	2621A30	322130W	26310	26310	3222213111 pt.	2671511 pt.	2671314
322121G341	2621A51	2621A51	322130WYVW	2631000	2631000	3222213121	2671521	2671320
322121G351	2621A73	2621A73	322130WYVW	2631002	2631002	3222213YVW	2671500	2671400 pt
322121G361	2621A78	2621A78						
322121G371	2621A81	2621A81						
322121G391	2621A88	2621A88						
322121GYVW	2621A00	2621A00						

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710 pt	26710 pt	3222241YVW	2674100	2674100	3222911	26762	26761 pt
322221WYWW	2671000 pt	2671000 pt	322224311	267421	26742	3222911111	2676214	267614 pt
322221WYVW	2671002 pt	2671002 pt	322224321	2674212	2674212	3222911121	2676251	2676151 pt
3222221	26721	26721	3222243YVW	2674200	2674200	3222911YVW	2676200	2676100 pt
3222221111	2672113	2672113	3222244W	26740	26740	3222913 pt	26765	26763 pt
3222221121	2672153	2672153	3222244YVW	2674000	2674000	3222913111	38421 pt	38421 pt
3222221YVW	2672100	2672100	3222244YVWY	2674002	2674002	3222913121	3842133	3842132 pt
3222223	26722	26722	3222250 pt	34970 pt	34970 pt	3222913131	3842135	3842132 pt
3222223111	2672212	2672212	3222250YVW pt	34972	34972	3222913YVW pt	2676500 pt	2676300 pt
3222223121	2672230	2672230	3222250YVWY	3497210	3497210	3222913YVW pt	3842100 pt	3842100 pt
3222223YVW	2672200	2672200	3222250206	3497222	3497222	3222915	26766	26764 pt
3222225	26723	26723	3222250311	3497225	3497225	3222915111	2676611	2676411 pt
3222225111	2672313	2672313	3222250416	3497228	3497228	3222915221	2676625	2676425 pt
3222225221	2672343	2672343	3222250421	3497241	3497241	3222915225	2676627	2676427 pt
3222225331	2672333	2672333	3222250YVW pt	3497000 pt	3497000 pt	3222915229	2676633	2676433 pt
3222225341	2672345	2672345	3222250YVWY	3497200	3497200	3222915331	2676635	2676435 pt
3222225351	2672353	2672353	3222260 pt	26750 pt	26750 pt	3222915331	2676637	2676437 pt
3222225361	2672359	2672359	3222260100	26753	26753	3222915433	2676645	2676445 pt
3222225371	2672361	2672361	3222260YVW	2675000 pt	2675000 pt	3222915535	2676647	2676447 pt
3222225475	2672381	2672381	3222260YVWY	2675002 pt	2675002 pt	3222915541	2676643	2676441 pt
3222225581	2672385	2672385	3222311	26751	26751	3222915551	2676655	2676455 pt
3222225585	2672375	2672375	3222311111	2675110	2675110	3222915661	2676671	2676471 pt
3222225591	2672398	2672398	3222311121	2675111	2675111	3222915771	2676676	2676476 pt
3222225YVW	2672300	2672300	3222311231	2675112	2675112	3222915773	2676677	2676477 pt
3222226	26791	26791	3222311391 pt	2675191 pt	2675120	3222915881	2676681	2676481 pt
3222226111	2679122	2679122	3222311391 pt	2675191 pt	2675130	3222915891	2676699	2676499 pt
3222226121 pt	2679125 pt	2679126	3222311YVW	2675100	2675100	3222915YVW	2676600	2676400 pt
3222226121 pt	2679125 pt	2679128	3222313	26793	26793	322291W pt	26760	26760 pt
3222226131	2679134	2679134	3222313111	2679311	2679311	322291WYVW pt	38420 pt	38420 pt
3222226141	2679136	2679136	3222313121	2679311	2679311	322291WYVWY pt	2676000 pt	2676002 pt
3222226191	2679141	2679141	3222313191 pt	2679331	2679331	322291WYVWY pt	3842002 pt	3842002 pt
3222226YVW	2679100	2679100	3222313YVW	2679300	2679300	3222991	26794	26794
3222227	26792	26792	322231W pt	26750 pt	26750 pt	3222991100	2679400	2679400
3222227111	2679282	2679282	322231W pt	26790 pt	26790 pt	3222993 pt	26752	26752
3222227121	2679291	2679291	322231WYVW pt	2679000 pt	2679000 pt	3222993 pt	26795	26795
3222227191	2679296	2679296	322231WYVWY pt	2679002 pt	2679002 pt	3222993 pt	39999 pt	39999 pt
3222227YVW	2679200	2679200	3222320	26770	26770	3222993111	2679521	2679521
3222229	26724	26724	3222320111	2677010	2677010	3222993221	2679531	2679531
3222229111	2672445	2672445	3222320121	2677021	2677021	3222993231	2679541	2679541
3222229121	2672453	2672453	3222320131	2677022	2677022	3222993241	2679548	2679548
3222229131	2672455	2672455	3222320141	2677040	2677040	3222993351 pt	2679550 pt	2679551
3222229141	2672456	2672456	3222320YVW	2677000	2677000	3222993361	2679551	2679551
3222229151	2672469	2672469	3222320YVWY	2677002	2677002	3222993471 pt	2675200 pt	2675200
3222229YVW	2672400	2672400	3222331	26781	26781	3222993471 pt	2675200 pt	267521
322222W pt	26720	26720	3222331111	2678111	2678111	3222993471 pt	2675200 pt	267521
322222W pt	26790 pt	26790 pt	3222331121	2678113	2678113	3222993471 pt	2675200 pt	2675297
322222WYVW pt	2672000	2672000	3222331131	2678121	2678121	3222993591 pt	2679598	2679598
322222WYVWY pt	2679000 pt	2679000 pt	3222331YVW	2678100	2678100	3222993591 pt	3999996 pt	3999913 pt
322222WYVWY pt	2672002	2672002	3222333	26782	26782	3222993591 pt	3999996 pt	3999999 pt
322222WYVWY pt	2679002 pt	2679002 pt	322233311	2678212	2678212	3222993YVW pt	2679500	2679500
3222231	26731	26731	3222333221 pt	2678225 pt	2678213	322299W pt	26750 pt	26750 pt
3222231100	2673100	2673100	3222333221 pt	2678225 pt	2678221	322299W pt	26790 pt	26790 pt
3222233	26733 pt	26733 pt	3222333331	2678235	2678235	322299W pt	39990 pt	39990 pt
3222233111	2673306	2673311 pt	3222333441	2678245	2678245	322299WYVW pt	2675000 pt	2675000 pt
3222233121	2673312	2673312	3222333551	2678251	2678251	322299WYVWY pt	2679000 pt	2679000 pt
3222233131 pt	2673315 pt	2673311 pt	3222333691	2678298	2678298	322299WYVWY pt	3999000 pt	3999000 pt
3222233131 pt	2673315 pt	2673314 pt	3222333YVW	2678200	2678200	322299WYVWY pt	2675002 pt	2675002 pt
3222233YVW	2673300 pt	2673300 pt	322233W	26780	26780	322299WYVWY pt	2679002 pt	2679002 pt
322223W	26730 pt	26730 pt	322233W	2678000	2678000	322299WYVWY pt	3999002 pt	3999002 pt
322223WYVW	2673000 pt	2673000 pt	322233W	2678002	2678002			
322223WYVWY	2673002 pt	2673002 pt						
3222241	26741	26741						
3222241111	2674111	2674111						
3222241221	2674112	2674112						
3222241231	2674113	2674113						
3222241341	2674115	2674115						

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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special

census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the

manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-di-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322232	Envelope mfg	186	274	25 532	781 507	19 253	39 510	518 253	1 713 364	1 882 766	3 582 016	145 487
267700	Envelopes.....	N	274	25 532	781 507	19 253	39 510	518 253	1 713 364	1 882 766	3 582 016	145 487

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-di-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322232, ENVELOPE MFG												
United States	1	274	195	25 532	781 507	19 253	39 510	518 253	1 713 364	1 882 766	3 582 016	145 487
California	2	35	21	2 064	67 782	1 600	3 302	47 842	138 570	175 838	313 022	10 636
Colorado	-	5	3	390	10 400	271	568	7 106	23 849	24 008	46 912	2 361
Florida	-	9	6	797	24 419	650	1 341	17 315	51 067	56 289	107 158	4 843
Georgia	-	10	6	764	22 946	615	1 259	16 250	71 573	68 525	137 280	4 565
Illinois	1	25	17	2 263	65 688	1 599	3 345	46 013	141 888	152 020	293 906	10 602
Indiana	-	4	4	431	13 207	322	654	8 903	32 150	29 404	60 432	2 281
Massachusetts	1	15	11	1 502	47 603	1 134	2 346	34 060	106 676	124 935	231 175	4 560
Minnesota	-	8	6	672	25 851	533	1 116	15 228	51 882	55 119	106 431	5 783
New Jersey	-	7	5	955	30 363	795	1 588	22 840	57 739	72 229	130 385	1 432
New York	-	20	13	1 706	54 592	1 363	2 824	34 849	120 657	118 920	240 947	12 977
Ohio	2	14	10	1 106	29 478	866	1 753	20 990	83 266	85 982	169 796	4 092
Oklahoma	1	7	4	253	7 272	199	370	4 774	15 028	17 348	32 338	637
Oregon	1	4	3	351	10 543	271	586	6 154	21 924	19 985	41 471	2 277
Pennsylvania	1	13	11	2 535	73 376	1 697	3 663	41 561	148 945	197 095	345 144	13 832
Texas	-	15	13	1 376	41 395	954	1 947	25 298	89 780	100 414	190 601	12 101
Virginia	2	6	4	652	20 835	462	946	11 700	41 518	30 492	71 775	3 394
Washington	2	8	6	502	13 878	302	588	8 596	35 461	30 199	64 575	1 229
Wisconsin	-	7	5	950	33 513	675	1 341	20 367	61 971	78 881	140 899	15 588

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322232, ENVELOPE MFG		322232, ENVELOPE MFG—Con.	
Companies ¹	number.. 186	Value added	\$1,000.. 1 713 364
All establishments	number.. 274	Total inventories, beginning of year	\$1,000.. 352 049
Establishments with 1 to 19 employees	number.. 79	Finished goods inventories, beginning of year	\$1,000.. 165 292
Establishments with 20 to 99 employees	number.. 101	Work-in-process inventories, beginning of year	\$1,000.. 32 548
Establishments with 100 employees or more	number.. 94	Materials and supplies inventories, beginning of year	\$1,000.. 154 209
All employees	number.. 25 532	Total inventories, end of year	\$1,000.. 369 219
Total compensation ²	\$1,000.. 960 798	Finished goods inventories, end of year	\$1,000.. 185 242
Annual payroll	\$1,000.. 781 507	Work-in-process inventories, end of year	\$1,000.. 26 712
Total fringe benefits	\$1,000.. 179 291	Materials and supplies inventories, end of year	\$1,000.. 157 265
Production workers, average for year	number.. 19 253	Gross book value of total assets at beginning of year	\$1,000.. 1 138 515
Production workers on March 15	number.. 19 168	Total capital expenditures (new and used)	\$1,000.. 145 487
Production workers on May 15	number.. 19 287	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 20 912
Production workers on August 15	number.. 19 250	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 124 575
Production workers on November 15	number.. 19 307	Total retirements ²	\$1,000.. 40 887
Production-worker hours	1,000.. 39 510	Gross book value of total assets at end of year	\$1,000.. 1 243 115
Production-worker wages	\$1,000.. 518 253	Total depreciation during year ²	\$1,000.. 77 888
Total cost of materials	\$1,000.. 1 882 766	Total rental payments ²	\$1,000.. 41 604
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 627 362	Buildings and other structures rental payments ²	\$1,000.. 25 744
Cost of resales	\$1,000.. 160 931	Machinery and equipment rental payments ²	\$1,000.. 15 860
Cost of fuels	\$1,000.. 4 483	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 3 318
Cost of purchased electricity	\$1,000.. 43 682	Response coverage ratio ⁴	percent.. 81
Cost of contract work	\$1,000.. 46 308	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 33 243
Quantity of electricity purchased for heat and power	1,000 kWh.. 651 880	Response coverage ratio ⁴	percent.. 81
Quantity of electricity generated less sold for heat and power	1,000 kWh.. -	Cost of purchased communications services ³	\$1,000.. 5 894
Total value of shipments	\$1,000.. 3 582 016	Response coverage ratio ⁴	percent.. 81
Primary products value of shipments	\$1,000.. 3 248 538	Cost of purchased legal services ³	\$1,000.. 2 450
Secondary products value of shipments	\$1,000.. 101 480	Response coverage ratio ⁴	percent.. 81
Total miscellaneous receipts	\$1,000.. 231 998	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 3 582
Value of resales	\$1,000.. 175 076	Response coverage ratio ⁴	percent.. 81
Contract receipts	\$1,000.. 19 560	Cost of purchased advertising services ³	\$1,000.. 4 036
Other miscellaneous receipts	\$1,000.. 37 362	Response coverage ratio ⁴	percent.. 81
Primary products specialization ratio	percent.. 96	Cost of purchased software and other data processing services ³	\$1,000.. 1 299
Value of primary products shipments made in all industries	\$1,000.. 3 377 661	Response coverage ratio ⁴	percent.. 81
Value of primary products shipments made in this industry	\$1,000.. 3 248 538	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 1 336
Value of primary products shipments made in other industries	\$1,000.. 129 123	Response coverage ratio ⁴	percent.. 81
Coverage ratio	percent.. 96		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322232, ENVELOPE MFG												
All establishments	1	274	195	25 532	781 507	19 253	39 510	518 253	1 713 364	1 882 766	3 582 016	145 487
Establishments with 1 to 4 employees	9	24	—	57	1 446	51	85	1 021	2 975	4 421	7 442	163
Establishments with 5 to 9 employees	8	26	—	188	5 154	148	273	3 626	10 121	16 280	26 539	580
Establishments with 10 to 19 employees	4	29	—	430	11 703	315	609	7 693	40 213	28 766	71 679	1 275
Establishments with 20 to 49 employees	2	41	41	1 327	42 448	1 010	2 040	26 674	84 013	89 444	173 946	8 447
Establishments with 50 to 99 employees	—	60	60	4 370	134 498	3 340	6 848	88 470	309 257	312 376	617 775	17 260
Establishments with 100 to 249 employees	1	72	72	11 093	356 802	8 555	18 018	242 270	828 054	904 472	1 721 917	78 596
Establishments with 250 to 499 employees	—	20	20	D	D	D	D	D	D	D	D	D
Establishments with 500 to 999 employees	—	2	2	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	60	—	493	12 326	386	680	8 749	24 114	38 803	62 887	1 505

¹Some payroll and sales data for small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322232	Envelope mfg	274	25 532	781 507	19 253	39 510	518 253	1 713 364	1 882 766	3 582 016	145 487

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322232	Envelopes	N	X	X	3 377 661	N	X	X	2 641 007
3222320	Envelopes, commercial, all types and materials	N	X	X	3 377 661	N	X	X	2 641 007
32223201	Envelopes, commercial, all types and materials	N	X	X	2 702 623	N	X	X	N
3222320111	Envelopes, commercial, clasp and string-and-button types, including mailing	22	X	2 262.9	69 282	30	X	2 257.9	100 606
3222320121	Envelopes, commercial, white or colored mailing, except clasp and string-and-button types	98	X	123 606.7	2 037 210	86	X	121 487.9	1 625 759
3222320131	Envelopes, commercial, kraft mailing, except clasp and string-and-button types	45	X	12 515.6	228 907	57	X	^P 10 040.3	231 754
3222320141	Envelopes, commercial, all other types, including padded shipping envelopes	31	X	^P 12 575.5	367 224	44	X	^P 13 159.1	274 717
3222320Y	Envelopes, nsk, total	N	X	X	675 038	N	X	X	N
3222320YWW	Envelopes, nsk, for nonadministrative-record establishments	N	X	X	614 846	N	X	X	383 690
3222320YWY	Envelopes, nsk, for administrative-record establishments	N	X	X	60 192	N	X	X	24 481

Additional information is available for this item; see Appendix F.

@ Additional data are available for this item in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: ^P 10 to 19 percent estimated; ^Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Not applicable for this report]

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322232	ENVELOPE MFG				
32210005	Paper and paperboard, except boxes and containers	^P 1 314.8	1 000 755	^Q 1 110.0	787 531
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	94 092	X	N
32552003	Glues and adhesives	X	39 518	X	36 545
32591003	Printing ink	X	25 713	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	108 567	X	72 049
00970099	All other materials and components, parts, containers, and supplies	X	102 170	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	256 547	X	220 061

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: ^P 10 to 19 percent estimated; ^Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322232 ENVELOPE MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing envelopes for mailing or stationery of any material including combinations.

The data published with NAICS code 322232 include the following SIC industry:

2677 Envelopes

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3221101	26111	26111	322121J	26767	26761 pt	3222110	26530	26530
3221101100	2611100	2611100	322121J111	2676714	2676114 pt	3222110111	2653012	2653012
3221103	26113	26113	322121J121	2676751	2676151 pt	3222110114	2653014	2653014
3221103111	2611335	2611335	322121JYV	2676700	2676100 pt	3222110221	2653013	2653013
3221103121	2611343	2611343	322121L pt.	26768	26763 pt	3222110341	2653016	2653016
3221103YV	2611300	2611300	322121L1 pt.	38421 pt	38421 pt	3222110345	2653018	2653018
3221105	26114	26114	322121L111	2676800 pt	2676300 pt	3222110431	2653015	2653015
3221105111	2611432	2611432	322121L121	3842134	3842132 pt	3222110433	2653021	2653021
3221105121	2611466	2611466	322121L131	3842136	3842132 pt	3222110435	2653022	2653022
3221105131	2611472	2611472	322121LYV	2676800 pt	2676300 pt	3222110437	2653030	2653030
3221105141	2611478	2611478	322121LYV	3842100 pt	3842100 pt	3222110551	2653067	2653067
3221105YV	2611400	2611400	322121N	26769	26764 pt	3222110661	2653051	2653051
3221107	26115	26115	322121N111	2676911	2676411 pt	3222110665	2653068	2653068
3221107111	2611511	2611511	322121N221	2676925	2676425 pt	3222110691	2653098	2653098
3221107121	2611513	2611513	322121N223	2676927	2676427 pt	3222110YV	2653002	2653002
3221107131	2611517	2611517	322121N225	2676933	2676433 pt	3222120	26570	26570
3221107141	2611519	2611519	322121N227	2676935	2676435 pt	3222120111	2657014	2657014
3221107YV	2611500	2611500	322121N229	2676937	2676437 pt	3222120221	2657021	2657021
322110W	26110	26110	322121N331	2676945	2676445 pt	3222120331	2657073	2657073 pt
322110WYV	2611000	2611000	322121N433	2676947	2676447 pt	3222120335	2657075	2657075 pt
322110YV	2611002	2611002	322121N535	2676941	2676441 pt	3222120441	2657081	2657081 pt
3221211	26213	26213	322121N541	2676943	2676443 pt	3222120551	2657084	2657084
3221211111 pt	2621311 pt	2621315	322121N551	2676955	2676455 pt	3222120555	2657086	2657086
3221211111 pt	2621311 pt	2621329 pt	322121N661	2676971	2676471 pt	3222120661	2657015	2657015
3221211221 pt	2621321 pt	2621316	322121N771	2676976	2676476 pt	3222120663	2657061	2657061
3221211221 pt	2621321 pt	2621329 pt	322121N773	2676977	2676477 pt	3222120665	2657088	2657088
3221211231 pt	2621323 pt	2621320	322121N881	2676981	2676481 pt	3222120667	2657090	2657090
3221211231 pt	2621323 pt	2621329 pt	322121N891	2676989	2676499 pt	3222120671	2657095	2657095
3221211YV	2621300	2621300	322121NYV	2676900	2676400 pt	3222120673	2657082	2657099 pt
3221213	26214	26214	322121W pt.	26210 pt	26210 pt	3222120675	2657031	2657031
3221213111	2621431	2621431	322121W pt.	26760 pt	26760 pt	3222120677	2657041	2657041
3221213115	2621432	2621432	322121WYV	38420 pt	38420 pt	3222120681	2657051	2657051
3221213221	2621437	2621437	322121WYV	2621000 pt	2621000 pt	3222120683	2657096	2657096
3221213225	2621441	2621441	322121WYV	2676000 pt	2676000 pt	3222120691	2657098	2657099 pt
3221213231	2621447	2621447	322121WYV	3842000 pt	3842000 pt	3222120YV	2657000	2657000
3221213235	2621448	2621448	322121WYV	2621002 pt	2621002 pt	3222120YV	2657002	2657002
3221213341	2621454	2621454	322121WYV	2676002 pt	2676002 pt	3222130	26520	26520
3221213345	2621455	2621455	322121WYV	3842002 pt	3842002 pt	3222130111	2652021	2652021
3221213351	2621456	2621456	322121WYV	2621100	2621100	3222130121	2652031	2652031
3221213461	2621460	2621460	3221221	26211	26211	3222130131	2652041	2652041
3221213471	2621471	2621471	3221221100	2621100	2621100	3222130141	2652051	2652051
3221213481	2621473	2621473	3221223	26212	26212	3222130191 pt	2652097 pt	2652097 pt
3221213491	2621489	2621489	3221223111 pt	2621213 pt	2621215	3222130191 pt	2652097 pt	2652071
3221213YV	2621400	2621400	3221223111 pt	2621213 pt	2621219	3222130191 pt	2652097 pt	2652098
3221215	26215	26215	3221223121	2621227	2621227	3222130YV	2652000	2652000
3221215111	2621531	2621531	3221223YV	2621200	2621200	3222130YV	2652002	2652002
3221215121	2621532	2621532	322122W	26210 pt	26210 pt	3222141	26551	26551
3221215131	2621537	2621537	322122WYV	2621000 pt	2621000 pt	3222141100	2655100	2655100
3221215141	2621558	2621558	322122WYV	2621002 pt	2621002 pt	3222143	26552	26552
3221215YV	2621500	2621500	3221301	26311	26311	3222143111	2655221	2655221
3221217	26216	26216	3221301111	2631110	2631110	3222143221	2655231	2655231
3221217111 pt	2621615 pt	2621611	3221301221	2631188	2631188	3222143331	2655271	2655271
3221217111 pt	2621615 pt	2621619	3221301YV	2631100	2631100	3222143391	2655298	2655298
3221217121	2621627	2621627	3221303	26312	26312	3222143YV	2655200	2655200
3221217YV	2621600	2621600	3221303111	2631240	2631240	3222144	26550	26550
3221219	26217	26217	3221303221	2631261	2631261	3222144YV	2655000	2655000
3221219111	2621730	2621730	3221303331	2631210	2631210	3222144YV	2655002	2655002
3221219121	2621750	2621750	3221303341	2631262	2631262	3222151	26561	26561
3221219131	2621760	2621760	3221303351	2631263	2631263	3222151100	2656100	2656100
3221219191	2621768	2621768	3221303361	2631288	2631288	3222153	26562	26562
3221219YV	2621700	2621700	3221303YV	2631200	2631200	3222153111	2656233	2656233
322121A	26218	26218	3221305	26313	26313	3222153121	2656235	2656235
322121A111	2621830	2621830	3221305100	2631300	2631300	3222153YV	2656200	2656200
322121A121	2621850	2621850	3221307	26314	26314	3222155	26563	26563
322121A131	2621860	2621860	3221307111	2631420	2631420	3222155111	2656310	2656310
322121A141 pt	2621870 pt	2621864	3221307221	2631410	2631410	3222155121 pt	2656397 pt	2656312
322121A141 pt	2621870 pt	2621868	3221307331	2631430	2631430	3222155121 pt	2656397 pt	2656319
322121A151	2621883	2621883	3221307341	2631446	2631446	3222155YV	2656300	2656300
322121AYV	2621800	2621800	3221307451	2631443	2631443	322215W	26560	26560
322121C	26219	26219	3221307461 pt	2631441 pt	2631444	322215WYV	2656000	2656000
322121C100	2621900	2621900	3221307461 pt	2631441 pt	2631445	322215WYV	2656002	2656002
322121E	2621B	2621B	3221307571	2631450	2631450	3222211	26711	26711
322121E111	2621B22	2621B22	3221307575	2631481	2631481	3222211111	2671111	2671111
322121E121	2621B28	2621B28	3221307581	2631482	2631482	3222211121	2671115	2671115
322121EYV	2621B00	2621B00	3221307591	2631488	2631488	3222211YV	2671100	2671100
322121G	2621A	2621A	3221307YV	2631400	2631400	3222213 pt.	26715 pt	26713
322121G111	2621A11	2621A11	3221309	26318	26318	3222213111 pt	2671511 pt	2671300
322121G221	2621A60	2621A60	3221309100	2631800	2631800	3222213111 pt	2671511 pt	2671313
322121G331	2621A30	2621A30	322130W	26310	26310	3222213111 pt	2671511 pt	2671314
322121G341	2621A51	2621A51	322130WYV	2631000	2631000	3222213111 pt	2671521	2671320
322121G351	2621A73	2621A73	322130WYV	2631002	2631002	3222213YV	2671500	2671400 pt
322121G361	2621A78	2621A78						
322121G371	2621A81	2621A81						
322121G391	2621A88	2621A88						
322121GYV	2621A00	2621A00						

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710 pt	26710 pt	3222241YVW	2674100	2674100	3222911	26762	26761 pt
322221WYWW	2671000 pt	2671000 pt	322224311	267421	267421	3222911111	2676214	267614 pt
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3222223YVW	2672200	2672200	3222250206	3497222	3497222	3222915	26766	26764 pt
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3222227YVW	2679200	2679200	322231W pt	26790 pt	26790 pt	3222993 pt	26752	26752
3222229	26724	26724	322231WYVW pt	2679000 pt	2679000 pt	3222993 pt	26795	26795
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3222233YVW	2673300 pt	2673300 pt	3222333331	2678235	2678235	322299W pt	39990 pt	39990 pt
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322223WYVW	2673002 pt	2673002 pt	3222333691	2678298	2678298	322299WYVW pt	3999000 pt	3999000 pt
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3222241221	2674112	2674112	322233WYVW	2678000	2678000	322299WYVW pt	3999002 pt	3999002 pt
3222241231	2674113	2674113	322233WYVW	2678002	2678002	322299WYVW pt	3999002 pt	3999002 pt
3222241341	2674115	2674115						

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1997 Economic Census

Manufacturing

Industry Series



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Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special

census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the

manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322233	Stationery, tablet, & related product mfg	157	170	9 094	237 444	6 590	12 709	147 068	932 158	996 716	1 846 316	44 306
267800	Stationery products.....	N	170	9 094	237 444	6 590	12 709	147 068	932 158	996 716	1 846 316	44 306

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322233, STATIONERY, TABLET, & RELATED PRODUCT MFG												
United States	-	170	67	9 094	237 444	6 590	12 709	147 068	932 158	996 716	1 846 316	44 306
California	2	19	7	667	17 359	461	934	10 640	60 790	33 814	93 594	784
Massachusetts	-	13	6	823	22 262	458	893	10 285	145 727	94 261	217 151	2 256
New Jersey	-	6	4	309	7 756	246	548	5 215	12 997	16 832	30 037	302
New York	1	18	5	358	9 023	270	510	5 558	20 538	15 473	36 419	4 204
Pennsylvania	-	9	5	982	27 898	752	1 524	19 396	81 337	96 707	174 774	4 301
Texas	-	9	4	369	9 069	283	557	6 318	50 495	31 241	79 277	904
Wisconsin.....	-	8	3	317	11 635	248	544	8 951	37 931	56 838	88 899	4 333

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322233, STATIONERY, TABLET, & RELATED PRODUCT MFG		322233, STATIONERY, TABLET, & RELATED PRODUCT MFG—Con.	
Companies ¹	number.. 157	Value added	\$1,000.. 932 158
All establishments	number.. 170	Total inventories, beginning of year	\$1,000.. 255 917
Establishments with 1 to 19 employees	number.. 103	Finished goods inventories, beginning of year	\$1,000.. 158 015
Establishments with 20 to 99 employees	number.. 40	Work-in-process inventories, beginning of year	\$1,000.. 19 700
Establishments with 100 employees or more	number.. 27	Materials and supplies inventories, beginning of year	\$1,000.. 78 202
All employees	number.. 9 094	Total inventories, end of year	\$1,000.. 364 782
Total compensation ²	\$1,000.. 289 077	Finished goods inventories, end of year	\$1,000.. 239 801
Annual payroll	\$1,000.. 237 444	Work-in-process inventories, end of year	\$1,000.. 20 472
Total fringe benefits	\$1,000.. 51 633	Materials and supplies inventories, end of year	\$1,000.. 104 509
Production workers, average for year	number.. 6 590	Gross book value of total assets at beginning of year	\$1,000.. 511 213
Production workers on March 12	number.. 6 395	Total capital expenditures (new and used)	\$1,000.. 44 306
Production workers on May 12	number.. 7 086	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 4 624
Production workers on August 12	number.. 6 430	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 39 682
Production workers on November 12	number.. 6 449	Total retirements ²	\$1,000.. 5 947
Production-worker hours	1,000.. 12 709	Gross book value of total assets at end of year	\$1,000.. 549 572
Production-worker wages	\$1,000.. 147 068	Total depreciation during year ²	\$1,000.. 26 858
Total cost of materials	\$1,000.. 996 716	Total rental payments ²	\$1,000.. 19 769
Cost of materials, parts, containers, etc., consumed	\$1,000.. 888 002	Buildings and other structures rental payments ²	\$1,000.. 7 898
Cost of resales	\$1,000.. 88 288	Machinery and equipment rental payments ²	\$1,000.. 11 871
Cost of fuels	\$1,000.. 2 424	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 1 549
Cost of purchased electricity	\$1,000.. 8 978	Response coverage ratio ⁴	percent.. 92
Cost of contract work	\$1,000.. 9 024	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 8 449
Quantity of electricity purchased for heat and power	1,000 kWh.. 141 282	Response coverage ratio ⁴	percent.. 92
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 2 697
Total value of shipments	\$1,000.. 1 846 316	Response coverage ratio ⁴	percent.. 92
Primary products value of shipments	\$1,000.. 1 220 837	Cost of purchased legal services ³	\$1,000.. 1 089
Secondary products value of shipments	\$1,000.. 515 027	Response coverage ratio ⁴	percent.. 92
Total miscellaneous receipts	\$1,000.. 110 452	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 1 353
Value of resales	\$1,000.. 102 880	Response coverage ratio ⁴	percent.. 92
Contract receipts	\$1,000.. 442	Cost of purchased advertising services ³	\$1,000.. 6 771
Other miscellaneous receipts	\$1,000.. 7 130	Response coverage ratio ⁴	percent.. 92
Primary products specialization ratio	percent.. 70	Cost of purchased software and other data processing services ³	\$1,000.. 3 363
Value of primary products shipments made in all industries	\$1,000.. 1 381 492	Response coverage ratio ⁴	percent.. 92
Value of primary products shipments made in this industry	\$1,000.. 1 220 837	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 1 135
Value of primary products shipments made in other industries	\$1,000.. 160 655	Response coverage ratio ⁴	percent.. 92
Coverage ratio	percent.. 88		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322233, STATIONERY, TABLET, & RELATED PRODUCT MFG												
All establishments	-	170	67	9 094	237 444	6 590	12 709	147 068	932 158	996 716	1 846 316	44 306
Establishments with 1 to 4 employees	9	58	-	104	2 418	78	136	1 358	5 810	7 355	13 671	301
Establishments with 5 to 9 employees	9	24	-	170	4 341	118	226	2 373	10 823	12 811	24 403	473
Establishments with 10 to 19 employees	5	21	-	270	6 584	176	343	3 569	14 514	14 560	29 463	668
Establishments with 20 to 49 employees	-	27	27	822	20 771	567	1 122	11 411	37 938	95 800	135 927	1 531
Establishments with 50 to 99 employees	-	13	13	974	28 519	629	1 284	14 106	87 841	88 802	174 466	2 081
Establishments with 100 to 249 employees	-	18	18	2 885	84 139	2 133	4 337	53 572	426 593	398 561	791 385	27 202
Establishments with 250 to 499 employees	-	7	7	D	D	D	D	D	D	D	D	D
Establishments with 500 to 999 employees	-	2	2	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	9	83	-	376	9 170	266	488	5 144	23 083	27 297	52 046	1 184

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322233	Stationery, tablet, & related product mfg	170	9 094	237 444	6 590	12 709	147 068	932 158	996 716	1 846 316	44 306
3222331	Stationery	28	1 722	36 901	1 086	2 187	22 032	101 037	57 188	158 000	1 836
3222333	Tablets, pads, and related products ..	52	6 886	188 640	5 172	9 917	118 561	801 895	906 161	1 623 634	41 059

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322233	Stationery, tablet, and related products	N	X	X	1 381 492	N	X	X	1 268 776
3222331	Stationery	N	X	X	226 880	N	X	X	333 307
32223311	Stationery	N	X	X	213 262	N	X	X	N
3222331111	Boxed stationery and portfolios	21	X	X	57 894	31	X	X	106 873
3222331121	Wedding and social announcements, paper, cards, and envelopes	18	X	X	91 476	15	X	X	84 530
3222331131	All other stationery products, including packaged paper and envelopes, noncommercial	28	X	X	63 892	22	X	X	105 950
3222331Y	Stationery, nsk	N	X	X	13 618	N	X	X	N
3222331YVV	Stationery, nsk	N	X	X	13 618	N	X	X	35 954
3222333	Tablets, pads, and related products	N	X	X	1 086 178	N	X	X	809 361
32223331	Tablets and pads, 8 1/2 in. x 11 in. and 8 1/2 in. x 14 in., except columnar	N	X	X	56 572	N	X	X	N
3222333111	Tablets and pads, 8 1/2 in. x 11 in. and 8 1/2 in. x 14 in., except columnar	18	X	X	56 572	22	X	X	66 135
32223332	All other tablets and pads, including columnar	N	X	X	95 011	N	X	X	N
3222333221	All other tablets and pads, including columnar	31	X	X	95 011	N	X	X	N
32223333	Notebooks, bound with wire (except columnar), staples, thread, or plastics (including composition, memo, and stenographic but excluding case made)	N	X	X	309 073	N	X	X	N
3222333331	Notebooks, bound with wire (except columnar), staples, thread, or plastics (including composition, memo, and stenographic but excluding case made)	43	X	X	309 073	34	X	X	222 426
32223334	Looseleaf paper fillers, school and commercial types	N	X	X	125 981	N	X	X	N
3222333441	Looseleaf paper fillers, school and commercial types	20	X	X	125 981	17	X	X	101 139
32223335	Wrapped ream paper (exclude looseleaf fillers, photographic and photocopy paper, and paper for fax machines)	N	X	X	301 179	N	X	X	N
3222333551	Wrapped ream paper (exclude looseleaf fillers, photographic and photocopy paper, and paper for fax machines)	18	X	X	301 179	12	X	X	77 352
32223336	All other tablets, pads, and related products, nec	N	X	X	170 053	N	X	X	N
3222333691	All other tablets, pads, and related products, nec	18	X	X	170 053	20	X	X	26 582
3222333Y	Tablets, pads, and related products, nsk	N	X	X	28 309	N	X	X	N
3222333YVV	Tablets, pads, and related products, nsk	N	X	X	28 309	N	X	X	158 620
322233W	Stationery, tablets, and related products, nsk, total	N	X	X	68 434	N	X	X	126 108
322233WY	Stationery, tablets, and related products, nsk, total	N	X	X	68 434	N	X	X	N
322233WYWWW	Stationery, tablets, and related products, nsk, for nonadministrative-record establishments	N	X	X	22 929	N	X	X	109 938
322233WYWY	Stationery, tablets, and related products, nsk, for administrative-record establishments	N	X	X	45 505	N	X	X	16 170

Additional information is available for this item: see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222331	STATIONERY		
	United States	226 880	333 307
	California	23 581	31 783
	Illinois	4 767	28 798
	Massachusetts	7 179	18 294
	Michigan	4 145	6 698
	Texas	8 659	4 823
3222333	TABLETS, PADS, AND RELATED PRODUCTS		
	United States	1 086 178	809 361
	California	42 753	41 899
	Indiana	6 156	N
	Massachusetts	115 803	53 953
	Missouri	92 666	N
	New Jersey	17 327	18 127
	New York	28 909	41 453
	North Carolina	32 735	N
	Pennsylvania	101 208	79 331
	Wisconsin	81 840	33 931

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322233	STATIONERY, TABLET, & RELATED PRODUCT MFG				
00190005	Recovered paper, all types	X	D	X	N
32210005	Paper and paperboard, except boxes and containers	758.8	613 593	^a 594.2	396 382
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	D	X	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	7 809	X	N
31332007	Coated or laminated fabrics, including vinyl coated	X	25 235	X	4 618
32552003	Glues and adhesives	X	7 987	X	4 688
32591003	Printing ink	X	3 342	X	3 953
32221001	Paperboard containers, boxes, and corrugated paperboard	X	77 839	X	21 729
00970099	All other materials and components, parts, containers, and supplies	X	76 756	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	66 895	X	155 240

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; ^a 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322233 STATIONERY, TABLET, AND RELATED PRODUCT MANUFACTURING

This U.S. industry comprises establishments primarily engaged in converting paper and paperboard into products used for writing and similar applications (e.g., loose-leaf fillers, notebooks, pads, stationery, tablets).

The data published with NAICS code 322233 include the following SIC industry:

2678 Stationery products

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3221101	26111	26111	322121J	26767	26761 pt	3222110	26530	26530
322110100	2611100	2611100	322121J111	2676714	2676114 pt	3222110111	2653012	2653012
3221103	26113	26113	322121J121	2676751	2676151 pt	3222110114	2653014	2653014
3221103111	2611335	2611335	322121JYVW	2676700	2676100 pt	3222110221	2653013	2653013
3221103121	2611343	2611343	322121L pt.	26768	26763 pt	3222110341	2653016	2653016
3221103YVW	2611300	2611300	322121L1 pt.	38421 pt	38421 pt	3222110345	2653018	2653018
3221105	26114	26114	322121L111	2676800 pt	2676300 pt	3222110431	2653015	2653015
3221105111	2611432	2611432	322121L121	3842134	3842132 pt	3222110433	2653021	2653021
3221105121	2611466	2611466	322121L131	3842136	3842132 pt	3222110435	2653022	2653022
3221105131	2611472	2611472	322121LYVW pt.	2676800 pt	2676300 pt	3222110437	2653030	2653030
3221105141	2611478	2611478	322121LYVW pt.	3842100 pt	3842100 pt	3222110551	2653067	2653067
3221105YVW	2611400	2611400	322121N	26769	26764 pt	3222110661	2653051	2653051
3221107	26115	26115	322121N111	2676911	2676411 pt	3222110665	2653068	2653068
3221107111	2611511	2611511	322121N221	2676925	2676425 pt	3222110691	2653098	2653098
3221107121	2611513	2611513	322121N223	2676927	2676427 pt	3222110YVW	2653002	2653002
3221107131	2611517	2611517	322121N225	2676933	2676433 pt	3222120	26570	26570
3221107141	2611519	2611519	322121N227	2676935	2676435 pt	3222120111	2657014	2657014
3221107YVW	2611500	2611500	322121N229	2676937	2676437 pt	3222120221	2657021	2657021
322110W	26110	26110	322121N331	2676945	2676445 pt	3222120331	2657073	2657071 pt
322110WYVW	2611000	2611000	322121N433	2676947	2676447 pt	3222120335	2657075	2657071 pt
322110WYVW	2611002	2611002	322121N535	2676941	2676441 pt	3222120441	2657081	2657081
3221211	26213	26213	322121N541	2676943	2676443 pt	3222120551	2657084	2657084
3221211111 pt.	2621311 pt.	2621315	322121N551	2676955	2676455 pt	3222120555	2657086	2657086
3221211111 pt.	2621311 pt.	2621329 pt	322121N661	2676971	2676471 pt	3222120661	2657015	2657015
322121221 pt.	2621321 pt.	2621316	322121N671	2676976	2676476 pt	3222120663	2657061	2657061
322121221 pt.	2621321 pt.	2621329 pt	322121N773	2676977	2676477 pt	3222120665	2657088	2657088
322121231 pt.	2621323 pt.	2621320	322121N881	2676981	2676481 pt	3222120667	2657090	2657090
322121231 pt.	2621323 pt.	2621329 pt	322121N891	2676989	2676499 pt	3222120671	2657095	2657095
322121YVW	2621300	2621300	322121NYVW	2676900	2676400 pt	3222120673	2657082	2657099 pt
3221213	26214	26214	322121W pt.	26210 pt	26210 pt	3222120675	2657031	2657031
3221213111	2621431	2621431	322121W pt.	26760 pt	26760 pt	3222120677	2657041	2657041
3221213115	2621432	2621432	322121WYVW pt.	38420 pt	38420 pt	3222120681	2657051	2657051
3221213221	2621437	2621437	322121WYVW pt.	2621000 pt	2621000 pt	3222120683	2657096	2657096
3221213225	2621441	2621441	322121WYVW pt.	2676000 pt	2676000 pt	3222120691	2657098	2657099 pt
3221213231	2621447	2621447	322121WYVW pt.	3842000 pt	3842000 pt	3222120YVW	2657000	2657000
3221213235	2621448	2621448	322121WYVY pt.	2621002 pt	2621002 pt	3222120YVW	2657002	2657002
3221213341	2621454	2621454	322121WYVY pt.	2676002 pt	2676002 pt	3222130	26520	26520
3221213345	2621455	2621455	322121WYVY pt.	3842002 pt	3842002 pt	3222130111	2652021	2652021
3221213351	2621456	2621456	3221221	26211	26211	3222130121	2652031	2652031
3221213461	2621460	2621460	3221221100	2621100	2621100	3222130131	2652041	2652041
3221213471	2621471	2621471	3221223	26212	26212	3222130141	2652051	2652051
3221213481	2621473	2621473	3221223111 pt.	2621213 pt.	2621215	3222130191 pt.	2652097 pt.	2652097
3221213491	2621489	2621489	3221223111 pt.	2621213 pt.	2621219	3222130191 pt.	2652097 pt.	2652071
3221213YVW	2621400	2621400	3221223121	2621227	2621227	3222130191 pt.	2652097 pt.	2652098
3221215	26215	26215	3221223YVW	2621200	2621200	3222130YVW	2652000	2652000
3221215111	2621531	2621531	322122W	26210 pt	26210 pt	3222130YVW	2652002	2652002
3221215121	2621532	2621532	322122WYVW	2621000 pt.	2621000 pt	3222141	26551	26551
3221215131	2621537	2621537	322122WYVY	2621002 pt.	2621002 pt	3222141100	2655100	2655100
3221215141	2621558	2621558	3221301	26311	26311	3222143	26552	26552
3221215YVW	2621500	2621500	3221301111	2631110	2631110	3222143111	2655221	2655221
3221217	26216	26216	3221301221	2631188	2631188	3222143221	2655231	2655231
3221217111 pt.	2621615 pt.	2621611	3221301YVW	2631100	2631100	3222143331	2655271	2655271
3221217111 pt.	2621615 pt.	2621619	3221303	26312	26312	3222143391	2655298	2655298
3221217121	2621627	2621627	3221303111	2631240	2631240	3222143YVW	2655200	2655200
3221217YVW	2621600	2621600	3221303221	2631261	2631261	3222144W	26550	26550
3221219	26217	26217	3221303331	2631210	2631210	3222144YVW	2655000	2655000
3221219111	2621730	2621730	3221303341	2631262	2631262	3222144YVY	2655002	2655002
3221219121	2621750	2621750	3221303351	2631263	2631263	3222151	26561	26561
3221219131	2621760	2621760	3221303361	2631288	2631288	3222151100	2656100	2656100
3221219191	2621768	2621768	3221303YVW	2631200	2631200	3222153	26562	26562
3221219YVW	2621700	2621700	3221305	26313	26313	3222153111	2656233	2656233
322121A	26218	26218	3221305100	2631300	2631300	3222153121	2656235	2656235
322121A111	2621830	2621830	3221307	26314	26314	3222153YVW	2656200	2656200
322121A121	2621850	2621850	3221307111	2631420	2631420	3222155	26563	26563
322121A131	2621860	2621860	3221307221	2631410	2631410	3222155111	2656310	2656310
322121A141 pt.	2621870 pt.	2621864	3221307231	2631430	2631430	3222155121 pt.	2656397 pt.	2656312
322121A141 pt.	2621870 pt.	2621868	3221307341	2631446	2631446	3222155121 pt.	2656397 pt.	2656319
322121A151	2621883	2621883	3221307451	2631443	2631443	3222155YVW	2656300	2656300
322121AYVW	2621800	2621800	3221307461 pt.	2631441 pt.	2631444	322215W	26560	26560
322121C	26219	26219	3221307461 pt.	2631441 pt.	2631444	322215WYVW	2656000	2656000
322121C100	2621900	2621900	3221307461 pt.	2631441 pt.	2631445	322215WYVY	2656002	2656002
322121E	2621B	2621B	3221307571	2631450	2631450	3222211	26711	26711
322121E111	2621B22	2621B22	3221307575	2631481	2631481	3222211111	2671111	2671111
322121E121	2621B28	2621B28	3221307581	2631482	2631482	3222211121	2671115	2671115
322121EYVW	2621B00	2621B00	3221307591	2631488	2631488	3222211YVW	2671100	2671100
322121G	2621A	2621A	3221307YVW	2631400	2631400	3222213 pt.	26715 pt.	26713
322121G111	2621A11	2621A11	3221309	26318	26318	3222213 pt.	26715 pt.	26714 pt
322121G221	2621A60	2621A60	3221309100	2631800	2631800	3222213111 pt.	2671511 pt.	2671300
322121G331	2621A30	2621A30	322130W	26310	26310	3222213111 pt.	2671511 pt.	2671313
322121G341	2621A51	2621A51	322130WYVW	2631000	2631000	3222213111 pt.	2671511 pt.	2671314
322121G351	2621A73	2621A73	322130WYVY	2631002	2631002	3222213111 pt.	2671511 pt.	2671320
322121G361	2621A78	2621A78	322130YVW	2631000	2631000	3222213221	2671521	2671411
322121G371	2621A81	2621A81	322130YVY	2631002	2631002	3222213YVW	2671500	2671400 pt
322121G391	2621A88	2621A88						
322121GYVW	2621A00	2621A00						

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710 pt	26710 pt	3222241YVW	2674100	2674100	3222911	26762	26761 pt
322221WYWW	2671000 pt	2671000 pt	322224311	2674211	2674211	3222911111	2676214	267614 pt
322221WYVW	2671002 pt	2671002 pt	322224321	2674212	2674212	3222911121	2676251	2676151 pt
3222221	26721	26721	3222243YVW	2674200	2674200	3222911YVW	2676200	2676100 pt
3222221111	2672113	2672113	322224W	26740	26740	3222913 pt	26765	26763 pt
3222221121	2672153	2672153	322224WYWW	2674000	2674000	3222913111	38421 pt	38421 pt
3222221YVW	2672100	2672100	322224WYVW	2674002	2674002	3222913121	3842133	3842132 pt
3222223	26722	26722	3222250 pt	34970 pt	34970 pt	3222913131	3842135	3842132 pt
3222223111	2672212	2672212	3222250YVW pt	34972	34972	3222913YVW pt	2676500 pt	2676300 pt
3222223121	2672230	2672230	3222250YVW pt	3497210	3497210	3222913YVW pt	3842100 pt	3842100 pt
3222223YVW	2672200	2672200	3222250206	3497222	3497222	3222915	26766	26764 pt
3222225	26723	26723	3222250311	3497225	3497225	3222915111	2676611	2676411 pt
3222225111	2672313	2672313	3222250416	3497228	3497228	3222915221	2676625	2676425 pt
3222225221	2672343	2672343	3222250421	3497241	3497241	3222915225	2676627	2676427 pt
3222225331	2672333	2672333	3222250YVW pt	3497000 pt	3497000 pt	3222915229	2676633	2676433 pt
3222225341	2672345	2672345	3222250YVW pt	3497200	3497200	3222915331	2676635	2676435 pt
3222225351	2672353	2672353	3222250YVW pt	3497002 pt	3497002 pt	3222915433	2676637	2676437 pt
3222225361	2672359	2672359	3222260 pt	26750 pt	26750 pt	3222915535	2676645	2676445 pt
3222225371	2672361	2672361	3222260100	26753	26753	3222915541	2676647	2676447 pt
3222225475	2672381	2672381	3222260YVW	2675300	2675300	3222915551	2676649	2676449 pt
3222225581	2672385	2672385	3222260YVW	2675000 pt	2675000 pt	3222915561	2676655	2676455 pt
3222225585	2672375	2672375	3222260YVW	2675002 pt	2675002 pt	3222915661	2676671	2676471 pt
3222225591	2672398	2672398	3222260YVW	2675002 pt	2675002 pt	3222915771	2676676	2676476 pt
3222225YVW	2672300	2672300	3222261	26751	26751	3222915773	2676677	2676477 pt
3222226	26791	26791	3222261111	2675110	2675110	3222915881	2676681	2676481 pt
3222226111	2679122	2679122	3222261121	2675111	2675111	3222915891	2676699	2676499 pt
3222226121 pt	2679125 pt	2679126	3222261131	2675112	2675112	3222915YVW	2676600	2676400 pt
3222226121 pt	2679125 pt	2679128	322226131	2679134	2679134	322291W pt	26760 pt	26760 pt
3222226131	2679134	2679134	322226141	2679136	2679136	322291W pt	26760 pt	26760 pt
3222226141	2679136	2679136	322226191	2679141	2679141	322291W pt	26760 pt	26760 pt
3222226191	2679141	2679141	322226YVW	2679100	2679100	322291W pt	38420 pt	38420 pt
3222226YVW	2679100	2679100	322227	26792	26792	322291WYVW pt	2676000 pt	2676000 pt
3222227	26792	26792	322227111	2679282	2679282	322291WYVW pt	3842000 pt	3842000 pt
3222227111	2679282	2679282	322227121	2679291	2679291	322291WYVW pt	2676002 pt	2676002 pt
3222227121	2679291	2679291	322227191	2679296	2679296	322291WYVW pt	3842002 pt	3842002 pt
3222227191	2679296	2679296	322227YVW	2679200	2679200	3222991	26794	26794
3222227YVW	2679200	2679200	3222229	26724	26724	3222991100	2679400	2679400
3222229	26724	26724	3222229111	2672445	2672445	3222993 pt	26752	26752
3222229111	2672445	2672445	3222229121	2672453	2672453	3222993 pt	26795	26795
3222229121	2672453	2672453	3222229131	2672455	2672455	3222993 pt	39999 pt	39999 pt
3222229131	2672455	2672455	3222229141	2672456	2672456	3222993111	2679521	2679521
3222229141	2672456	2672456	3222229151	2672469	2672469	3222993221	2679531	2679531
3222229151	2672469	2672469	3222229YVW	2672400	2672400	3222993231	2679541	2679541
3222229YVW	2672400	2672400	322222W pt	26720	26720	3222993241	2679548	2679548
322222W pt	26720	26720	322222W pt	26790 pt	26790 pt	3222993351 pt	2679551	2679551
322222W pt	26790 pt	26790 pt	322222WYVW pt	2672000	2672000	3222993351 pt	2679550 pt	2679550 pt
322222WYVW pt	2672000	2672000	322222WYVW pt	2679000 pt	2679000 pt	3222993361	2679561	2679561
322222WYVW pt	2679000 pt	2679000 pt	322222WYVW pt	2672002	2672002	3222993471 pt	2675200 pt	2675200 pt
322222WYVW pt	2672002	2672002	322222WYVW pt	2679002 pt	2679002 pt	3222993471 pt	2675200 pt	2675200 pt
322222WYVW pt	2679002 pt	2679002 pt	3222231	26731	26731	3222993471 pt	2675200 pt	2675200 pt
3222231	26731	26731	3222231100	2673100	2673100	3222993471 pt	2675200 pt	2675200 pt
3222231100	2673100	2673100	3222233	26733 pt	26733 pt	3222993471 pt	2675297	2675297
3222233	26733 pt	26733 pt	3222233111	2673306	2673311 pt	3222993591 pt	2679598	2679598
3222233111	2673306	2673311 pt	3222233121	2673312	2673312	3222993591 pt	3999996 pt	3999913 pt
3222233121	2673312	2673312	3222233131 pt	2673315 pt	2673311 pt	3222993591 pt	3999996 pt	3999999 pt
3222233131 pt	2673315 pt	2673311 pt	3222233131 pt	2673315 pt	2673314 pt	3222993YVW pt	2679500	2679500
3222233131 pt	2673315 pt	2673314 pt	3222233YVW	2673300 pt	2673300 pt	3222993YVW pt	3999900 pt	3999900 pt
3222233YVW	2673300 pt	2673300 pt	322223W	26730 pt	26730 pt	322299W pt	26750 pt	26750 pt
322223W	26730 pt	26730 pt	322223WYVW	2673000 pt	2673000 pt	322299W pt	26790 pt	26790 pt
322223WYVW	2673000 pt	2673000 pt	322223WYVW	2673002 pt	2673002 pt	322299W pt	39990 pt	39990 pt
322223WYVW	2673002 pt	2673002 pt	3222241	26741	26741	322299WYVW pt	2675000 pt	2675000 pt
3222241	26741	26741	3222241111	2674111	2674111	322299WYVW pt	2679000 pt	2679000 pt
3222241111	2674111	2674111	3222241221	2674112	2674112	322299WYVW pt	3999000 pt	3999000 pt
3222241221	2674112	2674112	3222241231	2674113	2674113	322299WYVW pt	2675002 pt	2675002 pt
3222241231	2674113	2674113	3222241341	2674115	2674115	322299WYVW pt	2679002 pt	2679002 pt
3222241341	2674115	2674115				322299WYVW pt	3999002 pt	3999002 pt

Sanitary Paper Product Manufacturing

1997

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1997 Economic Census

Manufacturing

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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322291	Sanitary paper product mfg. . . .	99	141	21 791	785 389	16 981	35 537	602 567	5 329 713	4 420 573	9 770 017	453 337
267620	Sanitary paper products (pt) . . .	N	125	19 555	716 978	15 152	31 715	551 408	4 987 522	4 100 829	9 118 619	426 500
384220	Surgical appliances & supplies (pt)	N	16	2 236	68 411	1 829	3 822	51 159	342 191	319 744	651 398	26 837

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322291, SANITARY PAPER PRODUCT MFG												
United States	-	141	93	21 791	785 389	16 981	35 537	602 567	5 329 713	4 420 573	9 770 017	453 337
Arkansas	2	3	3	918	31 452	782	1 631	24 950	201 894	160 145	365 445	14 798
California	-	14	8	1 178	43 413	976	1 928	34 833	369 771	338 429	706 810	25 615
Georgia	-	7	6	2 279	82 373	2 008	3 918	70 664	583 868	558 122	1 137 242	76 470
New York	8	13	8	706	21 177	576	1 227	15 974	99 574	124 261	223 533	25 768
Ohio	-	4	3	542	15 533	397	820	9 754	67 176	78 422	145 790	3 770
Pennsylvania	1	11	9	1 620	63 771	1 216	2 408	42 290	201 955	250 359	449 100	40 559
South Carolina	1	4	3	626	14 764	406	849	9 764	30 350	74 162	103 008	11 956
Wisconsin	-	21	15	4 400	188 442	3 555	7 433	145 529	796 302	1 183 153	1 984 146	88 837

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322291, SANITARY PAPER PRODUCT MFG		322291, SANITARY PAPER PRODUCT MFG—Con.	
Companies ¹	number.. 99	Value added	\$1,000.. 5 329 713
All establishments	number.. 141	Total inventories, beginning of year	\$1,000.. 595 482
Establishments with 1 to 19 employees	number.. 48	Finished goods inventories, beginning of year	\$1,000.. 330 830
Establishments with 20 to 99 employees	number.. 41	Work-in-process inventories, beginning of year	\$1,000.. 21 100
Establishments with 100 employees or more	number.. 52	Materials and supplies inventories, beginning of year	\$1,000.. 243 552
All employees	number.. 21 791	Total inventories, end of year	\$1,000.. 563 695
Total compensation ²	\$1,000.. 980 716	Finished goods inventories, end of year	\$1,000.. 306 260
Annual payroll	\$1,000.. 785 389	Work-in-process inventories, end of year	\$1,000.. 25 939
Total fringe benefits	\$1,000.. 195 327	Materials and supplies inventories, end of year	\$1,000.. 231 496
Production workers, average for year	number.. 16 981	Gross book value of total assets at beginning of year	\$1,000.. 3 796 145
Production workers on March 12	number.. 16 840	Total capital expenditures (new and used)	\$1,000.. 453 337
Production workers on May 12	number.. 16 881	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 34 961
Production workers on August 12	number.. 17 104	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 418 376
Production workers on November 12	number.. 17 099	Total retirements ²	\$1,000.. 99 503
Production-worker hours	1,000.. 35 537	Gross book value of total assets at end of year	\$1,000.. 4 149 979
Production-worker wages	\$1,000.. 602 567	Total depreciation during year ²	\$1,000.. 268 288
Total cost of materials	\$1,000.. 4 420 573	Total rental payments ²	\$1,000.. 30 746
Cost of materials, parts, containers, etc., consumed	\$1,000.. 4 209 943	Buildings and other structures rental payments ²	\$1,000.. 15 425
Cost of resales	\$1,000.. 106 013	Machinery and equipment rental payments ²	\$1,000.. 15 321
Cost of fuels	\$1,000.. 11 205	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 16 543
Cost of purchased electricity	\$1,000.. 54 755	Response coverage ratio ⁴	percent.. 94
Cost of contract work	\$1,000.. 38 657	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 47 559
Quantity of electricity purchased for heat and power	1,000 kWh.. 1 101 677	Response coverage ratio ⁴	percent.. 94
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 5 684
Total value of shipments	\$1,000.. 9 770 017	Response coverage ratio ⁴	percent.. 94
Primary products value of shipments	\$1,000.. 9 101 431	Cost of purchased legal services ³	\$1,000.. 2 101
Secondary products value of shipments	\$1,000.. 513 838	Response coverage ratio ⁴	percent.. 94
Total miscellaneous receipts	\$1,000.. 154 748	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 897
Value of resales	\$1,000.. 146 695	Response coverage ratio ⁴	percent.. 94
Contract receipts	\$1,000.. 2 446	Cost of purchased advertising services ³	\$1,000.. 26 994
Other miscellaneous receipts	\$1,000.. 5 607	Response coverage ratio ⁴	percent.. 94
Primary products specialization ratio	percent.. 94	Cost of purchased software and other data processing services ³	\$1,000.. 5 063
Value of primary products shipments made in all industries	\$1,000.. 9 196 053	Response coverage ratio ⁴	percent.. 94
Value of primary products shipments made in this industry	\$1,000.. 9 101 431	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 7 761
Value of primary products shipments made in other industries	\$1,000.. 94 622	Response coverage ratio ⁴	percent.. 94
Coverage ratio	percent.. 98		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322291, SANITARY PAPER PRODUCT MFG												
All establishments	-	141	93	21 791	785 389	16 981	35 537	602 567	5 329 713	4 420 573	9 770 017	453 337
Establishments with 1 to 4 employees	6	22	-	39	1 062	33	49	843	6 379	5 992	13 140	613
Establishments with 5 to 9 employees	8	16	-	108	3 228	87	145	2 509	16 555	18 951	35 474	1 713
Establishments with 10 to 19 employees	6	10	-	155	5 662	114	196	3 180	20 710	26 135	47 005	1 484
Establishments with 20 to 49 employees	4	22	22	703	19 447	554	894	12 524	91 878	113 920	205 238	19 865
Establishments with 50 to 99 employees	2	19	19	1 430	39 256	1 162	2 283	29 086	130 282	207 114	336 647	25 823
Establishments with 100 to 249 employees	3	26	26	4 027	122 152	3 100	6 473	86 074	476 979	573 657	1 039 090	50 256
Establishments with 250 to 499 employees	-	14	14	4 921	184 726	4 052	8 316	144 186	1 182 202	1 049 230	2 222 141	107 999
Establishments with 500 to 999 employees	-	9	9	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	-	3	3	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	9	32	-	296	7 909	254	344	6 311	42 222	50 805	93 049	4 216

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322291	Sanitary paper product mfg	141	21 791	785 389	16 981	35 537	602 567	5 329 713	4 420 573	9 770 017	453 337
3222911	Sanitary napkins and tampons (not made in paper mills)	11	5 479	182 163	3 479	7 471	129 448	1 522 472	616 627	2 156 339	79 374
3222913	Disposable diapers (usually containing pulp or cellulose fibers) and similar disposable products (not made in paper mills)	30	7 206	273 497	6 189	13 389	221 892	2 307 356	1 617 605	3 931 071	155 092
3222915	Sanitary tissue paper products (not made in paper mills)	51	8 065	302 116	6 572	13 394	231 186	1 410 695	2 051 754	3 459 527	202 034

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322291	Sanitary paper products	N	X	X	9 196 053	N	X	X	N
3222911	Sanitary napkins and tampons (not made in paper mills)	N	X	X	1 560 204	N	X	X	N
32229111	Sanitary napkins and tampons (not made in paper mills)	N	X	X	1 560 204	N	X	X	N
322291111	Sanitary napkins, including maternity pads (not made in paper mills) \$	7	X	11 726.0	866 158	N	X	N	N
322291112	Tampons (not made in paper mills) \$	5	X	5 580.0	694 046	N	X	N	N
3222911Y	Sanitary napkins and tampons (not made in paper mills), nsk	N	X	X	-	N	X	X	N
3222911YWV	Sanitary napkins and tampons (not made in paper mills), nsk	N	X	X	-	N	X	X	N
3222913	Disposable diapers (usually containing pulp or cellulose fibers) and similar disposable products (not made in paper mills)	N	X	X	4 130 948	N	X	X	N
32229131	Disposable diapers (usually containing pulp or cellulose fibers) and similar disposable products (not made in paper mills)	N	X	X	4 130 948	N	X	X	N
322291311	Disposable diapers, except adult (usually containing pulp or cellulose fibers), including disposable training pants (not made in paper mills) #	13	X	D	D	N	X	N	N
322291312	Disposable adult diapers, usually containing pulp or cellulose fibers (not made in paper mills) #	15	X	X	D	N	X	X	N
322291313	Disposable incontinent pads and bedpads (not made in paper mills) #	13	X	X	D	N	X	X	N
3222913Y	Disposable diapers (usually containing pulp or cellulose fibers) and similar disposable products (not made in paper mills), nsk	N	X	X	-	N	X	X	N
3222913YWV	Disposable diapers (usually containing pulp or cellulose fibers) and similar disposable products (not made in paper mills), nsk	N	X	X	-	N	X	X	N
3222915	Sanitary tissue paper products (not made in paper mills)	N	X	X	3 332 749	N	X	X	N
32229151	Facial tissues and handkerchiefs, including sputum wipes (not made in paper mills)	N	X	X	34 418	N	X	X	N
322291511	Facial tissues and handkerchiefs, including sputum wipes (not made in paper mills) \$	4	X	16.2	34 418	N	X	N	N
32229152	Paper table napkins, bulk and dispenser industrial and retail types (not made in paper mills) #	N	X	X	D	N	X	X	N
3222915221	Paper table napkins, industrial, regular type, single-ply, bulk (not made in paper mills) #	12	X	D	D	N	X	N	N
3222915223	Paper table napkins, industrial, regular type, single-ply, dispenser (not made in paper mills) #	9	X	D	D	N	X	N	N
3222915225	Paper table napkins, industrial (bulk and dispenser type), facial tissue type, two-ply or more (not made in paper mills) #	8	X	D	D	N	X	N	N
3222915227	Paper table napkins, retail packages (resale), regular type, single-ply (not made in paper mills) \$	11	X	P209.2	476 640	N	X	N	N
3222915229	Paper table napkins, retail packages (resale), facial tissue type, two-ply or more (not made in paper mills) #	6	X	D	D	N	X	N	N
32229153	Toilet tissue, rolls and ovals, retail packages (resale), facial tissue type, two-ply or more (not made in paper mills)	N	X	X	321 037	N	X	X	N
3222915331	Toilet tissue, rolls and ovals, retail packages (resale), facial tissue type, two-ply or more (not made in paper mills) \$	8	X	S	321 037	N	X	N	N
32229154	Toilet tissue, rolls and ovals, retail packages (resale), regular type, single-ply (not made in paper mills) #	N	X	X	D	N	X	X	N
3222915433	Toilet tissue, rolls and ovals, retail packages (resale), regular type, single-ply (not made in paper mills) #	6	X	D	D	N	X	N	N
32229155	Toilet tissue, rolls and ovals, industrial, facial tissue, regular, interfolded and flat package type (not made in paper mills) #	N	X	X	D	N	X	X	N
3222915535	Toilet tissue, rolls and ovals, industrial, facial tissue type, two-ply or more (not made in paper mills) #	9	X	D	D	N	X	N	N
3222915541	Toilet tissue, rolls and ovals, industrial, regular type, single-ply (not made in paper mills) #	6	X	D	D	N	X	N	N
3222915551	Toilet tissue, interfolded and flat package (not made in paper mills) #	-	X	D	D	N	X	N	N

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322291	Sanitary paper products—Con.								
3222915	Sanitary tissue paper products (not made in paper mills)—Con.								
32229156	Paper towels (rolled, folded, or interfolded), industrial (not made in paper mills)	N	X	X	243 677	N	X	X	N
3222915661	Paper towels (rolled, folded, or interfolded), industrial (not made in paper mills) \$ 1,000 s tons	10	X	S	243 677	N	X	N	N
32229157	Paper towels (rolled, folded, or interfolded), retail packages (resale) (not made in paper mills) #	N	X	X	D	N	X	X	N
3222915771	Paper towels (rolled, folded, or interfolded), retail packages (resale), single-ply (not made in paper mills) # 1,000 s tons	7	X	D	D	N	X	N	N
3222915773	Paper towels (rolled, folded, or interfolded), retail packages (resale), two-ply or more (not made in paper mills) \$ 1,000 s tons	5	X	100.7	231 391	N	X	N	N
32229158	Other sanitary tissue paper products, except surgical and medical (not made in paper mills) #	N	X	X	D	N	X	X	N
3222915881	Paper wipers (windshield, industrial, and lithographic plate), except nonwoven (not made in paper mills) # 1,000 s tons	8	X	D	D	N	X	N	N
3222915891	Other sanitary paper products, including absorbent pads, toilet seat covers, bibs, headrests, tray covers, etc. (not made in paper mills) # 1,000 s tons	19	X	D	D	N	X	N	N
3222915Y	Sanitary tissue paper products (not made in paper mills), nsk	N	X	X	26 160	N	X	X	N
3222915YWV	Sanitary tissue paper products (not made in paper mills), nsk	N	X	X	26 160	N	X	X	N
322291W	Sanitary paper products, nsk, total	N	X	X	172 152	N	X	X	N
322291WY	Sanitary paper products, nsk, total	N	X	X	172 152	N	X	X	N
322291WYWW	Sanitary paper products, nsk, for nonadministrative-record establishments	N	X	X	69 924	N	X	X	N
322291WYWY	Sanitary paper products, nsk, for administrative-record establishments	N	X	X	102 228	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222911	SANITARY NAPKINS AND TAMPONS (NOT MADE IN PAPER MILLS)		
	United States	1 560 204	N
3222913	DISPOSABLE DIAPERS (USUALLY CONTAINING PULP OR CELLULOSE FIBERS) AND SIMILAR DISPOSABLE PRODUCTS (NOT MADE IN PAPER MILLS)		
	United States	4 130 948	N
	New Jersey	79 246	N
	Pennsylvania	279 528	N
	Wisconsin	332 702	N
3222915	SANITARY TISSUE PAPER PRODUCTS (NOT MADE IN PAPER MILLS)		
	United States	3 332 749	N
	Arizona	65 792	N
	Minnesota	22 079	N
	New York	203 916	N
	Wisconsin	1 367 306	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322291	SANITARY PAPER PRODUCT MFG				
32210027	Woodpulp (air dry basis) 1,000 s tons..	284.6	183 609	N	N
32212007	Paper 1,000 s tons..	P1 427.6	1 175 806	N	N
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. mil lb..	95.2	94 409	N	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes mil sq yd..	X	275 468	X	N
31323001	Nonwoven fabrics mil sq yd..	P6 190.6	504 493	N	N
001900A2	Packaging paper and plastics film, coated, laminated, printed, etc.	X	148 601	X	N
32552003	Glues and adhesives mil lb..	189.8	124 128	N	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	232 304	X	N
00970099	All other materials and components, parts, containers, and supplies	X	1 054 971	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	416 154	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322291 SANITARY PAPER PRODUCT MANUFACTURING

This U.S. industry comprises establishments primarily engaged in converting purchased sanitary paper stock or wadding into sanitary paper products, such as facial tissues and handkerchiefs, table napkins, toilet paper, towels, disposable diapers, sanitary napkins, and tampons.

The data published with NAICS code 322291 include the following SIC industries:

- 2676 Sanitary paper products (pt)
- 3842 Surgical appliances and supplies (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F.

Footnotes for Products Statistics and Materials Consumed by Kind

Part 1. Products Statistics (Tables 6a and 6b)

NAICS product code	Footnote
\$ 3222911111	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
\$ 3222911121	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
# 3222913111	The total for products 322121L111 and 3222913111 is: Quantity = 21,092.8 Mil and Value = \$4,894,272 thousand.
# 3222913121	The total for products 322121I131 and 3222913131 is: Quantity = (Not Collected) and Value = \$751,530 thousand.
# 3222913131	The total for products 322121L131 and 3222913131 is: Quantity = (Not Collected) and Value = \$237,758 thousand.
\$ 3222915111	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
# 32229152	The total for products 322121N2 and 32229152 is: Quantity = (Not Collected) and Value = \$1,497,708 thousand.
# 3222915221	The total for products 322121N221 and 3222915221 is: Quantity = 110.8 (1,000 s tons) and Value = \$171,865 thousand.
# 3222915223	The total for products 322121N223 and 3222915223 is: Quantity = 214.9 (1,000 tons) and Value = \$294,858 thousand.
# 3222915225	The total for products 322121N225 and 3222915225 is: Quantity = (suppressed) and Value = \$180,170 thousand.
\$ 3222915227	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
# 3222915229	The total for products 322121N229 and 3222915229 is: Quantity = 31.3 (1,000 s tons) and Value = \$67,555 thousand.
\$ 3222915331	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
# 32229154	The total for products 322121N4 and 32229154 is: Quantity = (Not Collected) and Value = \$1,016,067 thousand.
# 3222915433	The total for products 322121N433 and 3222915433 is: Quantity = (Suppressed) and Value = \$1,016,067 thousand.
# 32229155	The total for products 322121N5 and 32229155 is: Quantity = (Not Collected) and Value = \$1,764,024 thousand.
# 3222915535	The total for products 322121N535 and 3222915535 is: Quantity = 308.6 p (1,000 s tons) and Value = \$461,895 thousand.
# 3222915541	The total for products 322121N541 and 3222915541 is suppressed to avoid disclosure of individual companies.
# 3222915551	The total for products 322121N551 and 3222915551 is suppressed to avoid disclosure of individual companies.
\$ 3222915661	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
# 32229157	The total for products 322121N7 and 32229157 is: Quantity = (Not Collected) and Value = \$2,639,755 thousand.
# 3222915771	The total for products 322121N771 and 3222915771 is: Quantity = (Suppressed) and Value = \$1,625,746 thousand.
\$ 3222915773	This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D.
# 32229158	The total for products 322121N8 and 32229158 is: Quantity = (Not Collected) and Value = \$399,564 thousand.

Part 1. Products Statistics (Tables 6a and 6b)—Con.

NAICS product code	Footnote
# 3222915881	The total for products 322121N881 and 3222915881 is: Quantity = (Suppressed) and Value = \$163,313 thousand.
# 3222915891	The total for products 322121N891 and 3222915891 is: Quantity = 147.4 (1,000 s tons) and Value = \$236,251 thousand.

Part 2. Materials Consumed by Kind (Table 7)

Not applicable.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3221101	26111	26111	322121J	26767	26761 pt	3222110	26530	26530
322110100	2611100	2611100	322121J111	2676714	2676114 pt	3222110111	2653012	2653012
3221103	26113	26113	322121J121	2676751	2676151 pt	3222110114	2653014	2653014
3221103111	2611335	2611335	322121JYVW	2676700	2676100 pt	3222110221	2653013	2653013
3221103121	2611343	2611343	322121L pt.	26768	26763 pt	3222110341	2653016	2653016
3221103YVW	2611300	2611300	322121L1 pt.	38421 pt	38421 pt	3222110345	2653018	2653018
3221105	26114	26114	322121L111	2676800 pt	2676300 pt	3222110431	2653015	2653015
3221105111	2611432	2611432	322121L121	3842134	3842132 pt	3222110433	2653021	2653021
3221105121	2611466	2611466	322121L131	3842136	3842132 pt	3222110435	2653022	2653022
3221105131	2611472	2611472	322121LYVW pt.	2676800 pt	2676300 pt	3222110551	2653030	2653030
3221105141	2611478	2611478	322121LYVW pt.	3842100 pt	3842100 pt	3222110661	2653067	2653067
3221105YVW	2611400	2611400	322121N	26769	26764 pt	3222110665	2653051	2653051
3221107	26115	26115	322121N111	2676911	2676411 pt	3222110691	2653068	2653068
3221107111	2611511	2611511	322121N221	2676925	2676425 pt	3222110699	2653098	2653098
3221107121	2611513	2611513	322121N223	2676927	2676427 pt	3222110YVW	2653000	2653000
3221107131	2611517	2611517	322121N225	2676933	2676433 pt	3222120	26570	26570
3221107141	2611519	2611519	322121N227	2676935	2676435 pt	3222120111	2657014	2657014
3221107YVW	2611500	2611500	322121N229	2676937	2676437 pt	3222120221	2657021	2657021
322110W	26110	26110	322121N331	2676945	2676445 pt	3222120331	2657073	2657071 pt
322110WYVW	2611000	2611000	322121N433	2676947	2676447 pt	3222120335	2657075	2657071 pt
322110YVW	2611002	2611002	322121N535	2676941	2676441 pt	3222120441	2657081	2657081
3221211	26213	26213	322121N541	2676943	2676443 pt	3222120551	2657084	2657084
3221211111 pt.	2621311 pt.	2621315	322121N551	2676955	2676455 pt	3222120555	2657086	2657086
3221211111 pt.	2621311 pt.	2621329 pt	322121N661	2676971	2676471 pt	3222120661	2657095	2657015
322121221 pt.	2621321 pt.	2621316	322121N771	2676976	2676476 pt	3222120663	2657061	2657061
322121221 pt.	2621321 pt.	2621329 pt	322121N773	2676977	2676477 pt	3222120665	2657088	2657088
322121231 pt.	2621323 pt.	2621320	322121N881	2676981	2676481 pt	3222120667	2657090	2657090
322121231 pt.	2621323 pt.	2621329 pt	322121N891	2676989	2676499 pt	3222120671	2657095	2657095
322121YVW	2621300	2621300	322121NYVW	2676990	2676400 pt	3222120673	2657082	2657099 pt
3221213	26214	26214	322121W pt.	26210 pt	26210 pt	3222120675	2657031	2657031
3221213111	2621431	2621431	322121W pt.	26760 pt	26760 pt	3222120677	2657041	2657041
3221213115	2621432	2621432	322121WYVW pt.	38420 pt	38420 pt	3222120681	2657051	2657051
3221213221	2621437	2621437	322121WYVW pt.	2621000 pt	2621000 pt	3222120683	2657096	2657096
3221213225	2621441	2621441	322121WYVW pt.	2676000 pt	2676000 pt	3222120691	2657098	2657099 pt
3221213231	2621447	2621447	322121WYVW pt.	3842000 pt	3842000 pt	3222120YVW	2657000	2657000
3221213235	2621448	2621448	322121WYVW pt.	2621002 pt	2621002 pt	3222120YVW	2657002	2657002
3221213341	2621454	2621454	322121WYVW pt.	2676002 pt	2676002 pt	3222130	26520	26520
3221213345	2621455	2621455	322121WYVW pt.	3842002 pt	3842002 pt	3222130111	2652021	2652021
3221213351	2621456	2621456	3221221	26211	26211	3222130121	2652031	2652031
3221213461	2621460	2621460	3221221100	2621100	2621100	3222130131	2652041	2652041
3221213471	2621471	2621471	3221223	26212	26212	3222130141	2652051	2652051
3221213481	2621473	2621473	3221223111 pt.	2621213 pt.	2621215	3222130191 pt.	2652097 pt.	2652097 pt.
3221213491	2621489	2621489	3221223111 pt.	2621213 pt.	2621219	3222130191 pt.	2652097 pt.	2652071
3221213YVW	2621400	2621400	3221223121	2621227	2621227	3222130191 pt.	2652097 pt.	2652098
3221215	26215	26215	3221223YVW	2621200	2621200	3222130YVW	2652000	2652000
3221215111	2621531	2621531	322122W	26210 pt	26210 pt	3222130YVW	2652002	2652002
3221215121	2621532	2621532	322122WYVW	2621000 pt.	2621000 pt	3222141	26551	26551
3221215131	2621537	2621537	322122WYVW	2621002 pt.	2621002 pt	3222141100	2655100	2655100
3221215141	2621558	2621558	3221301	26311	26311	3222143	26552	26552
3221215YVW	2621500	2621500	3221301111	2631110	2631110	3222143111	2655221	2655221
3221217	26216	26216	3221301221	2631188	2631188	3222143221	2655231	2655231
3221217111 pt.	2621615 pt.	2621611	3221301YVW	2631100	2631100	3222143331	2655271	2655271
3221217111 pt.	2621615 pt.	2621619	3221303	26312	26312	3222143391	2655298	2655298
3221217121	2621627	2621627	3221303111	2631240	2631240	3222143YVW	2655200	2655200
3221217YVW	2621600	2621600	3221303221	2631261	2631261	3222144	26550	26550
3221219	26217	26217	3221303331	2631262	2631262	3222144YVW	2655000	2655000
3221219111	2621730	2621730	3221303341	2631263	2631263	3222144YVW	2655002	2655002
3221219121	2621750	2621750	3221303351	2631288	2631288	3222151	26561	26561
3221219131	2621760	2621760	3221303361	2631288	2631288	3222151100	2656100	2656100
3221219191	2621768	2621768	3221303YVW	2631200	2631200	3222153	26562	26562
3221219YVW	2621700	2621700	3221305	26313	26313	3222153111	2656233	2656233
322121A	26218	26218	3221305100	2631300	2631300	3222153121	2656235	2656235
322121A111	2621830	2621830	3221307	26314	26314	3222153YVW	2656200	2656200
322121A121	2621850	2621850	3221307111	2631420	2631420	3222155	26563	26563
322121A131	2621860	2621860	3221307221	2631410	2631410	3222155111	2656310	2656310
322121A141 pt.	2621870 pt.	2621864	3221307331	2631430	2631430	3222155121 pt.	2656397 pt.	2656312
322121A141 pt.	2621870 pt.	2621868	3221307341	2631446	2631446	3222155121 pt.	2656397 pt.	2656319
322121A151	2621883	2621883	3221307451	2631443	2631443	3222155YVW	2656300	2656300
322121AYVW	2621800	2621800	3221307461 pt.	2631441 pt.	2631444	322215W	26560	26560
322121C	26219	26219	3221307461 pt.	2631441 pt.	2631444	322215WYVW	2656000	2656000
322121C100	2621900	2621900	3221307461 pt.	2631441 pt.	2631445	322215WYVW	2656002	2656002
322121E	2621B	2621B	3221307571	2631450	2631450	3222211	26711	26711
322121E111	2621B22	2621B22	3221307575	2631481	2631481	3222211111	2671111	2671111
322121E121	2621B28	2621B28	3221307581	2631482	2631482	3222211121	2671115	2671115
322121EYVW	2621B00	2621B00	3221307591	2631488	2631488	3222211YVW	2671100	2671100
322121G	2621A	2621A	3221307YVW	2631400	2631400	3222213 pt.	26715 pt.	26713
322121G111	2621A11	2621A11	3221309	26318	26318	3222213111 pt.	2671511 pt.	2671300
322121G221	2621A60	2621A60	3221309100	2631800	2631800	3222213111 pt.	2671511 pt.	2671313
322121G331	2621A30	2621A30	322130W	26310	26310	3222213111 pt.	2671511 pt.	2671314
322121G341	2621A51	2621A51	322130WYVW	2631000	2631000	3222213221	2671521	2671320
322121G351	2621A73	2621A73	322130WYVW	2631002	2631002	3222213YVW	2671500	2671400 pt
322121G361	2621A78	2621A78						
322121G371	2621A81	2621A81						
322121G391	2621A88	2621A88						
322121GYVW	2621A00	2621A00						

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
322221W	26710 pt	26710 pt	3222241YVW	2674100	2674100	3222911	26762	26761 pt
322221WYWW	2671000 pt	2671000 pt	322224311	267421	267421	3222911111	2676214	267614 pt
322221WYVW	2671002 pt	2671002 pt	322224321	2674212	2674212	3222911121	2676251	2676151 pt
3222221	26721	26721	3222243YVW	2674200	2674200	3222911YVW	2676200	2676100 pt
3222221111	2672113	2672113	3222244W	26740	26740	3222913 pt	26765	26763 pt
3222221121	2672153	2672153	3222244YVW	2674000	2674000	3222913111	38421 pt	38421 pt
3222221YVW	2672100	2672100	3222244YVW	2674002	2674002	3222913121	3842133	3842132 pt
3222223	26722	26722	3222250 pt	34970 pt	34970 pt	3222913131	3842135	3842132 pt
3222223111	2672212	2672212	3222250YVW	34972	34972	3222913YVW pt	2676500 pt	2676300 pt
3222223121	2672230	2672230	3222250YVW	3497210	3497210	3222913YVW pt	3842100 pt	3842100 pt
3222223YVW	2672200	2672200	3222250206	3497222	3497222	3222915	26766	26764 pt
3222225	26723	26723	3222250311	3497225	3497225	3222915111	2676611	2676411 pt
3222225111	2672313	2672313	3222250416	3497228	3497228	3222915221	2676625	2676425 pt
3222225221	2672343	2672343	3222250421	3497241	3497241	3222915225	2676627	2676427 pt
3222225331	2672333	2672333	3222250YVW pt	3497000 pt	3497000 pt	3222915229	2676633	2676433 pt
3222225341	2672345	2672345	3222250YVW pt	3497200	3497200	3222915331	2676635	2676435 pt
3222225351	2672353	2672353	3222250YVW	3497002 pt	3497002 pt	3222915331	2676637	2676437 pt
3222225361	2672359	2672359	3222260 pt	26750 pt	26750 pt	3222915433	2676645	2676445 pt
3222225371	2672361	2672361	3222260100	26753	26753	3222915535	2676647	2676447 pt
3222225475	2672381	2672381	3222260YVW	2675300	2675300	3222915541	2676641	2676441 pt
3222225581	2672385	2672385	3222260YVW	2675000 pt	2675000 pt	3222915551	2676643	2676443 pt
3222225585	2672375	2672375	3222260YVW	2675002 pt	2675002 pt	3222915561	2676655	2676455 pt
3222225591	2672398	2672398	3222260YVW	2675002 pt	2675002 pt	3222915661	2676671	2676471 pt
3222225YVW	2672300	2672300	3222261	26751	26751	3222915771	2676676	2676476 pt
3222226	26791	26791	3222261111	2675110	2675110	3222915773	2676677	2676477 pt
3222226111	2679122	2679122	3222261121	2675112	2675112	3222915881	2676681	2676481 pt
3222226121 pt	2679125 pt	2679126	3222261121	2675111	2675111	3222915891	2676689	2676499 pt
3222226121 pt	2679125 pt	2679128	3222261131	2675112	2675112	3222915YVW	2676600	2676400 pt
3222226131	2679134	2679134	3222261131 pt	2675191 pt	2675120	322291W pt	26760	26760 pt
3222226141	2679136	2679136	3222261131 pt	2675191 pt	2675130	322291W pt	26760	26760 pt
3222226191	2679141	2679141	3222261YVW	2675100	2675100	322291W pt	38420 pt	38420 pt
3222226YVW	2679100	2679100	3222262	26793	26793	322291WYVW pt	2676000 pt	2676000 pt
3222227	26792	26792	3222262111	2679311	2679311	322291WYVW pt	3842000 pt	3842000 pt
3222227111	2679282	2679282	3222262121	2679311	2679311	322291WYVW pt	2676002 pt	2676002 pt
3222227121	2679291	2679291	3222262131	2679311	2679311	322291WYVW pt	3842002 pt	3842002 pt
3222227191	2679296	2679296	3222262191	2679311	2679311	322291WYVW pt	26794	26794
3222227YVW	2679200	2679200	3222262YVW	2679311	2679311	3222911100	2679400	2679400
3222229	26724	26724	3222263	26790	26790	3222993 pt	26752	26752
3222229111	2672445	2672445	3222263111	2679000 pt	2679000 pt	3222993 pt	26795	26795
3222229121	2672453	2672453	3222263121	2679002 pt	2679002 pt	3222993 pt	39999 pt	39999 pt
3222229131	2672455	2672455	3222263131	2679002 pt	2679002 pt	3222993111	2679521	2679521
3222229141	2672456	2672456	3222263191	2679002 pt	2679002 pt	3222993121	2679531	2679531
3222229151	2672469	2672469	3222263YVW	2679002 pt	2679002 pt	3222993221	2679541	2679541
3222229YVW	2672400	2672400	3222264	26770	26770	3222993231	2679548	2679548
322222W pt	26720	26720	3222264111	2677010	2677010	3222993241	2679551	2679551
322222W pt	26790 pt	26790 pt	3222264121	2677021	2677021	3222993251	2679554	2679554
322222WYVW pt	2672000	2672000	3222264131	2677022	2677022	3222993351 pt	2679550 pt	2679550 pt
322222WYVW pt	2679000 pt	2679000 pt	3222264191	2677040	2677040	3222993361	2679551	2679551
322222WYVW pt	2672002	2672002	3222264YVW	2677000	2677000	3222993371	2679561	2679561
322222WYVW pt	2679002 pt	2679002 pt	3222264YVW	2677002	2677002	3222993471 pt	2675200 pt	2675200 pt
3222231	26731	26731	3222265	26781	26781	3222993471 pt	2675200 pt	2675200 pt
3222231100	2673100	2673100	3222265111	2678111	2678111	3222993471 pt	2675200 pt	2675200 pt
3222233	26733 pt	26733 pt	3222265111	2678111	2678111	3222993471 pt	2675200 pt	2675200 pt
3222233111	2673306	2673311 pt	3222265121	2678113	2678113	3222993471 pt	2675200 pt	2675200 pt
3222233121	2673312	2673312	3222265131	2678121	2678121	3222993591 pt	2679598	2679598
3222233131 pt	2673315 pt	2673311 pt	3222265191	2678100	2678100	3222993591 pt	3999996 pt	3999913 pt
3222233131 pt	2673315 pt	2673314 pt	3222266	26782	26782	3222993591 pt	3999996 pt	3999999 pt
3222233YVW	2673300 pt	2673300 pt	3222266111	2678212	2678212	3222993YVW pt	2679500	2679500
322223W	26730 pt	26730 pt	3222266121	2678212	2678212	3222993YVW pt	3999900 pt	3999900 pt
322223WYVW	2673000 pt	2673000 pt	3222266131	2678225 pt	2678213	322299W pt	26750 pt	26750 pt
322223WYVW	2673002 pt	2673002 pt	3222266191	2678225 pt	2678221	322299W pt	26790 pt	26790 pt
3222241	26741	26741	3222266YVW	2678235	2678235	322299W pt	39990 pt	39990 pt
3222241111	2674111	2674111	3222266YVW	2678245	2678245	322299WYVW pt	2675000 pt	2675000 pt
3222241221	2674112	2674112	3222266YVW	2678251	2678251	322299WYVW pt	2679000 pt	2679000 pt
3222241231	2674113	2674113	3222266YVW	2678298	2678298	322299WYVW pt	3999000 pt	3999000 pt
3222241341	2674115	2674115	3222266YVW	2678200	2678200	322299WYVW pt	2675002 pt	2675002 pt
			3222267	26780	26780	322299WYVW pt	2679002 pt	2679002 pt
			3222267111	2678000	2678000	322299WYVW pt	3999002 pt	3999002 pt
			3222267121	2678002	2678002			

All Other Converted Paper Product Manufacturing

1997

Issued November 1999

EC97M-3222P

1997 Economic Census

Manufacturing

Industry Series



U S C E N S U S B U R E A U

Helping You Make Informed Decisions

U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU



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All Other Converted Paper Product Manufacturing

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1997 Economic Census

Manufacturing

Industry Series



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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322299	All other converted paper product mfg	530	606	24 188	702 182	18 775	37 163	444 558	2 070 295	1 907 645	3 995 782	122 988
267530	Die-cut paper & board (pt)	N	65	2 322	61 366	1 808	3 374	38 656	144 046	126 216	270 856	7 066
267930	Converted paper products, n.e.c. (pt)	N	541	21 866	640 816	16 967	33 789	405 902	1 926 249	1 781 429	3 724 926	115 922
399920	Manufacturing industries, n.e.c. (pt)	N	-	-	-	-	-	-	-	-	-	-

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments			All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
	E ¹	Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322299, ALL OTHER CONVERTED PAPER PRODUCT MFG												
United States	2	606	320	24 188	702 182	18 775	37 163	444 558	2 070 295	1 907 645	3 995 782	122 988
California	2	74	38	2 559	75 125	2 055	3 807	52 952	208 741	181 386	391 304	13 073
Georgia	1	21	12	1 230	34 338	937	2 012	26 002	216 534	119 488	336 977	5 565
Maryland	4	8	6	227	6 772	174	370	4 256	16 418	16 610	33 192	965
New York	4	41	22	1 295	44 111	989	2 064	23 699	89 244	100 712	187 947	8 140
Ohio	1	37	20	1 106	31 430	886	1 712	19 173	66 925	68 673	137 451	4 085
Oregon	-	6	2	133	4 367	101	188	2 623	8 565	4 173	12 720	318
Pennsylvania	2	37	21	2 360	62 373	1 724	3 052	33 099	172 670	204 212	381 277	12 054
South Carolina	4	12	4	304	8 207	265	504	6 240	17 427	29 679	47 821	1 617
Washington	-	19	8	446	13 394	319	532	7 150	39 573	45 242	86 899	1 953
Wisconsin	-	32	17	1 655	52 247	1 361	2 799	32 816	131 349	144 746	279 070	8 835

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
322299, ALL OTHER CONVERTED PAPER PRODUCT MFG		322299, ALL OTHER CONVERTED PAPER PRODUCT MFG—Con.	
Companies ¹	number.. 530	Value added	\$1,000.. 2 070 295
All establishments	number.. 606	Total inventories, beginning of year	\$1,000.. 447 759
Establishments with 1 to 19 employees	number.. 286	Finished goods inventories, beginning of year	\$1,000.. 238 707
Establishments with 20 to 99 employees	number.. 269	Work-in-process inventories, beginning of year	\$1,000.. 37 127
Establishments with 100 employees or more	number.. 51	Materials and supplies inventories, beginning of year	\$1,000.. 171 925
All employees	number.. 24 188	Total inventories, end of year	\$1,000.. 451 469
Total compensation ²	\$1,000.. 869 762	Finished goods inventories, end of year	\$1,000.. 222 354
Annual payroll	\$1,000.. 702 182	Work-in-process inventories, end of year	\$1,000.. 35 638
Total fringe benefits	\$1,000.. 167 580	Materials and supplies inventories, end of year	\$1,000.. 193 477
Production workers, average for year	number.. 18 775	Gross book value of total assets at beginning of year	\$1,000.. 1 237 311
Production workers on March 12	number.. 18 603	Total capital expenditures (new and used)	\$1,000.. 122 988
Production workers on May 12	number.. 18 605	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 17 975
Production workers on August 12	number.. 18 900	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 105 013
Production workers on November 12	number.. 18 992	Total retirements ²	\$1,000.. 43 644
Production-worker hours	1,000.. 37 163	Gross book value of total assets at end of year	\$1,000.. 1 316 655
Production-worker wages	\$1,000.. 444 558	Total depreciation during year ²	\$1,000.. 79 805
Total cost of materials	\$1,000.. 1 907 645	Total rental payments ²	\$1,000.. 67 108
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 620 349	Buildings and other structures rental payments ²	\$1,000.. 41 905
Cost of resales	\$1,000.. 185 210	Machinery and equipment rental payments ²	\$1,000.. 25 203
Cost of fuels	\$1,000.. 22 964	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 4 692
Cost of purchased electricity	\$1,000.. 45 785	Response coverage ratio ⁴	percent.. 64
Cost of contract work	\$1,000.. 33 337	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 21 060
Quantity of electricity purchased for heat and power	1,000 kWh.. 734 000	Response coverage ratio ⁴	percent.. 64
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 5 108
Total value of shipments	\$1,000.. 3 995 782	Response coverage ratio ⁴	percent.. 64
Primary products value of shipments	\$1,000.. 3 421 796	Cost of purchased legal services ³	\$1,000.. 2 276
Secondary products value of shipments	\$1,000.. 142 383	Response coverage ratio ⁴	percent.. 64
Total miscellaneous receipts	\$1,000.. 431 603	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 3 131
Value of resales	\$1,000.. 288 067	Response coverage ratio ⁴	percent.. 64
Contract receipts	\$1,000.. 127 350	Cost of purchased advertising services ³	\$1,000.. 5 892
Other miscellaneous receipts	\$1,000.. 16 186	Response coverage ratio ⁴	percent.. 64
Primary products specialization ratio	percent.. 96	Cost of purchased software and other data processing services ³	\$1,000.. 2 812
Value of primary products shipments made in all industries	\$1,000.. 3 704 327	Response coverage ratio ⁴	percent.. 64
Value of primary products shipments made in this industry	\$1,000.. 3 421 796	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 4 273
Value of primary products shipments made in other industries	\$1,000.. 282 531	Response coverage ratio ⁴	percent.. 64
Coverage ratio	percent.. 92		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322299, ALL OTHER CONVERTED PAPER PRODUCT MFG												
All establishments	2	606	320	24 188	702 182	18 775	37 163	444 558	2 070 295	1 907 645	3 995 782	122 988
Establishments with 1 to 4 employees	7	111	—	219	13 997	177	308	9 475	12 879	13 489	26 639	2 790
Establishments with 5 to 9 employees	5	71	—	492	12 253	385	664	8 054	30 090	37 019	67 336	2 147
Establishments with 10 to 19 employees	2	104	—	1 434	40 664	1 047	2 065	24 655	99 760	116 168	218 585	9 247
Establishments with 20 to 49 employees	2	173	173	5 377	148 223	4 028	7 530	86 915	412 804	404 262	818 299	29 734
Establishments with 50 to 99 employees	2	96	96	6 475	176 149	5 081	9 984	109 198	477 454	527 107	1 011 125	30 819
Establishments with 100 to 249 employees	1	39	39	5 620	168 339	4 519	9 358	112 246	485 617	471 786	971 363	22 028
Establishments with 250 to 499 employees	1	10	10	D	D	D	D	D	D	D	D	D
Establishments with 500 to 999 employees	—	2	2	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	96	—	502	9 932	414	574	6 997	23 016	26 396	49 931	2 034

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
322299	All other converted paper product mfg	606	24 188	702 182	18 775	37 163	444 558	2 070 295	1 907 645	3 995 782	122 988
3222991	Molded pulp goods	27	3 287	108 782	2 787	6 126	84 274	315 930	160 801	475 400	19 106
3222993	Other converted paper and paperboard products, nec	294	15 482	448 337	11 661	23 096	259 670	1 429 846	1 420 391	2 860 118	75 468

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
322299	Other converted paper products	N	X	X	3 704 327	N	X	X	N
3222991	Molded pulp goods, including egg cartons, florist pots, food trays, etc.	N	X	X	466 042	N	X	X	354 360
32229911	Molded pulp goods, including egg cartons, florist pots, food trays, etc.	N	X	X	466 042	N	X	X	N
3222991100	Molded pulp goods, including egg cartons, florist pots, food trays, etc.	18	X	X	466 042	12	X	X	354 360
3222993	Other converted paper and paperboard products, nec.	N	X	X	2 694 569	N	X	X	N
32229931	Paper party and holiday goods and accessories, including novelties, displays, decorations (except crepe paper), party hats, etc.	N	X	X	195 425	N	X	X	N
3222993111	Paper party and holiday goods and accessories, including novelties, displays, decorations (except crepe paper), party hats, etc.	12	X	X	195 425	22	X	X	153 619
32229932	Cellulose insulation, paper dollies, placemats, tray dollies, and paper folders and mounts, all types, except file folders.	N	X	X	183 953	N	X	X	N
3222993221	Cellulose insulation.	24	X	X	62 670	32	X	X	56 854
3222993231	Paper dollies, placemats, and tray dollies (or tray covers).	8	X	X	57 428	12	X	X	54 287
3222993241	Paper folders and mounts, all types, except file folders.	8	X	X	63 855	17	X	X	67 251
32229933	Paper filters and paper wrapping products, nec, including creped wadding and crepe paper (except fine crepe paper).	N	X	X	228 422	N	X	X	N
3222993351	Paper filters, including coffee.	7	X	X	121 020	N	X	X	N
3222993361	Paper wrapping products, nec, including creped wadding and crepe paper (except fine crepe paper).	26	X	X	107 402	31	X	X	84 690
32229934	Die-cut paper and paperboard products, except office supplies, including fillers and flats for egg cases (except molded pulp), bottle caps, closures and lids, unprinted cards.	N	X	X	209 029	N	X	X	N
3222993471	Die-cut paper and paperboard products, except office products, including fillers and flats for egg cases (except molded pulp), bottle caps, closures and lids, unprinted cards.	57	X	X	209 029	N	X	X	N
32229935	Other miscellaneous paper and paperboard products, nec, including fine crepe paper; unprinted tags, tickets, and labels; cigarette paper; paper draperies and table skirts; etc.	N	X	X	1 720 561	N	X	X	N
3222993591	Other miscellaneous paper and paperboard products, nec, including fine crepe paper; unprinted tags, tickets, and labels; cigarette paper; paper draperies and table skirts; etc.	206	X	X	1 720 561	N	X	X	N
3222993Y	Other converted paper and paperboard products, nsk.	N	X	X	157 179	N	X	X	N
3222993YWV	Other converted paper and paperboard products, nsk.	N	X	X	157 179	N	X	X	N
322299W	All other converted paper products, nsk, total.	N	X	X	543 716	N	X	X	N
322299WY	All other converted paper products, nsk, total.	N	X	X	543 716	N	X	X	N
322299WYWW	All other converted paper products, nsk, for nonadministrative-record establishments.	N	X	X	498 097	N	X	X	N
322299WYWY	All other converted paper products, nsk, for administrative-record establishments.	N	X	X	45 619	N	X	X	N

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3222991	MOLDED PULP GOODS, INCLUDING EGG CARTONS, FLORIST POTS, FOOD TRAYS, ETC.		
	United States	466 042	354 360
	Indiana	37 053	N
3222993	OTHER CONVERTED PAPER AND PAPERBOARD PRODUCTS, NEC		
	United States	2 694 569	N
	Alabama	29 688	N
	California	200 477	N
	Connecticut	61 864	N
	Florida	37 776	N
	Georgia	279 950	N
	Illinois	131 644	N
	Indiana	79 973	N
	Iowa	8 103	N
	Kentucky	28 724	N
	Maryland	11 766	N
	Massachusetts	169 838	N
	Michigan	129 119	N
	Minnesota	39 912	N
	Missouri	24 223	N
	Nevada	6 056	N
	New Jersey	105 161	N
	New York	73 542	N
	North Carolina	37 941	N
	Ohio	108 429	N
	Pennsylvania	268 062	N
	Rhode Island	5 856	N
	South Carolina	34 433	N
	Tennessee	56 395	N
	Texas	43 283	N
	Utah	7 553	N
	Virginia	65 310	N
	Washington	82 005	N
	Wisconsin	283 117	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
322299	ALL OTHER CONVERTED PAPER PRODUCT MFG				
00190005	Recovered paper, all types	X	40 589	X	N
32210005	Paper and paperboard, except boxes and containers	X	634 844	X	N
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	5 135	X	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	17 985	X	N
31332007	Coated or laminated fabrics, including vinyl coated	X	6 363	X	N
32552003	Glues and adhesives	X	17 265	X	N
32591003	Printing ink	X	5 511	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	41 532	X	N
00970099	All other materials and components, parts, containers, and supplies	X	413 613	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	437 512	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

322299 ALL OTHER CONVERTED PAPER PRODUCT MANUFACTURING

This U.S. industry comprises establishments primarily engaged in converting paper or paperboard into products (except containers, bags, coated and treated paper, stationery products, and sanitary paper products) or converting pulp into pulp products, such as egg cartons, food trays, and other food containers from molded pulp.

The data published with NAICS code 322299 include the following SIC industries:

- 2675 Die-cut paper and board (pt)
- 2679 Converted paper products, n.e.c. (pt)
- 3999 Manufacturing industries, n.e.c. (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3221101	26111	26111	322121J	26767	26761 pt	3222110	26530	26530
322110100	2611100	2611100	322121J111	2676714	2676114 pt	3222110111	2653012	2653012
3221103	26113	26113	322121J121	2676751	2676151 pt	3222110114	2653014	2653014
3221103111	2611335	2611335	322121JYVW	2676700	2676100 pt	3222110221	2653013	2653013
3221103121	2611343	2611343	322121L pt.	26768	26763 pt	3222110341	2653016	2653016
3221103YVW	2611300	2611300	322121L1 pt.	38421 pt	38421 pt	3222110345	2653018	2653018
3221105	26114	26114	322121L111	2676800 pt	2676300 pt	3222110431	2653015	2653015
3221105111	2611432	2611432	322121L121	3842134	3842132 pt	3222110433	2653021	2653021
3221105121	2611466	2611466	322121L131	3842136	3842132 pt	3222110435	2653022	2653022
3221105131	2611472	2611472	322121LYVW pt.	2676800 pt	2676300 pt	3222110437	2653030	2653030
3221105141	2611478	2611478	322121LYVW pt.	3842100 pt	3842100 pt	3222110551	2653067	2653067
3221105YVW	2611400	2611400	322121N	26769	26764 pt	3222110661	2653051	2653051
3221107	26115	26115	322121N111	2676911	2676411 pt	3222110665	2653068	2653068
3221107111	2611511	2611511	322121N221	2676925	2676425 pt	3222110691	2653098	2653098
3221107121	2611513	2611513	322121N223	2676927	2676427 pt	3222110YVW	2653000	2653000
3221107131	2611517	2611517	322121N225	2676933	2676433 pt	3222120	26570	26570
3221107141	2611519	2611519	322121N227	2676935	2676435 pt	3222120111	2657014	2657014
3221107YVW	2611500	2611500	322121N229	2676937	2676437 pt	3222120221	2657021	2657021
322110W	26110	26110	322121N331	2676945	2676445 pt	3222120331	2657073	2657071 pt
322110WYVW	2611000	2611000	322121N433	2676947	2676447 pt	3222120335	2657075	2657071 pt
322110YYVW	2611002	2611002	322121N535	2676941	2676441 pt	3222120441	2657081	2657081
3221211	26213	26213	322121N541	2676943	2676443 pt	3222120551	2657084	2657084
3221211111 pt.	2621311 pt.	2621315	322121N551	2676955	2676455 pt	3222120555	2657086	2657086
3221211111 pt.	2621311 pt.	2621329 pt	322121N661	2676971	2676471 pt	3222120661	2657015	2657015
3221211221 pt.	2621321 pt.	2621316	322121N671	2676976	2676476 pt	3222120663	2657061	2657061
3221211221 pt.	2621321 pt.	2621329 pt	322121N773	2676977	2676477 pt	3222120665	2657088	2657088
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1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
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3222229YVW	2672400	2672400	3222230131	2677022	2677022	3222993591 pt	2679598	2679598
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3222241221	2674112	2674112	3222233WYVW	2678000	2678000	3222999WYVWY pt	2679002 pt	2679002 pt
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3222241341	2674115	2674115	3222233YVWY	2678002	2678002	3222999WYVWY pt	3999002 pt	3999002 pt

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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Compan-ies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-di-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323110	Commercial lithographic printing	18 030	18 622	415 105	13 714 396	300 747	586 552	8 631 629	29 589 788	20 682 253	50 178 715	3 009 681
275210	Commercial printing, lithographic (pt)	N	18 594	414 750	13 704 699	300 505	586 093	8 626 162	29 564 815	20 669 887	50 140 680	3 006 686
277110	Greeting cards (pt)	N	28	355	9 697	242	459	5 467	24 973	12 366	38 035	2 995
399925	Manufacturing industries, n.e.c. (pt)	N	-	-	-	-	-	-	-	-	-	-

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-di-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323110, COMMERCIAL LITHOGRAPHIC PRINTING												
United States	2	18 622	4 082	415 105	13 714 396	300 747	586 552	8 631 629	29 589 788	20 682 253	50 178 715	3 009 681
Alabama	3	236	36	3 620	110 661	2 572	4 819	65 908	211 593	202 887	415 450	20 159
Alaska	4	28	3	267	7 901	193	377	5 298	14 413	7 743	22 104	646
Arizona	1	278	60	4 329	119 106	2 962	5 601	71 880	252 810	163 696	416 949	34 220
Arkansas	1	129	32	2 660	72 076	1 991	3 754	45 526	169 848	128 189	292 918	23 806
California	2	2 297	439	39 454	1 389 270	27 807	55 856	844 908	2 997 976	2 102 999	5 111 977	270 333
Colorado	2	341	64	5 824	185 876	4 097	7 924	109 397	413 044	312 407	726 015	33 193
Connecticut	2	315	84	7 847	292 126	5 549	11 255	178 574	572 914	459 480	1 031 093	34 354
Delaware	4	37	8	535	15 897	365	679	9 735	28 583	15 565	44 338	3 413
District of Columbia	2	44	12	669	24 745	461	890	15 653	50 175	38 940	89 257	2 949
Florida	3	944	158	13 745	400 887	9 798	18 496	249 860	837 799	613 490	1 447 735	85 674
Georgia	2	529	102	11 048	363 569	7 768	15 304	223 297	793 459	554 980	1 347 843	58 905
Hawaii*	-	47	12	1 025	24 838	556	1 127	15 701	49 266	26 673	75 948	6 478
Idaho	2	87	11	867	19 476	585	929	12 238	39 437	23 359	62 608	5 205
Illinois	1	1 009	266	30 236	1 145 435	22 178	45 977	723 871	2 425 100	1 752 625	4 155 493	235 246
Indiana	1	396	103	8 171	251 261	5 820	11 787	155 700	493 283	480 061	970 386	47 383
Iowa	2	203	58	5 124	145 519	3 726	7 293	92 035	319 861	274 370	591 724	34 231
Kansas	-	206	48	4 565	146 295	3 484	6 501	90 858	425 346	316 265	740 772	32 528
Kentucky	-	201	47	9 052	277 045	7 405	15 035	201 022	664 932	388 278	1 047 649	57 632
Louisiana	2	175	36	2 330	59 524	1 617	2 745	34 996	118 019	83 215	199 126	13 906
Maine	-	87	16	1 796	46 519	1 443	2 860	35 445	105 223	103 826	209 081	7 919
Maryland	1	353	103	9 529	355 565	7 174	13 833	223 459	675 538	439 516	1 113 552	100 669
Massachusetts	2	490	128	11 486	425 727	8 063	16 078	257 883	824 940	540 877	1 367 422	70 454
Michigan	1	660	131	12 484	399 969	8 916	17 495	242 903	973 409	694 537	1 665 119	68 370
Minnesota	1	433	140	22 423	741 355	16 030	31 254	459 592	1 547 455	1 156 788	2 706 640	143 407
Mississippi	1	105	17	1 810	47 172	1 399	2 574	33 837	95 990	64 471	161 300	10 976
Missouri	2	446	97	9 618	321 280	6 833	12 907	192 710	605 876	438 100	1 039 172	43 963
Montana	2	58	10	655	13 862	477	800	9 343	26 502	16 524	43 040	1 921
Nebraska	1	127	27	2 831	79 274	2 193	3 849	51 136	167 234	126 980	294 151	20 916
Nevada	1	74	14	1 225	36 045	926	1 626	23 068	76 581	58 475	136 255	12 028
New Hampshire	3	113	25	2 452	76 987	1 843	3 531	47 495	133 351	105 423	241 235	14 718
New Jersey	3	684	149	15 432	651 282	10 661	21 379	401 200	1 294 359	940 040	2 231 834	108 504
New Mexico	2	85	15	922	20 242	650	1 030	12 503	44 216	40 093	84 923	3 332
New York	3	1 351	279	25 428	928 196	18 196	35 942	579 525	2 455 987	1 317 529	3 770 393	478 262
North Carolina	1	482	94	8 237	259 791	5 950	11 484	165 624	603 877	437 510	1 037 249	72 885
North Dakota	2	43	11	621	13 942	475	838	9 835	32 903	15 638	48 518	2 548
Ohio	1	823	208	21 935	686 733	16 055	31 688	434 660	1 448 594	956 364	2 404 685	104 482
Oklahoma	3	203	32	3 039	80 742	2 272	4 147	53 187	182 344	172 151	345 660	16 668
Oregon	-	263	44	4 038	131 396	2 872	5 193	82 243	278 749	236 369	513 945	21 215
Pennsylvania	1	826	217	26 758	889 791	19 553	38 762	587 717	2 012 903	1 323 623	3 335 070	202 331
Rhode Island	5	88	20	1 496	49 507	1 035	1 917	28 813	102 781	69 514	173 201	9 912
South Carolina	3	198	37	2 919	79 996	2 054	3 700	48 478	161 450	97 693	255 598	11 953
South Dakota	2	44	9	618	13 057	461	737	8 128	26 274	17 124	43 564	1 535
Tennessee	2	378	93	10 817	335 794	8 545	16 968	218 743	713 778	524 648	1 223 596	65 262
Texas	2	1 228	234	22 957	699 706	16 801	31 570	436 328	1 513 794	1 063 362	2 570 837	129 439
Utah	3	121	35	2 478	68 803	1 918	3 475	43 360	135 988	104 772	240 221	9 175
Vermont	2	50	16	1 703	51 382	1 228	2 596	35 059	95 591	78 981	174 136	6 710
Virginia	2	409	87	10 778	347 981	7 628	14 577	232 512	679 169	537 686	1 216 046	148 816
Washington	2	362	69	5 834	188 620	3 794	7 069	106 768	359 936	229 161	589 715	34 696
West Virginia	1	61	9	990	25 363	772	1 305	17 754	46 940	29 319	76 081	4 332
Wisconsin	-	445	132	20 146	590 746	15 404	28 681	402 163	1 280 064	792 468	2 059 418	81 630
Wyoming	2	30	5	282	6 064	192	338	3 701	10 134	7 469	17 673	752

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
323110, COMMERCIAL LITHOGRAPHIC PRINTING		323110, COMMERCIAL LITHOGRAPHIC PRINTING	
— Con.		— Con.	
Companies ¹	number.. 18 030	Value added	\$1,000.. 29 589 788
All establishments	number.. 18 622	Total inventories, beginning of year	\$1,000.. 2 899 090
Establishments with 1 to 19 employees	number.. 14 540	Finished goods inventories, beginning of year	\$1,000.. 383 847
Establishments with 20 to 99 employees	number.. 3 275	Work-in-process inventories, beginning of year	\$1,000.. 932 976
Establishments with 100 employees or more	number.. 807	Materials and supplies inventories, beginning of year	\$1,000.. 1 582 267
All employees	number.. 415 105	Total inventories, end of year	\$1,000.. 3 047 112
Total compensation ²	\$1,000.. 16 299 850	Finished goods inventories, end of year	\$1,000.. 418 889
Annual payroll	\$1,000.. 13 714 396	Work-in-process inventories, end of year	\$1,000.. 991 260
Total fringe benefits	\$1,000.. 2 585 454	Materials and supplies inventories, end of year	\$1,000.. 1 636 963
Production workers, average for year	number.. 300 747	Gross book value of total assets at beginning of year	\$1,000.. 22 152 433
Production workers on March 12	number.. 299 222	Total capital expenditures (new and used)	\$1,000.. 3 009 681
Production workers on May 12	number.. 299 304	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 436 003
Production workers on August 12	number.. 300 522	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 2 573 678
Production workers on November 12	number.. 303 940	Total retirements ²	\$1,000.. 724 133
Production-worker hours	1,000.. 586 552	Gross book value of total assets at end of year	\$1,000.. 24 437 981
Production-worker wages	\$1,000.. 8 631 629	Total depreciation during year ²	\$1,000.. 1 719 506
Total cost of materials	\$1,000.. 20 682 253	Total rental payments ²	\$1,000.. 1 209 413
Cost of materials, parts, containers, etc., consumed	\$1,000.. 16 660 337	Buildings and other structures rental payments ²	\$1,000.. 530 056
Cost of resales	\$1,000.. 1 137 583	Machinery and equipment rental payments ²	\$1,000.. 679 357
Cost of fuels	\$1,000.. 144 311	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 100 132
Cost of purchased electricity	\$1,000.. 476 008	Response coverage ratio ⁴	percent.. 70
Cost of contract work	\$1,000.. 2 264 014	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 11 425 510
Quantity of electricity purchased for heat and power	1,000 kWh.. 7 758 576	Response coverage ratio ⁴	percent.. 70
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 44 000 224
Total value of shipments	\$1,000.. 50 178 715	Response coverage ratio ⁴	percent.. 70
Primary products value of shipments	\$1,000.. 45 392 837	Cost of purchased legal services ³	\$1,000.. 1 964 250
Secondary products value of shipments	\$1,000.. 2 704 062	Response coverage ratio ⁴	percent.. 70
Total miscellaneous receipts	\$1,000.. 2 081 816	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 33 526 405
Value of resales	\$1,000.. 1 634 036	Response coverage ratio ⁴	percent.. 70
Contract receipts	\$1,000.. -	Cost of purchased advertising services ³	\$1,000.. 32 330 094
Other miscellaneous receipts	\$1,000.. 447 780	Response coverage ratio ⁴	percent.. 70
Primary products specialization ratio	percent.. 94	Cost of purchased software and other data processing services ³	\$1,000.. 1 496 681
Value of primary products shipments made in all industries	\$1,000.. 47 539 599	Response coverage ratio ⁴	percent.. 70
Value of primary products shipments made in this industry	\$1,000.. 45 392 837	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 3 681 936
Value of primary products shipments made in other industries	\$1,000.. 2 146 762	Response coverage ratio ⁴	percent.. 70
Coverage ratio	percent.. 95		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323110, COMMERCIAL LITHOGRAPHIC PRINTING												
All establishments	2	18 622	4 082	415 105	13 714 396	300 747	586 552	8 631 629	29 589 788	20 682 253	50 178 715	3 009 681
Establishments with 1 to 4 employees	7	6 942	—	15 331	331 331	11 197	16 415	212 920	702 918	456 293	1 157 739	92 560
Establishments with 5 to 9 employees	3	4 436	—	29 661	724 245	21 315	34 260	462 972	1 474 711	925 609	2 397 042	110 559
Establishments with 10 to 19 employees	2	3 162	—	42 431	1 202 138	29 328	53 077	744 230	2 343 085	1 491 769	3 831 763	198 521
Establishments with 20 to 49 employees	2	2 340	2 340	71 690	2 337 778	49 968	95 856	1 366 779	4 663 167	2 865 789	7 532 866	419 502
Establishments with 50 to 99 employees	2	936	936	65 069	2 315 261	45 880	91 695	1 376 817	4 707 131	3 060 455	7 762 078	464 426
Establishments with 100 to 249 employees	1	590	590	88 434	3 322 573	63 846	130 634	2 029 036	7 275 596	5 556 389	12 800 803	641 160
Establishments with 250 to 499 employees	2	158	158	54 691	1 870 393	40 559	85 089	1 227 819	4 322 399	3 423 297	7 732 966	369 449
Establishments with 500 to 999 employees	2	46	46	31 548	1 149 962	25 200	53 106	854 034	2 937 828	2 114 110	5 026 890	610 377
Establishments with 1,000 to 2,499 employees	—	12	12	16 250	460 715	13 454	26 420	357 022	1 162 953	788 542	1 936 568	103 127
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	5 590	—	16 900	309 712	12 200	15 323	198 011	633 967	415 416	1 048 351	47 698

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323110	Commercial lithographic printing	18 622	415 105	13 714 396	300 747	586 552	8 631 629	29 589 788	20 682 253	50 178 715	3 009 681
3231101	Magazine and periodical printing (lithographic) (offset)	548	47 634	1 534 935	38 643	80 393	1 128 446	3 224 903	2 209 288	5 408 188	320 241
3231103	Label and wrapper printing (lithographic) (offset)	312	13 252	468 227	9 639	19 880	293 470	1 038 600	708 393	1 735 787	82 810
3231105	Catalog and directory printing (lithographic) (offset)	410	27 531	927 452	21 762	43 861	653 077	2 176 214	2 061 936	4 221 823	180 663
3231107	Financial and legal printing (lithographic) (offset)	212	14 056	558 960	9 779	20 103	332 012	1 470 222	682 652	2 155 851	81 145
3231109	Advertising printing (lithographic) (offset)	2 714	133 237	4 974 707	95 295	191 760	2 984 567	10 396 516	7 778 201	18 148 981	1 036 045
323110B	Other general job printing, nec (lithographic) (offset)	4 617	97 310	2 921 609	66 305	127 480	1 775 341	6 450 345	4 087 966	10 531 579	945 963

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323110	Commercial lithographic printing	N	X	X	47 539 599	N	X	X	N
3231101	Magazine and periodical printing (lithographic) (offset)	N	X	X	5 239 054	N	X	X	4 643 410
32311011	Magazine and periodical printing, (lithographic) (offset)	N	X	X	4 730 010	N	X	X	N
3231101111	Magazine and periodical printing (excluding Sunday magazine and comic supplements) (lithographic), sheet-fed	679	X	X	954 101	661	X	X	693 427
3231101113	Magazine and periodical printing (excluding Sunday magazine and comic supplements) (lithographic), web-fed	251	X	X	3 602 132	261	X	X	3 255 762
3231101121	Magazine and comic supplement printing (lithographic), for Sunday newspapers	16	X	X	173 777	20	X	X	198 532
3231101Y	Magazine and periodical printing (lithographic), nsk	N	X	X	509 044	N	X	X	N
3231101YWV	Magazine and periodical printing (lithographic), nsk	N	X	X	509 044	N	X	X	495 689
3231103	Label and wrapper printing (lithographic) (offset)	N	X	X	1 935 075	N	X	X	1 539 256
32311031	Label and wrapper printing (lithographic)	N	X	X	1 688 313	N	X	X	N
3231103111	Label printing (lithographic), custom and stock labels, including bordered, made of paper, flat (except pressure-sensitive)	311	X	X	814 052	268	X	X	605 221
3231103116	Label printing (lithographic), custom and stock labels, including bordered, made of paper, rolls (except pressure-sensitive)	29	X	X	41 000	25	X	X	49 715
3231103121	Label printing (lithographic), custom and stock labels, including bordered, made of paper, pressure-sensitive (self-adhesive)	202	X	X	315 873	161	X	X	204 593
3231103126	Label printing (lithographic), custom and stock labels, including bordered, made of materials other than paper or cloth	39	X	X	110 214	34	X	X	38 901
3231103131	Printed rolls and sheets for packaging purposes (printing only) (lithographic), made of paper (single-web)	87	X	X	321 513	55	X	X	163 503
3231103136	Printed rolls and sheets for packaging purposes (printing only) (lithographic), made of materials other than paper or cloth, including multiweb structures	31	X	X	85 661	23	X	X	195 314
3231103Y	Label and wrapper printing (lithographic), nsk	N	X	X	246 762	N	X	X	N
3231103YWV	Label and wrapper printing (lithographic), nsk	N	X	X	246 762	N	X	X	282 009
3231105	Catalog and directory printing (lithographic) (offset)	N	X	X	5 074 321	N	X	X	3 963 868
32311051	Catalog and directory printing (lithographic)	N	X	X	4 627 450	N	X	X	N
3231105111	Catalog printing (lithographic), including direct mail catalogs, sheet-fed	894	X	X	861 037	891	X	X	692 146
3231105113	Catalog printing (lithographic), including direct mail catalogs, web-fed	239	X	X	2 337 062	309	X	X	1 853 369
3231105121	Telephone directory printing (lithographic)	46	X	X	1 204 679	36	X	X	846 316
3231105126	Other directory printing (lithographic), including business reference services, sheet-fed	104	X	X	116 903	87	X	X	51 871
3231105128	Other directory printing (lithographic), including business reference services, web-fed	45	X	X	107 769	51	X	X	135 450
3231105Y	Catalog and directory printing (lithographic), nsk	N	X	X	446 871	N	X	X	N
3231105YWV	Catalog and directory printing (lithographic), nsk	N	X	X	446 871	N	X	X	384 716
3231107	Financial and legal printing (lithographic) (offset)	N	X	X	2 600 146	N	X	X	1 775 814
32311071	Financial and legal printing (lithographic)	N	X	X	2 344 106	N	X	X	N
3231107111	SEC filing and prospectus printing (lithographic), sheet-fed	62	X	X	106 305	47	X	X	96 296
3231107113	SEC filing and prospectus printing (lithographic), web-fed	36	X	X	482 282	22	X	X	254 664
3231107121	Annual report and other corporate financial printing (lithographic), sheet-fed	497	X	X	470 374	406	X	X	325 947
3231107123	Annual report and other corporate financial printing (lithographic), web-fed	63	X	X	389 585	67	X	X	164 152
3231107131	Other financial and legal printing (lithographic), including insurance forms, briefs, etc. (except checkbooks), sheet-fed	164	X	X	149 045	186	X	X	139 967

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323110	Commercial lithographic printing—Con.								
3231107	Financial and legal printing (lithographic) (offset)—Con.								
32311071	Financial and legal printing (lithographic)—Con.								
3231107133	Other financial and legal printing (lithographic), including insurance forms, briefs, etc. (except checkbooks) web-fed	30	X	X	94 870	40	X	X	67 522
3231107141	Bank printing (lithographic), excluding bank forms and checkbooks, sheet-fed	86	X	X	407 658	110	X	X	118 934
3231107143	Bank printing (lithographic), excluding bank forms and checkbooks, web-fed	58	X	X	116 884	60	X	X	223 685
3231107151	Bank form printing (lithographic), including passbooks, debit-credit slips, ledger and statement sheets, installment-loan coupons, etc. (except checkbooks)	59	X	X	127 103	66	X	X	92 528
3231107Y	Financial and legal printing (lithographic), nsk	N	X	X	256 040	N	X	X	N
3231107YVW	Financial and legal printing (lithographic), nsk	N	X	X	256 040	N	X	X	292 119
3231109	Advertising printing (lithographic) (offset)	N	X	X	15 050 733	N	X	X	13 218 922
32311091	Direct mail advertising printing (lithographic), including circulars, letters, pamphlets, cards, etc.	N	X	X	4 333 586	N	X	X	N
3231109111	Direct mail advertising printing (lithographic), including circulars, letters, pamphlets, cards, etc., sheet-fed	1 496	X	X	2 121 760	1 569	X	X	1 649 528
3231109113	Direct mail advertising printing (lithographic), including circulars, letters, pamphlets, cards, etc., web-fed	301	X	X	2 211 826	409	X	X	1 864 492
32311092	Advertising printing (lithographic), except direct mail advertising	N	X	X	8 912 204	N	X	X	N
3231109221	Display advertising poster printing (lithographic), including outdoor advertising, car cards, window, etc.	326	X	X	299 715	297	X	X	224 527
3231109226	Counter, floor display, point-of-purchase, and other advertising display material printing (lithographic), sheet-fed	502	X	X	872 332	442	X	X	577 217
3231109228	Counter, floor display, point-of-purchase, and other advertising display material printing (lithographic), web-fed	41	X	X	154 374	48	X	X	117 533
3231109236	Preprinted newspaper advertising insert printing (lithographic) (advertising supplements not regularly issued), rolls, including hi-fi and specticolor	57	X	X	371 975	87	X	X	288 980
3231109241	Preprinted newspaper advertising insert printing (lithographic) (advertising supplements not regularly issued), sections (two pages or more)	70	X	X	1 523 112	168	X	X	1 525 935
3231109246	Shopping news printing (lithographic)	69	X	X	190 952	109	X	X	97 145
3231109251	Book jacket printing (lithographic)	53	X	X	100 807	58	X	X	133 694
3231109256	Other advertising printing (lithographic), including brochures, magazine inserts, etc., sheet-fed	1 464	X	X	3 381 270	1 754	X	X	2 694 879
3231109258	Other advertising printing (lithographic), including brochures, magazine inserts, etc., web-fed	270	X	X	2 017 667	378	X	X	1 913 038
3231109Y	Advertising printing (lithographic), nsk	N	X	X	1 804 943	N	X	X	N
3231109YVW	Advertising printing (lithographic), nsk	N	X	X	1 804 943	N	X	X	2 131 954
323110B	Other general job printing, nec (lithographic) (offset)	N	X	X	10 035 492	N	X	X	N
323110B1	Other general job printing (lithographic)	N	X	X	7 412 783	N	X	X	N
323110B111	Newspaper printing (lithographic)	170	X	X	1 722 252	479	X	X	892 496
323110B116	Scientific and technical recording chart and chart paper printing (lithographic)	37	X	X	83 323	N	X	X	N
323110B121	Map, atlas, and globe cover printing (lithographic), including road maps and strip maps	73	X	X	54 141	63	X	X	62 993
323110B126	Calendar and calendar pad printing (lithographic), sheet-fed	221	X	X	215 744	171	X	X	168 229
323110B128	Calendar and calendar pad printing (lithographic), web-fed	28	X	X	283 665	43	X	X	208 554
323110B136	Ticket, coupon, and food and beverage check printing (lithographic), including transportation and amusement	96	X	X	158 084	92	X	X	157 461
323110B141	Playing card printing (lithographic)	13	X	X	164 228	15	X	X	91 649
323110B146	Printed decalcomanias and pressure-sensitive (self-adhesive) (lithographic), including bumper stickers, etc., excluding labels	33	X	X	43 750	20	X	X	26 762
323110B151	Lithographic printing on metal	22	X	X	177 373	25	X	X	337 754

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323110	Commercial lithographic printing—Con.								
323110B	Other general job printing, nec (lithographic) (offset)—Con.								
323110B1	Other general job printing (lithographic)—Con.								
323110B156	Credit and identification card printing (lithographic) (plastics, paper laminations, etc.)	33	X	X	197 497	27	X	X	64 429
323110B161	Business card printing (lithographic)	378	X	X	218 095	278	X	X	189 736
323110B166	Other business form printing, nec (lithographic), excluding blankbooks and looseleaf forms, sheet-fed	473	X	X	454 501	565	X	X	364 505
323110B168	Other business form printing, nec (lithographic), excluding blankbooks and looseleaf forms, web-fed	127	X	X	327 522	128	X	X	219 416
323110B176	Art reproduction and picture print printing (lithographic)	153	X	X	133 495	160	X	X	101 166
323110B181	Greeting cards, printed for publication by others (lithographic)	76	X	X	90 337	N	X	X	N
323110B191	All other general commercial lithographic printing, nec, sheet-fed	734	X	X	1 983 722	N	X	X	N
323110B193	All other general commercial lithographic printing, nec, web-fed	256	X	X	1 105 054	N	X	X	N
323110BY	Other general job printing (lithographic), nsk	N	X	X	2 622 709	N	X	X	N
323110BYWV	Other general job printing (lithographic), nsk	N	X	X	2 622 709	N	X	X	N
323110W	Commercial lithographic printing, nsk, total	N	X	X	7 604 778	N	X	X	N
323110WY	Commercial lithographic printing, nsk, total	N	X	X	7 604 778	N	X	X	N
323110WYWW	Commercial lithographic printing, nsk, for nonadministrative-record establishments	N	X	X	6 625 957	N	X	X	N
323110WYWY	Commercial lithographic printing, nsk, for administrative-record establishments	N	X	X	978 821	N	X	X	N

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231101	MAGAZINE AND PERIODICAL PRINTING (LITHOGRAPHIC) (OFFSET)		
	United States	5 239 054	4 643 410
	Alabama	25 370	41 484
	Arizona	22 144	13 980
	Arkansas	56 099	N
	California	403 826	328 069
	Colorado	55 473	33 827
	Connecticut	28 815	24 087
	District of Columb	22 238	15 804
	Florida	234 681	175 457
	Georgia	133 885	105 001
	Hawaii	11 792	N
	Illinois	431 053	432 961
	Indiana	50 102	54 408
	Iowa	21 805	66 645
	Kansas	42 551	23 943
	Kentucky	430 235	366 743
	Louisiana	9 135	12 027
	Maine	3 013	N
	Maryland	127 495	151 306
	Massachusetts	36 349	25 235
	Michigan	136 096	108 692

See footnotes at end of table.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992—Con.

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231101	MAGAZINE AND PERIODICAL PRINTING (LITHOGRAPHIC) (OFFSET)—Con.		
	Minnesota	280 810	245 110
	Missouri	93 407	65 446
	Nevada	41 154	36 113
	New Hampshire	38 426	N
	New Jersey	34 681	42 890
	New Mexico	2 307	2 237
	New York	179 230	230 765
	North Carolina	21 498	27 532
	North Dakota	5 319	N
	Ohio	198 677	158 088
	Oklahoma	69 400	56 243
	Oregon	14 398	14 517
	Pennsylvania	465 873	300 926
	South Carolina	10 321	14 524
	South Dakota	2 598	N
	Tennessee	310 079	237 596
	Texas	177 712	170 315
	Utah	33 111	7 338
	Virginia	254 768	210 263
	Washington	32 390	22 853
	Wisconsin	452 298	526 072
	Wyoming	2 496	N
3231103	LABEL AND WRAPPER PRINTING (LITHOGRAPHIC) (OFFSET)		
	United States	1 935 075	1 539 256
	Alabama	4 504	17 910
	Arizona	18 457	2 494
	Arkansas	16 890	3 241
	California	175 415	170 069
	Colorado	5 755	2 247
	Connecticut	15 904	5 195
	Florida	41 918	16 934
	Georgia	9 812	19 596
	Illinois	220 727	225 138
	Indiana	38 800	60 018
	Iowa	22 746	11 275
	Kansas	31 081	11 997
	Kentucky	53 299	32 844
	Louisiana	19 168	10 374
	Maine	2 146	N
	Maryland	8 293	20 797
	Massachusetts	34 788	20 623
	Michigan	101 353	58 888
	Minnesota	77 173	44 904
	Missouri	90 297	49 694
	New Jersey	66 469	59 646
	New York	125 151	95 468
	North Carolina	107 971	103 567
	Ohio	129 902	88 267
	Oklahoma	2 925	7 751
	Oregon	7 955	5 902
	Pennsylvania	166 875	127 558
	Rhode Island	5 338	N
	South Carolina	37 568	16 488
	Tennessee	45 233	17 394
	Texas	55 371	42 558
	Utah	2 188	3 029
	Virginia	25 064	31 758
	Washington	5 694	41 510
	Wisconsin	90 486	46 606
3231105	CATALOG AND DIRECTORY PRINTING (LITHOGRAPHIC) (OFFSET)		
	United States	5 074 321	3 963 868
	Alabama	94 021	56 928
	Arizona	7 064	41 629
	Arkansas	78 096	52 267
	California	385 795	446 727
	Colorado	194 849	115 543
	Connecticut	100 866	97 080
	Florida	98 479	156 801
	Georgia	232 073	167 796
	Illinois	527 162	474 295
	Indiana	37 953	72 031
	Iowa	90 120	46 375
	Kansas	84 943	19 989
	Kentucky	88 587	59 586
	Louisiana	6 085	4 024
	Maryland	57 689	49 854
	Massachusetts	56 602	57 183
	Michigan	67 122	76 087
	Minnesota	400 177	182 135
	Mississippi	50 071	N
	Missouri	116 236	83 515
	Montana	2 392	2 082
	Nebraska	52 972	N
	Nevada	23 661	N
	New Hampshire	7 591	9 025
	New Jersey	68 250	47 331

See footnotes at end of table.

Table 6b. **Product Class Shipments for Selected States: 1997 and 1992—Con.**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes.]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231105	CATALOG AND DIRECTORY PRINTING (LITHOGRAPHIC) (OFFSET)—Con.		
	New York	187 725	127 965
	North Carolina	45 135	26 268
	Ohio	209 034	194 938
	Oklahoma	10 945	56 081
	Oregon	101 233	108 302
	Pennsylvania	573 407	364 085
	Rhode Island	8 189	17 866
	South Carolina	7 965	5 238
	South Dakota	7 351	4 903
	Tennessee	142 684	49 764
	Texas	102 343	186 832
	Utah	7 191	3 255
	Vermont	2 434	5 428
	Virginia	64 245	44 880
	Washington	16 153	23 656
	Wisconsin	546 543	238 784
3231107	FINANCIAL AND LEGAL PRINTING (LITHOGRAPHIC) (OFFSET)		
	United States	2 600 146	1 775 814
	Alabama	6 746	6 004
	Arizona	23 033	18 676
	Arkansas	5 409	N
	California	323 352	266 072
	Colorado	18 511	18 542
	Connecticut	35 566	23 429
	Florida	18 926	15 091
	Georgia	101 849	37 132
	Illinois	134 488	154 400
	Indiana	20 713	36 745
	Iowa	21 019	14 959
	Kansas	75 046	34 983
	Kentucky	6 613	16 705
	Louisiana	3 735	4 522
	Maine	5 092	N
	Maryland	105 454	46 786
	Massachusetts	216 059	128 581
	Michigan	56 649	41 964
	Minnesota	81 397	59 302
	Missouri	30 702	37 360
	Nebraska	8 765	7 535
	New Hampshire	11 634	7 298
	New Jersey	228 909	58 501
	New York	236 737	192 941
	North Carolina	59 949	23 552
	Ohio	67 341	63 259
	Oklahoma	4 897	8 959
	Oregon	20 203	25 684
	Pennsylvania	200 487	174 946
	Rhode Island	8 379	3 291
	South Carolina	2 816	2 590
	Tennessee	31 937	28 854
	Texas	282 304	111 274
	Utah	11 704	13 869
	Virginia	31 134	30 797
	Washington	60 796	17 035
	West Virginia	5 355	3 035
	Wisconsin	23 995	21 257
3231109	ADVERTISING PRINTING (LITHOGRAPHIC) (OFFSET)		
	United States	15 050 733	13 218 922
	Alabama	89 658	71 139
	Alaska	5 966	3 739
	Arizona	135 582	90 208
	Arkansas	34 148	37 438
	California	1 851 213	1 585 304
	Colorado	112 606	137 922
	Connecticut	459 844	298 319
	Delaware	9 160	11 945
	District of Columb	14 592	14 613
	Florida	297 799	238 128
	Georgia	375 738	300 966
	Hawaii	26 094	22 459
	Idaho	16 237	11 949
	Illinois	1 587 616	1 455 602
	Indiana	309 599	222 621
	Iowa	146 121	112 293
	Kansas	387 813	370 155
	Kentucky	223 732	118 813
	Louisiana	61 909	55 800
	Maine	46 111	34 278
	Maryland	309 622	254 366
	Massachusetts	411 623	373 826
	Michigan	666 376	698 262
	Minnesota	887 148	624 260
	Mississippi	14 851	22 828

See footnotes at end of table.

Table 6b. **Product Class Shipments for Selected States: 1997 and 1992—Con.**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231109	ADVERTISING PRINTING (LITHOGRAPHIC) (OFFSET)—Con.		
	Missouri	303 774	391 958
	Montana	8 751	15 932
	Nebraska	69 180	42 246
	Nevada	46 887	15 508
	New Hampshire	78 326	35 092
	New Jersey	785 740	923 498
	New Mexico	6 544	12 957
	New York	751 969	753 836
	North Carolina	445 890	380 255
	North Dakota	8 948	11 106
	Ohio	800 501	685 695
	Oklahoma	107 809	136 360
	Oregon	214 734	193 599
	Pennsylvania	946 729	854 826
	Rhode Island	22 404	33 440
	South Carolina	36 321	57 255
	South Dakota	8 621	10 103
	Tennessee	188 820	191 752
	Texas	636 815	512 063
	Utah	56 739	43 430
	Vermont	20 756	23 208
	Virginia	317 914	227 200
	Washington	140 802	120 287
	West Virginia	6 052	5 107
	Wisconsin	553 662	371 030
	Wyoming	4 887	3 946
323110B	OTHER GENERAL JOB PRINTING, NEC (LITHOGRAPHIC) (OFFSET)		
	United States	10 035 492	N
	Alabama	57 975	N
	Alaska	2 813	N
	Arizona	96 595	N
	Arkansas	47 556	N
	California	790 976	N
	Colorado	99 330	N
	Connecticut	107 340	N
	Delaware	8 128	N
	District of Columb	15 332	N
	Florida	287 164	N
	Georgia	228 927	N
	Hawaii	16 650	N
	Idaho	17 161	N
	Illinois	664 045	N
	Indiana	302 673	N
	Iowa	195 503	N
	Kansas	65 809	N
	Kentucky	161 970	N
	Louisiana	37 652	N
	Maine	29 368	N
	Maryland	228 830	N
	Massachusetts	249 880	N
	Michigan	355 582	N
	Minnesota	601 162	N
	Mississippi	25 012	N
	Missouri	255 566	N
	Montana	9 848	N
	Nebraska	65 041	N
	Nevada	24 763	N
	New Hampshire	34 201	N
	New Jersey	538 756	N
	New Mexico	19 966	N
	New York	1 291 131	N
	North Carolina	212 271	N
	North Dakota	9 190	N
	Ohio	538 907	N
	Oklahoma	32 591	N
	Oregon	84 869	N
	Pennsylvania	528 979	N
	Rhode Island	25 358	N
	South Carolina	47 055	N
	South Dakota	9 290	N
	Tennessee	160 771	N
	Texas	563 662	N
	Utah	41 301	N
	Vermont	36 961	N
	Virginia	328 320	N
	Washington	180 833	N
	West Virginia	38 998	N
	Wisconsin	260 398	N
	Wyoming	3 033	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323110	COMMERCIAL LITHOGRAPHIC PRINTING				
32212203	Newsprint	X	1 218 379	X	N
32212009	Uncoated paper in sheets	X	1 142 576	X	N
32212011	Uncoated paper in rolls	X	2 079 768	X	N
32200011	Coated paper in sheets	X	1 867 757	X	N
32200013	Coated paper in rolls	X	2 240 851	X	N
32222200	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.	X	174 843	X	N
31320001	Cloth and nonwoven fabrics for hardbound book covers	X	32 135	X	N
32552003	Glues and adhesives	X	40 917	X	N
32591003	Printing ink	X	1 004 632	X	N
32599203	Light sensitive films and papers	X	226 438	X	N
32599201	Unexposed photosensitive printing plates	X	154 203	X	N
32312201	Printing plates, prepared for printing	X	187 534	X	N
32312209	Engraved printing cylinders for gravure printing	X	2 241	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	152 117	X	N
32223200	Purchased envelopes	X	213 643	X	N
00970099	All other materials and components, parts, containers, and supplies	X	1 134 822	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	4 787 481	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

323110 COMMERCIAL LITHOGRAPHIC PRINTING

This U.S. industry comprises establishments primarily engaged in lithographic (i.e., offset) printing without publishing (except books, grey goods, and manifold business forms). This industry includes establishments engaged in lithographic printing on purchased stock materials, such as stationery, letterhead, invitations, labels, and similar items, on a job order basis.

The data published with NAICS code 323110 include the following SIC industries:

2752 Commercial printing, lithographic (pt)

2771 Greeting cards (pt)

3999 Manufacturing industries, n.e.c. (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsk) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G.

Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3231101.....	27521.....	27521.....	3231113.....	27542.....	27542.....	3231131491 pt.....	3999985.....	3999999 pt.....
3231101111.....	2752112.....	2752112.....	3231113111.....	2754211.....	2754211.....	3231131YVW pt.....	2759800.....	2759800.....
3231101113.....	2752114.....	2752114.....	3231113116.....	2754213.....	2754213.....	3231131YVW pt.....	2771200 pt.....	2771200 pt.....
3231101121.....	2752117.....	2752117.....	3231113121.....	2754215.....	2754215.....	3231131YVW pt.....	3999900 pt.....	3999900 pt.....
3231101YVW.....	2752100.....	2752100.....	3231113126.....	2754217.....	2754217.....			
3231103.....	27522.....	27522.....	3231113231.....	2754232.....	2754232.....	3231133 pt.....	23964.....	23964.....
3231103111.....	2752211.....	2752211.....	3231113236.....	2754237.....	2754237.....	3231133 pt.....	23969.....	93000 pt.....
3231103116.....	2752213.....	2752213.....	3231113YVW.....	2754200.....	2754200.....	3231133111.....	2396435.....	2396434 pt.....
3231103121.....	2752217.....	2752217.....				3231133116.....	2396436.....	2396434 pt.....
3231103126.....	2752220.....	2752220.....	3231115.....	27543.....	27543.....	3231133121.....	2396437.....	2396437.....
3231103131.....	2752234.....	2752234.....	3231115100.....	2754300.....	2754300.....	3231133YVW pt.....	2396400.....	2396400.....
3231103136.....	2752243.....	2752243.....				3231133YVW pt.....	2396900.....	9300000 pt.....
3231103YVW.....	2752200.....	2752200.....	3231117.....	27545.....	27545.....			
3231105.....	27523.....	27523.....	3231117111.....	2754511.....	2754511.....	323113W pt.....	23960 pt.....	23960 pt.....
3231105111.....	2752312.....	2752312.....	3231117116.....	2754545.....	2754545.....	323113W pt.....	27590 pt.....	27590 pt.....
3231105113.....	2752314.....	2752314.....	3231117121.....	2754548.....	2754548.....			
3231105121.....	2752318.....	2752318.....	3231117YVW.....	2754500.....	2754500.....	323113W pt.....	27590 pt.....	27590 pt.....
3231105126.....	2752324.....	2752324.....						
3231105128.....	2752326.....	2752326.....	3231119 pt.....	27546.....	27546.....	323113W pt.....	27710 pt.....	27710 pt.....
3231105128.....	2752326.....	2752326.....	3231119 pt.....	27712 pt.....	27712 pt.....	323113W pt.....	39990 pt.....	39990 pt.....
3231105YVW.....	2752300.....	2752300.....	3231119 pt.....	39999 pt.....	39999 pt.....	323113WYVW pt.....	2396000 pt.....	2396000 pt.....
3231107.....	27524.....	27524.....	3231119111.....	2754651.....	2754651.....	323113WYVW pt.....	2759000 pt.....	2759000 pt.....
3231107111.....	2752412.....	2752412.....	3231119191 pt.....	2754695.....	2754695.....	323113WYVW pt.....	2771000 pt.....	2771000 pt.....
3231107113.....	2752414.....	2752414.....	3231119191 pt.....	2771203.....	2771203 pt.....	323113WYVW pt.....	3999000 pt.....	3999000 pt.....
3231107121.....	2752416.....	2752416.....	3231119191 pt.....	3999983.....	3999999 pt.....	323113WYVW pt.....	2396002 pt.....	2396002 pt.....
3231107123.....	2752418.....	2752418.....	3231119YVW pt.....	2754600.....	2754600.....	323113WYVW pt.....	2759002 pt.....	2759002 pt.....
3231107131.....	2752421.....	2752421.....	3231119YVW pt.....	2771200 pt.....	2771200 pt.....	323113WYVW pt.....	2771002 pt.....	2771002 pt.....
3231107133.....	2752422.....	2752422.....	3231119YVW pt.....	3999900 pt.....	3999900 pt.....	323113WYVW pt.....	3999002 pt.....	3999002 pt.....
3231107141.....	2752424.....	2752424.....	323111W pt.....	27540.....	27540.....	3231140 pt.....	27520 pt.....	27520 pt.....
3231107143.....	2752426.....	2752426.....	323111W pt.....	27710 pt.....	27710 pt.....	3231140 pt.....	27526 pt.....	27526 pt.....
3231107151.....	2752427.....	2752427.....	323111W pt.....	27540.....	27540.....	3231140 pt.....	27590 pt.....	27590 pt.....
3231107YVW.....	2752400.....	2752400.....	323111W pt.....	39990 pt.....	39990 pt.....	3231140 pt.....	27590 pt.....	27590 pt.....
3231109.....	27525.....	27525.....	323111WYVW pt.....	2754000.....	2754000.....	3231140100 pt.....	2759A pt.....	2759A pt.....
3231109111.....	2752512.....	2752512.....	323111WYVW pt.....	2771000 pt.....	2771000 pt.....	3231140100 pt.....	2752696.....	2752696.....
3231109113.....	2752514.....	2752514.....	323111WYVW pt.....	3999000 pt.....	3999000 pt.....	3231140100 pt.....	2759A12.....	2759A00 pt.....
3231109221.....	2752523.....	2752523.....	323111WYVW pt.....	2754002.....	2754002.....	3231140YVW pt.....	2752000 pt.....	2752000 pt.....
3231109226.....	2752526.....	2752526.....	323111WYVW pt.....	2771002 pt.....	2771002 pt.....	3231140YVW pt.....	2752600 pt.....	2752600 pt.....
3231109228.....	2752528.....	2752528.....	323111WYVW pt.....	3999002 pt.....	3999002 pt.....	3231140YVW pt.....	2759000 pt.....	2759000 pt.....
3231109236.....	2752532.....	2752532.....	3231121.....	2759B.....	2759B.....	3231140YVW pt.....	2759A00 pt.....	2759A00 pt.....
3231109241.....	2752533.....	2752533.....	3231121111.....	2759B14.....	2759B14.....	3231140YVW pt.....	2752002 pt.....	2752002 pt.....
3231109246.....	2752541.....	2752541.....	3231121216.....	2759B16.....	2759B16.....	3231140YVW pt.....	2759002 pt.....	2759002 pt.....
3231109251.....	2752545.....	2752545.....	3231121321.....	2759B18.....	2759B18.....			
3231109256.....	2752552.....	2752552.....	3231121426.....	2759B20.....	2759B20.....	3231150 pt.....	27590 pt.....	27590 pt.....
3231109258.....	2752554.....	2752554.....	3231121531.....	2759B22.....	2759B22.....	3231150 pt.....	2759A pt.....	2759A pt.....
3231109YVW.....	2752500.....	2752500.....	3231121636.....	2759B26.....	2759B26.....	3231150100.....	2759A14.....	2759A00 pt.....
323110B pt.....	27526 pt.....	27526 pt.....	3231121741.....	2759B28.....	2759B28.....	3231150YVW pt.....	2759000 pt.....	2759000 pt.....
323110B pt.....	27712 pt.....	27712 pt.....	3231121846.....	2759B30.....	2759B30.....	3231150YVW pt.....	2759A00 pt.....	2759A00 pt.....
323110B pt.....	39999 pt.....	39999 pt.....	3231121YVW.....	2759B00.....	2759B00.....	3231150YVW pt.....	2759002 pt.....	2759002 pt.....
323110B111.....	2752611.....	2752611.....	3231123 pt.....	2759C.....	2759C.....	3231161.....	27612.....	27612.....
323110B116 pt.....	2752617 pt.....	2752616.....	3231123 pt.....	27712 pt.....	27712 pt.....	3231161111.....	2761211.....	2761211.....
323110B116 pt.....	2752617 pt.....	2752618.....	3231123 pt.....	39999 pt.....	39999 pt.....	3231161121.....	2761213.....	2761213.....
323110B121.....	2752621.....	2752621.....	3231123111.....	2759C29.....	2759C29.....	3231161126.....	2761215.....	2761215.....
323110B126.....	2752636.....	2752636.....	3231123116.....	2759C31.....	2759C31.....	3231161231.....	2761253.....	2761253.....
323110B128.....	2752638.....	2752638.....	3231123221.....	2759C32.....	2759C32.....	3231161336.....	2761255.....	2761255.....
323110B136.....	2752644.....	2752644.....	3231123226.....	2759C33.....	2759C33.....	3231161441.....	2761261.....	2761261.....
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323118WYWW.....	2782000 pt.....	2782000 pt.....						
323118WYWW.....	2782002 pt.....	2782002 pt.....						

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Compan-ies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323111	Commercial gravure printing ..	423	454	23 330	810 726	19 490	38 839	625 083	1 943 485	1 987 385	3 928 358	253 027
275400	Commercial printing, gravure ..	N	454	23 330	810 726	19 490	38 839	625 083	1 943 485	1 987 385	3 928 358	253 027
277120	Greeting cards (pt)	N	-	-	-	-	-	-	-	-	-	-
399930	Manufacturing industries, n.e.c. (pt)	N	-	-	-	-	-	-	-	-	-	-

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments			All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
	E ¹	Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323111, COMMERCIAL GRAVURE PRINTING												
United States	2	454	100	23 330	810 726	19 490	38 839	625 083	1 943 485	1 987 385	3 928 358	253 027
Arizona	1	7	2	188	9 496	148	335	7 119	16 093	15 775	32 144	1 765
California	5	54	6	949	33 085	773	1 181	26 141	74 006	65 958	139 963	12 909
Connecticut	9	8	4	150	5 594	125	236	4 339	14 444	15 526	29 915	2 362
Florida	5	23	3	202	5 264	169	275	4 187	16 236	16 087	31 942	1 996
Georgia	3	15	6	1 793	62 510	1 314	2 359	36 959	187 616	130 689	318 774	15 064
Illinois	2	32	8	3 129	102 130	2 728	5 748	80 247	232 793	197 816	429 792	8 032
Indiana	-	12	4	2 038	76 134	1 787	4 068	63 128	184 567	201 591	385 357	21 517
Maryland	5	10	2	183	9 433	143	309	7 242	13 019	11 849	24 843	1 200
Michigan	1	14	2	185	7 260	127	230	3 831	15 352	15 725	31 865	911
Minnesota	2	7	2	123	3 595	86	179	2 462	8 894	8 276	15 153	1 070
Mississippi	1	5	3	1 118	35 639	978	1 955	28 086	76 819	66 975	143 101	3 992
Missouri	-	13	4	859	33 694	684	1 417	23 099	83 082	71 584	154 195	8 305
New Jersey	7	19	4	274	8 860	233	401	6 665	21 944	16 822	38 552	2 350
New York	3	26	6	382	14 040	280	613	9 102	36 148	37 651	75 162	3 586
North Carolina	-	13	2	649	26 020	491	838	18 607	31 153	35 141	67 521	928
Pennsylvania	1	18	8	1 057	43 898	810	1 902	30 695	106 448	123 671	229 920	9 702
Tennessee	-	16	5	1 735	66 117	1 498	3 233	53 897	175 538	180 029	359 319	16 051
Texas	9	20	1	112	2 807	93	138	2 085	6 885	7 342	14 195	1 070
Virginia	-	14	9	1 915	66 112	1 607	2 727	53 655	179 096	170 415	347 657	27 247

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
323111, COMMERCIAL GRAVURE PRINTING		323111, COMMERCIAL GRAVURE PRINTING—Con.	
Companies ¹	423	Value added	\$1,000.. 1 943 485
All establishments	454	Total inventories, beginning of year	\$1,000.. 293 502
Establishments with 1 to 19 employees	354	Finished goods inventories, beginning of year	\$1,000.. 46 564
Establishments with 20 to 99 employees	53	Work-in-process inventories, beginning of year	\$1,000.. 115 902
Establishments with 100 employees or more	47	Materials and supplies inventories, beginning of year	\$1,000.. 131 036
All employees	23 330	Total inventories, end of year	\$1,000.. 291 225
Total compensation ²	1 004 849	Finished goods inventories, end of year	\$1,000.. 55 779
Annual payroll	810 726	Work-in-process inventories, end of year	\$1,000.. 109 199
Total fringe benefits	194 123	Materials and supplies inventories, end of year	\$1,000.. 126 247
Production workers, average for year	19 490	Gross book value of total assets at beginning of year	\$1,000.. 2 491 155
Production workers on March 12	19 550	Total capital expenditures (new and used)	\$1,000.. 253 027
Production workers on May 12	19 323	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 42 133
Production workers on August 12	19 417	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 210 894
Production workers on November 12	19 670	Total retirements ²	\$1,000.. 36 424
Production-worker hours	38 839	Gross book value of total assets at end of year	\$1,000.. 2 707 758
Production-worker wages	625 083	Total depreciation during year ²	\$1,000.. 171 469
Total cost of materials	\$1,000.. 1 987 385	Total rental payments ²	\$1,000.. 20 413
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 850 018	Buildings and other structures rental payments ²	\$1,000.. 7 348
Cost of resales	\$1,000.. 20 032	Machinery and equipment rental payments ²	\$1,000.. 13 065
Cost of fuels	\$1,000.. 28 561	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 1 701
Cost of purchased electricity	\$1,000.. 60 692	Response coverage ratio ⁴	percent.. 47
Cost of contract work	\$1,000.. 28 082	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 25 290
Quantity of electricity purchased for heat and power	1 272 332	Response coverage ratio ⁴	percent.. 47
Quantity of electricity generated less sold for heat and power	1 272 332	Cost of purchased communications services ³	\$1,000.. 3 585
Total value of shipments	\$1,000.. 3 928 358	Response coverage ratio ⁴	percent.. 47
Primary products value of shipments	\$1,000.. 3 530 084	Cost of purchased legal services ³	\$1,000.. 2 286
Secondary products value of shipments	\$1,000.. 356 722	Response coverage ratio ⁴	percent.. 47
Total miscellaneous receipts	\$1,000.. 41 552	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 1 109
Value of resales	\$1,000.. 30 841	Response coverage ratio ⁴	percent.. 47
Contract receipts	\$1,000.. —	Cost of purchased advertising services ³	\$1,000.. 1 403
Other miscellaneous receipts	\$1,000.. 10 711	Response coverage ratio ⁴	percent.. 47
Primary products specialization ratio	percent.. 90	Cost of purchased software and other data processing services ³	\$1,000.. 2 160
Value of primary products shipments made in all industries	\$1,000.. 3 918 345	Response coverage ratio ⁴	percent.. 47
Value of primary products shipments made in this industry	\$1,000.. 3 530 084	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 7 117
Value of primary products shipments made in other industries	\$1,000.. 388 261	Response coverage ratio ⁴	percent.. 47
Coverage ratio	percent.. 90		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323111, COMMERCIAL GRAVURE PRINTING												
All establishments	2	454	100	23 330	810 726	19 490	38 839	625 083	1 943 485	1 987 385	3 928 358	253 027
Establishments with 1 to 4 employees	8	246	—	434	10 903	372	537	8 490	30 192	34 904	64 979	4 539
Establishments with 5 to 9 employees	9	65	—	413	10 354	333	471	8 079	26 877	28 167	55 045	4 137
Establishments with 10 to 19 employees	9	43	—	559	16 448	441	721	11 764	43 029	38 937	81 818	5 606
Establishments with 20 to 49 employees	4	35	35	1 076	40 097	810	1 577	27 299	102 625	121 790	224 356	11 312
Establishments with 50 to 99 employees	3	18	18	1 250	49 074	998	2 123	35 450	112 313	126 073	238 637	9 908
Establishments with 100 to 249 employees	2	23	23	3 651	140 633	2 781	5 888	97 627	367 692	337 408	706 189	91 766
Establishments with 250 to 499 employees	2	13	13	4 649	181 035	3 643	7 097	131 642	466 131	483 929	947 942	46 151
Establishments with 500 to 999 employees	—	8	8	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	3	3	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	328	—	1 309	33 249	1 070	1 535	25 804	85 841	92 282	177 796	14 037

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323111	Commercial gravure printing	454	23 330	810 726	19 490	38 839	625 083	1 943 485	1 987 385	3 928 358	253 027
3231111	Magazine and periodical printing (gravure)	7	4 747	153 908	4 164	8 222	124 635	343 150	292 247	639 945	D
3231113	Label and wrapper printing (gravure)	28	3 454	128 085	2 653	5 568	86 531	350 476	351 925	698 791	35 703
3231115	Catalog and directory printing (gravure)	9	7 079	242 587	6 316	12 576	206 514	491 864	559 492	1 046 510	67 157
3231117	Advertising printing (gravure)	16	2 676	105 353	2 241	4 890	85 086	288 897	304 877	593 230	29 243
3231119	Other general job printing, nec (gravure)	28	3 201	116 754	2 360	4 780	73 104	312 446	323 495	638 290	86 832

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323111	Commercial gravure printing	N	X	X	3 918 345	N	X	X	N
3231111	Magazine and periodical printing (gravure)	N	X	X	780 767	N	X	X	551 058
32311111	Magazine and periodical printing (gravure)	N	X	X	780 767	N	X	X	N
3231111111	Magazine and periodical printing (gravure), excluding magazine and comic supplements for Sunday newspapers	9	X	X	D	14	X	X	398 171
3231111116	Magazine and comic supplement printing (gravure) for Sunday newspapers	2	X	X	D	4	X	X	152 679
3231111Y	Magazine and periodical printing (gravure), nsk	N	X	X	-	N	X	X	N
3231111YWV	Magazine and periodical printing (gravure), nsk	N	X	X	-	N	X	X	208
3231113	Label and wrapper printing (gravure)	N	X	X	695 077	N	X	X	535 056
32311131	Label printing (gravure)	N	X	X	494 181	N	X	X	N
3231113111	Label printing (gravure), custom and stock labels, including bordered, made of paper, flat (except pressure-sensitive)	8	X	X	141 554	9	X	X	85 305
3231113116	Label printing (gravure), custom and stock labels, including bordered, made of paper, rolls (except pressure-sensitive)	13	X	X	206 365	14	X	X	198 102
3231113121	Label printing (gravure), custom and stock labels, including bordered, made of paper, pressure-sensitive (self-adhesive)	13	X	X	46 574	6	X	X	5 544
3231113126	Label printing (gravure), custom and stock labels, including bordered, made of materials other than paper or cloth	8	X	X	99 688	9	X	X	59 265
32311132	Wrapper printing (gravure)	N	X	X	154 263	N	X	X	N
3231113231	Printed rolls and sheets for packaging purposes (printing only) (gravure), made of paper (single-web)	6	X	X	77 314	11	X	X	N
3231113236	Printed rolls and sheets for packaging purposes (printing only) (gravure), made of materials other than paper or cloth, including multiweb structures	4	X	X	76 949	5	X	X	N
3231113Y	Label and wrapper printing (gravure), nsk	N	X	X	46 633	N	X	X	N
3231113YWV	Label and wrapper printing (gravure), nsk	N	X	X	46 633	N	X	X	24 199
3231115	Catalog and directory printing (gravure)	N	X	X	837 823	N	X	X	883 148
32311151	Catalog and directory printing (gravure)	N	X	X	837 823	N	X	X	N
3231115100	Catalog and directory printing (gravure)	6	X	X	837 823	10	X	X	883 148
3231117	Advertising printing (gravure)	N	X	X	699 444	N	X	X	930 344
32311171	Advertising printing (gravure)	N	X	X	698 064	N	X	X	N
3231117111	Direct mail advertising printing (gravure), including circulars, letters, pamphlets, cards, and printed envelopes	23	X	X	258 061	25	X	X	N
3231117116	Preprinted newspaper advertising insert printing (advertising supplements not regularly issued)	4	X	X	246 224	6	X	X	N
3231117121	Other advertising printing (gravure), including shopping news, brochures, book jackets, etc.	19	X	X	193 779	25	X	X	N
3231117Y	Advertising printing (gravure), nsk	N	X	X	1 380	N	X	X	N
3231117YWV	Advertising printing (gravure), nsk	N	X	X	1 380	N	X	X	6 827
3231119	Other general job printing, nec (gravure)	N	X	X	564 166	N	X	X	N
32311191	Other general job printing (gravure)	N	X	X	470 390	N	X	X	N
3231119111	Printed decalcomanias and pressure-sensitives (self-adhesive) (gravure), including bumper stickers, etc., except labels	5	X	X	D	6	X	X	43 129
3231119191	All other general commercial gravure printing, nec, including customized stationery and business cards	34	X	X	D	N	X	X	N
3231119Y	Other general job printing (gravure), nsk	N	X	X	93 776	N	X	X	N
3231119YWV	Other general job printing (gravure), nsk	N	X	X	93 776	N	X	X	N

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323111	Commercial gravure printing— Con.								
323111W	Commercial gravure printing, nsk, total.....	N	X	X	341 068	N	X	X	N
323111WY	Commercial gravure printing, nsk, total.....	N	X	X	341 068	N	X	X	N
323111WYWW	Commercial gravure printing, nsk, for nonadministrative-record establishments.....	N	X	X	167 909	N	X	X	N
323111WYWY	Commercial gravure printing, nsk, for administrative-record establishments.....	N	X	X	173 159	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231111	MAGAZINE AND PERIODICAL PRINTING (GRAVURE)		
	United States.....	780 767	551 058
	Illinois.....	201 273	127 911
	Tennessee.....	174 855	98 389
3231113	LABEL AND WRAPPER PRINTING (GRAVURE)		
	United States.....	695 077	535 056
	California.....	14 153	N
	Michigan.....	27 621	32 351
	New Jersey.....	20 007	11 247
	North Carolina.....	7 043	N
	Ohio.....	82 739	69 493
	Texas.....	2 140	N
	Wisconsin.....	37 798	17 837
3231115	CATALOG AND DIRECTORY PRINTING (GRAVURE)		
	United States.....	837 823	883 148
3231117	ADVERTISING PRINTING (GRAVURE)		
	United States.....	699 444	930 344
	California.....	10 603	8 013
	Pennsylvania.....	49 491	N
3231119	OTHER GENERAL JOB PRINTING, NEC (GRAVURE)		
	United States.....	564 166	N
	New Jersey.....	27 128	N
	New York.....	7 925	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323111	COMMERCIAL GRAVURE PRINTING				
32212203	Newsprint.....	X	D	X	N
32212009	Uncoated paper in sheets.....	X	37 227	X	N
32212011	Uncoated paper in rolls.....	X	574 653	X	N
32200011	Coated paper in sheets.....	X	D	X	N
32200013	Coated paper in rolls.....	X	219 556	X	N
32222200	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.....	X	43 830	X	N
31320001	Cloth and nonwoven fabrics for hardbound book covers.....	X	D	X	N
32552003	Glues and adhesives.....	X	6 512	X	N
32591003	Printing ink.....	X	447 376	X	N
32599203	Light sensitive films and papers.....	X	2 163	X	N
32599201	Unexposed photosensitive printing plates.....	X	1 982	X	N
32312201	Printing plates, prepared for printing.....	X	3 020	X	N
32312209	Engraved printing cylinders for gravure printing.....	X	11 082	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard.....	X	16 636	X	N
32223200	Purchased envelopes.....	X	D	X	N
00970099	All other materials and components, parts, containers, and supplies.....	X	152 549	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.....	X	254 163	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

323111 COMMERCIAL GRAVURE PRINTING

This U.S. industry comprises establishments primarily engaged in gravure printing without publishing (except books, grey goods, and manifold business forms). This industry includes establishments engaged in gravure printing on purchased stock materials, such as stationery, letterhead, invitations, labels, and similar items, on a job order basis.

The data published with NAICS code 323111 include the following SIC industries:

- 2754 Commercial printing, gravure
- 2771 Greeting cards (pt)
- 3999 Manufacturing industries, n.e.c. (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3231101.....	27521.....	27521.....	3231111.....	27521.....	27521.....	3231131491 pt	3999985.....	3999999 pt
3231101111.....	2752112.....	2752112.....	3231113111.....	2754211.....	2754211.....	3231131YVW pt	2759800.....	2759800.....
3231101113.....	2752114.....	2752114.....	3231113116.....	2754213.....	2754213.....	3231131YVW pt	2771200 pt	2771200 pt
3231101121.....	2752117.....	2752117.....	3231113121.....	2754215.....	2754215.....	3231131YVW pt	3999900 pt	3999900 pt
3231101YVW.....	2752100.....	2752100.....	3231113126.....	2754217.....	2754217.....			
3231103.....	27522.....	27522.....	3231113231.....	2754232.....	2754232.....	3231133 pt	23964.....	23964.....
3231103111.....	2752211.....	2752211.....	3231113236.....	2754237.....	2754237.....	3231133 pt	23969.....	93000 pt
3231103116.....	2752213.....	2752213.....	3231113YVW.....	2754200.....	2754200.....	3231133 pt	2396435.....	2396434 pt
3231103121.....	2752217.....	2752217.....				3231133111.....	2396436.....	2396434 pt
3231103126.....	2752220.....	2752220.....	3231115.....	27543.....	27543.....	3231133116.....	2396437.....	2396437.....
3231103131.....	2752234.....	2752234.....	3231115100.....	2754300.....	2754300.....	3231133121.....	2396400.....	2396400.....
3231103136.....	2752243.....	2752243.....				3231133YVW pt	2396900.....	9300000 pt
3231103YVW.....	2752200.....	2752200.....	3231117.....	27545.....	27545.....			
3231105.....	27523.....	27523.....	3231117111.....	2754511.....	2754511.....	323113W pt	23960 pt	23960 pt
3231105111.....	2752312.....	2752312.....	3231117116.....	2754545.....	2754545.....	323113W pt	27590 pt	27590 pt
3231105113.....	2752314.....	2752314.....	3231117121.....	2754548.....	2754548.....			
3231105121.....	2752318.....	2752318.....	3231117YVW.....	2754500.....	2754500.....	323113W pt	27710 pt	27710 pt
3231105126.....	2752324.....	2752324.....	3231119 pt	27546.....	27546.....			
3231105128.....	2752326.....	2752326.....	3231119 pt	27712 pt	27712 pt	323113W pt	39990 pt	39990 pt
3231105YVW.....	2752300.....	2752300.....	3231119 pt	39999 pt	39999 pt	323113WYVW pt	2396000 pt	2396000 pt
3231107.....	27524.....	27524.....	3231119111.....	2754651.....	2754651.....	323113WYVW pt	2759000 pt	2759000 pt
3231107111.....	2752412.....	2752412.....	3231119191 pt	2754695.....	2754695.....	323113WYVW pt	2771000 pt	2771000 pt
3231107113.....	2752414.....	2752414.....	3231119191 pt	2771203.....	2771203 pt	323113WYVW pt	3999000 pt	3999000 pt
3231107121.....	2752416.....	2752416.....	3231119191 pt	3999983.....	3999999 pt	323113WYVW pt	2396002 pt	2396002 pt
3231107123.....	2752418.....	2752418.....	3231119YVW pt	2754600.....	2754600.....	323113WYVW pt	2759002 pt	2759002 pt
3231107131.....	2752421.....	2752421.....	3231119YVW pt	2771200 pt	2771200 pt	323113WYVW pt	2771002 pt	2771002 pt
3231107133.....	2752422.....	2752422.....	3231119YVW pt	3999900 pt	3999900 pt	323113WYVW pt	3999002 pt	3999002 pt
3231107141.....	2752424.....	2752424.....	323111W pt	27540.....	27540.....			
3231107143.....	2752426.....	2752426.....	323111W pt	27710 pt	27710 pt	3231140 pt	27520 pt	27520 pt
3231107151.....	2752427.....	2752427.....				3231140 pt	27526 pt	27526 pt
3231107YVW.....	2752400.....	2752400.....	323111W pt	39990 pt	39990 pt	3231140 pt	27590 pt	27590 pt
3231109.....	27525.....	27525.....	323111WYVW pt	2754000.....	2754000.....	3231140 pt	2759A pt	2759A pt
3231109111.....	2752512.....	2752512.....	323111WYVW pt	2771000 pt	2771000 pt	3231140100 pt	2752696.....	2752696.....
3231109113.....	2752514.....	2752514.....	323111WYVW pt	3999000 pt	3999000 pt	3231140100 pt	2759A12.....	2759A00 pt
3231109221.....	2752523.....	2752523.....	323111WYVW pt	2754002.....	2754002.....	3231140YVW pt	2752000 pt	2752000 pt
3231109226.....	2752526.....	2752526.....	323111WYVW pt	2771002 pt	2771002 pt	3231140YVW pt	2752600 pt	2752600 pt
3231109228.....	2752528.....	2752528.....	323111WYVW pt	3999002 pt	3999002 pt	3231140YVW pt	2759000 pt	2759000 pt
3231109236.....	2752532.....	2752532.....				3231140YVW pt	2759A00 pt	2759A00 pt
3231109241.....	2752533.....	2752533.....	3231121.....	2759B.....	2759B.....	3231140YVW pt	2752002 pt	2752002 pt
3231109246.....	2752541.....	2752541.....	3231121111.....	2759B14.....	2759B14.....	3231140YVW pt	2759002 pt	2759002 pt
3231109251.....	2752545.....	2752545.....	3231121216.....	2759B16.....	2759B16.....			
3231109256.....	2752552.....	2752552.....	3231121321.....	2759B18.....	2759B18.....			
3231109258.....	2752554.....	2752554.....	3231121426.....	2759B20.....	2759B20.....	3231150 pt	27590 pt	27590 pt
3231109YVW.....	2752500.....	2752500.....	3231121531.....	2759B22.....	2759B22.....	3231150 pt	2759A pt	2759A pt
323110B pt	27526 pt	27526 pt	3231121636.....	2759B26.....	2759B26.....	3231150100.....	2759A14.....	2759A00 pt
323110B pt	27712 pt	27712 pt	3231121741.....	2759B28.....	2759B28.....	3231150YVW pt	2759000 pt	2759000 pt
			3231121846.....	2759B30.....	2759B30.....	3231150YVW pt	2759A00 pt	2759A00 pt
			3231121YVW.....	2759B00.....	2759B00.....	3231150YVW.....	2759002 pt	2759002 pt
323110B pt	39999 pt	39999 pt	3231123 pt	2759C.....	2759C.....	3231161.....	27612.....	27612.....
323110B11.....	2752611.....	2752611.....	3231123 pt	27712 pt	27712 pt	3231161111.....	2761211.....	2761211.....
323110B116 pt	2752617 pt	2752616.....	3231123 pt	39999 pt	39999 pt	3231161121.....	2761213.....	2761213.....
323110B116 pt	2752617 pt	2752618.....	3231123111.....	2759C29.....	2759C29.....	3231161126.....	2761215.....	2761215.....
323110B121.....	2752621.....	2752621.....	3231123116.....	2759C31.....	2759C31.....	3231161231.....	2761253.....	2761253.....
323110B126.....	2752636.....	2752636.....	3231123221.....	2759C32.....	2759C32.....	3231161336.....	2761255.....	2761255.....
323110B128.....	2752638.....	2752638.....	3231123226.....	2759C33.....	2759C33.....	3231161441.....	2761261.....	2761261.....
323110B136.....	2752644.....	2752644.....	3231123231.....	2759C35.....	2759C34 pt	3231161YVW.....	2761200.....	2761200.....
323110B141.....	2752647.....	2752647.....	3231123236.....	2759C36.....	2759C36.....			
323110B146.....	2752651.....	2752651.....	3231123291 pt	2759C38.....	2759C38.....	3231163.....	27613.....	27613.....
323110B151.....	2752677.....	2752677.....	3231123291 pt	2771207.....	2771200 pt	3231163111.....	2761311.....	2761311.....
323110B156.....	2752683.....	2752683.....	3231123291 pt	3999982.....	3999999 pt	3231163116.....	2761313.....	2761313.....
323110B161.....	2752684.....	2752684.....	3231123YVW pt	2759C00.....	2759C00.....	3231163YVW.....	2761300.....	2761300.....
323110B166.....	2752692.....	2752692.....	3231123YVW pt	2771200 pt	2771200 pt			
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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Compan-ies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-ditures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323112	Commercial flexographic printing	867	914	30 550	1 030 923	20 558	42 207	564 285	2 529 176	2 181 050	4 685 915	209 206
275910	Commercial printing, n.e.c.	N	914	30 550	1 030 923	20 558	42 207	564 285	2 529 176	2 181 050	4 685 915	209 206
277130	Greeting cards (pt)	N	-	-	-	-	-	-	-	-	-	-
399935	Manufacturing industries, n.e.c. (pt)	N	-	-	-	-	-	-	-	-	-	-

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments		All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-ditures (\$1,000)	
	E ¹	Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)					Wages (\$1,000)
323112, COMMERCIAL FLEXOGRAPHIC PRINTING												
United States	1	914	358	30 550	1 030 923	20 558	42 207	564 285	2 529 176	2 181 050	4 685 915	209 206
Alabama	1	13	6	327	10 214	237	448	6 213	21 513	25 310	46 897	3 728
Arizona	1	10	2	188	4 962	148	269	3 202	7 897	9 781	17 581	1 172
California	-	113	33	3 019	101 029	2 007	4 498	56 195	225 631	214 956	436 115	15 400
Colorado	1	21	5	235	7 238	177	329	4 572	25 030	13 755	38 567	1 221
Connecticut	1	17	7	378	13 303	245	528	7 275	27 192	21 554	48 764	2 187
Florida	-	39	16	761	25 676	503	1 061	14 387	76 428	69 597	145 580	5 134
Georgia	-	26	10	758	26 094	511	1 139	14 879	80 377	93 445	173 936	6 403
Illinois	2	66	25	2 642	90 247	1 839	3 952	52 960	225 541	207 703	431 674	15 045
Indiana	1	25	10	1 256	36 155	924	1 817	23 464	86 491	65 903	151 959	5 438
Kansas	-	14	8	859	24 757	593	1 541	15 507	56 103	91 004	145 425	4 241
Kentucky	-	13	8	384	10 061	284	580	6 334	30 935	27 013	57 366	2 622
Louisiana	-	6	3	251	6 424	183	379	4 375	15 476	17 275	32 503	413
Maryland	-	9	5	288	10 380	205	392	6 352	26 234	36 895	63 229	2 548
Michigan	1	26	12	831	31 879	504	1 004	15 634	67 711	48 225	115 879	6 509
Minnesota	2	24	12	937	33 775	592	1 136	18 461	81 535	77 462	158 899	11 660
Missouri	-	33	12	787	23 059	511	977	11 644	51 359	52 979	104 789	3 928
Nebraska	1	5	5	863	28 666	606	1 263	16 708	76 311	58 179	134 224	5 272
New Jersey	-	41	10	787	30 906	592	1 195	18 937	68 236	56 851	124 264	3 993
New York	2	55	16	1 053	34 271	696	1 306	19 259	80 360	70 197	149 171	8 402
North Carolina	-	40	13	995	32 803	711	1 541	17 955	68 676	77 643	144 049	5 725
Ohio	-	62	30	3 256	122 178	1 796	3 664	45 748	295 121	223 049	511 171	30 936
Oregon	-	12	8	375	11 770	248	451	5 636	32 905	36 275	68 651	5 142
Pennsylvania	3	31	10	1 366	44 435	892	1 656	22 971	106 054	93 165	197 338	5 341
Rhode Island	-	8	2	198	5 592	115	214	3 000	10 993	6 508	17 551	978
Tennessee	2	21	12	976	35 311	721	1 461	18 004	69 764	69 488	138 452	10 852
Texas	-	44	15	1 188	39 681	843	1 567	22 398	96 924	70 032	165 671	9 008
Utah	-	7	6	220	7 955	157	313	3 621	12 876	16 368	29 337	675
Virginia	1	15	7	395	11 634	288	627	7 144	20 774	25 870	46 386	3 547
Washington	-	12	7	302	9 738	161	309	4 251	14 639	12 455	27 018	707
Wisconsin	3	36	20	2 457	94 312	1 646	3 344	55 652	289 395	192 933	482 426	22 091

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
323112, COMMERCIAL FLEXOGRAPHIC PRINTING		323112, COMMERCIAL FLEXOGRAPHIC PRINTING	
Companies ¹ number..		— Con.	
All establishments number..	867	Value added	\$1,000.. 2 529 176
Establishments with 1 to 19 employees number..	914	Total inventories, beginning of year	\$1,000.. 357 408
Establishments with 20 to 99 employees number..	556	Finished goods inventories, beginning of year	\$1,000.. 116 647
Establishments with 100 employees or more number..	296	Work-in-process inventories, beginning of year	\$1,000.. 59 834
All employees number..	62	Materials and supplies inventories, beginning of year	\$1,000.. 180 927
Total compensation ²	\$1,000.. 30 550	Total inventories, end of year	\$1,000.. 389 449
Annual payroll	\$1,000.. 1 242 941	Finished goods inventories, end of year	\$1,000.. 118 701
Total fringe benefits	\$1,000.. 1 030 923	Work-in-process inventories, end of year	\$1,000.. 82 091
Production workers, average for year	number.. 20 558	Materials and supplies inventories, end of year	\$1,000.. 188 657
Production workers on March 12	number.. 20 402	Gross book value of total assets at beginning of year	\$1,000.. 1 613 056
Production workers on May 12	number.. 20 613	Total capital expenditures (new and used)	\$1,000.. 209 206
Production workers on August 12	number.. 20 540	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 40 818
Production workers on November 12	number.. 20 677	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 168 388
Production-worker hours	1,000.. 42 207	Total retirements ²	\$1,000.. 42 317
Production-worker wages	\$1,000.. 564 285	Gross book value of total assets at end of year	\$1,000.. 1 779 945
Total cost of materials	\$1,000.. 2 181 050	Total depreciation during year ²	\$1,000.. 123 465
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 948 103	Total rental payments ²	\$1,000.. 71 679
Cost of resales	\$1,000.. 143 684	Buildings and other structures rental payments ²	\$1,000.. 34 884
Cost of fuels	\$1,000.. 9 387	Machinery and equipment rental payments ²	\$1,000.. 36 795
Cost of purchased electricity	\$1,000.. 33 729	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 6 394
Cost of contract work	\$1,000.. 46 147	Response coverage ratio ⁴	percent.. 69
Quantity of electricity purchased for heat and power	1,000 kWh.. 535 914	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 29 134
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Response coverage ratio ⁴	percent.. 69
Total value of shipments	\$1,000.. 4 685 915	Cost of purchased communications services ³	\$1,000.. 14 121
Primary products value of shipments	\$1,000.. 3 768 258	Response coverage ratio ⁴	percent.. 69
Secondary products value of shipments	\$1,000.. 646 773	Cost of purchased legal services ³	\$1,000.. 11 352
Total miscellaneous receipts	\$1,000.. 270 884	Response coverage ratio ⁴	percent.. 69
Value of resales	\$1,000.. 218 461	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 4 211
Contract receipts	\$1,000.. —	Response coverage ratio ⁴	percent.. 69
Other miscellaneous receipts	\$1,000.. 52 423	Cost of purchased advertising services ³	\$1,000.. 14 848
Primary products specialization ratio	percent.. 85	Response coverage ratio ⁴	percent.. 69
Value of primary products shipments made in all industries	\$1,000.. 4 368 500	Cost of purchased software and other data processing services ³	\$1,000.. 4 918
Value of primary products shipments made in this industry	\$1,000.. 3 768 258	Response coverage ratio ⁴	percent.. 69
Value of primary products shipments made in other industries	\$1,000.. 600 242	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 5 578
Coverage ratio	percent.. 86	Response coverage ratio ⁴	percent.. 69

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323112, COMMERCIAL FLEXOGRAPHIC PRINTING												
All establishments	1	914	358	30 550	1 030 923	20 558	42 207	564 285	2 529 176	2 181 050	4 685 915	209 206
Establishments with 1 to 4 employees	6	197	—	444	13 007	336	508	7 693	24 854	16 651	41 625	1 581
Establishments with 5 to 9 employees	2	156	—	1 071	28 715	713	1 274	16 390	64 083	53 317	117 609	4 818
Establishments with 10 to 19 employees	1	203	—	2 913	91 904	1 939	3 561	49 395	227 842	177 524	404 619	15 976
Establishments with 20 to 49 employees	—	206	206	6 174	214 715	4 065	7 952	105 358	501 761	432 445	933 873	27 050
Establishments with 50 to 99 employees	1	90	90	6 081	200 957	4 237	8 991	117 278	458 490	539 766	994 502	46 933
Establishments with 100 to 249 employees	1	44	44	5 985	197 423	3 925	7 931	106 283	483 014	405 924	885 297	56 887
Establishments with 250 to 499 employees	1	14	14	4 754	160 512	3 274	7 480	90 409	422 760	326 847	742 769	30 653
Establishments with 500 to 999 employees	4	3	3	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	1	1	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	130	—	408	8 550	292	418	4 978	17 719	12 687	30 425	1 345

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323112	Commercial flexographic printing	914	30 550	1 030 923	20 558	42 207	564 285	2 529 176	2 181 050	4 685 915	209 206
3231121	Label and wrapper printing (flexographic)	569	23 834	816 966	15 662	32 429	421 580	2 001 202	1 762 084	3 746 833	173 841
3231123	Flexographic printing, nec (excluding labels and wrappers)	84	4 924	172 696	3 656	7 825	118 691	448 266	362 173	802 421	29 251

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323112	Commercial flexographic printing	N	X	X	4 368 500	N	X	X	N
3231121	Label and wrapper printing (flexographic)	N	X	X	3 514 875	N	X	X	2 066 349
32311211	Label printing (flexographic), custom and stock labels, including bordered, made of paper, flat (except pressure-sensitive)	N	X	X	105 399	N	X	X	N
3231121111	Label printing (flexographic), custom and stock labels, including bordered, made of paper, flat (except pressure-sensitive)	44	X	X	105 399	22	X	X	27 791
32311212	Label printing (flexographic), custom and stock labels, including bordered, made of paper, rolls (except pressure-sensitive)	N	X	X	211 434	N	X	X	N
3231121216	Label printing (flexographic), custom and stock labels, including bordered, made of paper, rolls (except pressure-sensitive)	72	X	X	211 434	49	X	X	129 312
32311213	Label printing (flexographic), custom and stock labels, including bordered, made of paper, pressure-sensitive, flat	N	X	X	361 901	N	X	X	N
3231121321	Label printing (flexographic), custom and stock labels, including bordered, made of paper, pressure-sensitive, flat	92	X	X	361 901	71	X	X	242 225
32311214	Label printing (flexographic), custom and stock labels, including bordered, made of paper, pressure-sensitive, rolls	N	X	X	1 504 906	N	X	X	N
3231121426	Label printing (flexographic), custom and stock labels, including bordered, made of paper, pressure-sensitive, rolls	322	X	X	1 504 906	248	X	X	934 466
32311215	Label printing (flexographic), custom and stock labels, including bordered, made of materials other than paper or cloth	N	X	X	232 503	N	X	X	N
3231121531	Label printing (flexographic), custom and stock labels, including bordered, made of materials other than paper or cloth	62	X	X	232 503	50	X	X	130 766
32311216	Printed rolls and sheets for packaging purposes (printing only) (flexographic), made of paper (single-web)	N	X	X	217 509	N	X	X	N
3231121636	Printed rolls and sheets for packaging purposes (printing only) (flexographic), made of paper (single-web)	29	X	X	217 509	33	X	X	114 520
32311217	Printed rolls and sheets for packaging purposes (printing only) (flexographic), made of polyethylene (single-web)	N	X	X	170 826	N	X	X	N
3231121741	Printed rolls and sheets for packaging purposes (printing only) (flexographic), made of polyethylene (single-web)	29	X	X	170 826	33	X	X	152 126
32311218	Other printed rolls and sheets for packaging purposes (printing only) (flexographic), including multiweb structures	N	X	X	120 568	N	X	X	N
3231121846	Other printed rolls and sheets for packaging purposes (printing only) (flexographic), including multiweb structures	22	X	X	120 568	27	X	X	110 404
3231121Y	Label and wrapper printing (flexographic), nsk	N	X	X	589 829	N	X	X	N
3231121YWV	Label and wrapper printing (flexographic), nsk	N	X	X	589 829	N	X	X	224 739
3231123	Flexographic printing, nec (excluding labels and wrappers)	N	X	X	732 009	N	X	X	N
32311231	Magazine, periodical, and Sunday comic and supplement printing (flexographic)	N	X	X	D	N	X	X	N
3231123111	Magazine and periodical printing (flexographic)	2	X	X	D	2	X	X	N
3231123116	Magazine and comic supplement printing (flexographic) for Sunday newspapers	1	X	X	D	3	X	X	N
32311232	Flexographic printing, nec (excluding labels and wrappers)	N	X	X	D	N	X	X	N
3231123221	Financial and legal printing (flexographic), including annual corporate reports, bank printing, etc.	5	X	X	D	1	X	X	N
3231123226	Advertising printing (flexographic), including direct mail, display, preprinted newspaper inserts, book jackets	14	X	X	76 325	N	X	X	N
3231123231	Shopping news printing (flexographic)	-	X	X	-	N	X	X	N
3231123236	Newspaper printing (flexographic), except shopping news	-	X	X	-	8	X	X	4 663
3231123291	All other flexographic printing, nec	65	X	X	353 473	N	X	X	N

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323112	Commercial flexographic printing—Con.								
3231123	Flexographic printing, nec (excluding labels and wrappers)—Con.								
3231123Y	Flexographic printing, nec (excluding labels and wrappers), nsk	N	X	X	242 241	N	X	X	N
3231123YWW	Flexographic printing, nec (excluding labels and wrappers), nsk	N	X	X	242 241	N	X	X	N
323112W	Commercial flexographic printing, nsk, total	N	X	X	121 616	N	X	X	N
323112WY	Commercial flexographic printing, nsk, total	N	X	X	121 616	N	X	X	N
323112WYWW	Commercial flexographic printing, nsk for nonadministrative-record establishments	N	X	X	92 516	N	X	X	N
323112WYWY	Commercial flexographic printing, nsk, for administrative-record establishments	N	X	X	29 100	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231121	LABEL AND WRAPPER PRINTING (FLEXOGRAPHIC)		
	United States	3 514 875	2 066 349
	Alabama	42 208	10 417
	Arizona	16 660	8 971
	Arkansas	13 424	14 115
	California	253 511	160 892
	Colorado	32 602	18 940
	Connecticut	31 863	34 179
	Florida	132 583	43 492
	Georgia	110 949	65 239
	Illinois	241 312	148 101
	Indiana	169 845	87 634
	Iowa	16 843	6 277
	Kansas	123 702	55 069
	Kentucky	56 081	23 673
	Louisiana	43 056	N
	Maryland	19 548	18 075
	Massachusetts	56 253	62 321
	Michigan	114 691	75 658
	Minnesota	161 975	64 703
	Missouri	109 624	56 555
	Nebraska	98 502	67 337
	New Hampshire	55 925	16 095
	New Jersey	125 041	67 785
	New York	170 892	104 887
	North Carolina	136 523	103 347
	Ohio	339 275	277 209
	Oklahoma	3 929	N
	Oregon	62 448	6 944
	Pennsylvania	174 427	106 482
	Rhode Island	5 936	3 085
	South Carolina	7 543	18 879
	Tennessee	125 704	71 913
	Texas	108 293	49 178
	Utah	19 637	N
	Virginia	33 858	11 867
	Washington	26 343	7 823
	Wisconsin	232 447	133 074

See footnotes at end of table.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992—Con.

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231123	FLEXOGRAPHIC PRINTING, NEC (EXCLUDING LABELS AND WRAPPERS)		
	United States	732 009	N
	California	110 074	N
	Georgia	54 710	N
	Illinois	108 569	N
	Michigan	8 361	N
	Missouri	12 850	N
	New Jersey	7 120	N
	New York	5 627	N
	North Carolina	6 149	N
	Ohio	17 840	N
	Pennsylvania	20 192	N
	Rhode Island	11 769	N
	Texas	46 593	N
	Virginia	7 471	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323112	COMMERCIAL FLEXOGRAPHIC PRINTING				
32212203	Newsprint	X	D	X	N
32212009	Uncoated paper in sheets	X	14 175	X	N
32212011	Uncoated paper in rolls	X	97 827	X	N
32200011	Coated paper in sheets	X	11 700	X	N
32200013	Coated paper in rolls	X	165 591	X	N
32222200	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.	X	632 068	X	N
31320001	Cloth and nonwoven fabrics for hardbound book covers	X	D	X	N
32552003	Glues and adhesives	X	17 918	X	N
32591003	Printing ink	X	106 513	X	N
32599203	Light sensitive films and papers	X	6 438	X	N
32599201	Unexposed photosensitive printing plates	X	7 415	X	N
32312201	Printing plates, prepared for printing	X	33 514	X	N
32312209	Engraved printing cylinders for gravure printing	X	3 332	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	19 955	X	N
32223200	Purchased envelopes	X	2 254	X	N
00970099	All other materials and components, parts, containers, and supplies	X	315 902	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	446 570	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

323112 COMMERCIAL FLEXOGRAPHIC PRINTING

This U.S. industry comprises establishments primarily engaged in flexographic printing without publishing (except books, grey goods, and manifold business forms). This industry includes establishments engaged in flexographic printing on purchased stock materials, such as stationery, invitations, labels, and similar items, on a job order basis

The data published with NAICS code 323112 include the following SIC industries:

- 2759 Commercial printing, n.e.c. (pt)
- 2771 Greeting cards (pt)
- 3999 Manufacturing industries, n.e.c. (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3231101	27521	27521	3231113	27542	27542	3231131491 pt	3999985	3999999 pt
3231101111	2752112	2752112	3231113111	2754211	2754211	3231131YVW pt	2759800	2759800
3231101113	2752114	2752114	3231113116	2754213	2754213	3231131YVW pt	2771200 pt	2771200 pt
3231101121	2752117	2752117	3231113121	2754215	2754215	3231131YVW pt	3999900 pt	3999900 pt
3231101YVW	2752100	2752100	3231113126	2754217	2754217			
3231103	27522	27522	3231113231	2754232	2754232	3231133 pt	23964	23964
3231103111	2752211	2752211	3231113236	2754237	2754237	3231133 pt	23969	93000 pt
3231103116	2752213	2752213	3231113YVW	2754200	2754200	3231133111	2396435	2396434 pt
3231103121	2752217	2752217				3231133116	2396436	2396434 pt
3231103126	2752220	2752220	3231115	27543	27543	3231133121	2396437	2396437
3231103131	2752234	2752234	3231115100	2754300	2754300	3231133YVW pt	2396400	2396400
3231103136	2752243	2752243				3231133YVW pt	2396900	9300000 pt
3231103YVW	2752200	2752200						
3231105	27523	27523				323113W pt	23960 pt	23960 pt
3231105111	2752312	2752312				323113W pt	27590 pt	27590 pt
3231105113	2752314	2752314						
3231105121	2752318	2752318						
3231105126	2752324	2752324						
3231105128	2752326	2752326						
3231105YVW	2752300	2752300						
3231107	27524	27524						
3231107111	2752412	2752412						
3231107113	2752414	2752414						
3231107121	2752416	2752416						
3231107123	2752418	2752418						
3231107131	2752421	2752421						
3231107133	2752422	2752422						
3231107141	2752424	2752424						
3231107143	2752426	2752426						
3231107151	2752427	2752427						
3231107YVW	2752400	2752400						
3231109	27525	27525						
3231109111	2752512	2752512						
3231109113	2752514	2752514						
3231109221	2752523	2752523						
3231109226	2752526	2752526						
3231109228	2752528	2752528						
3231109236	2752532	2752532						
3231109241	2752533	2752533						
3231109246	2752541	2752541						
3231109251	2752545	2752545						
3231109256	2752552	2752552						
3231109258	2752554	2752554						
3231109YVW	2752500	2752500						
323110B pt	27526 pt	27526 pt						
323110B pt	27712 pt	27712 pt						
323110B pt	39999 pt	39999 pt						
323110B111	2752611	2752611						
323110B116 pt	2752617 pt	2752616						
323110B116 pt	2752617 pt	2752618						
323110B121	2752621	2752621						
323110B126	2752636	2752636						
323110B128	2752638	2752638						
323110B136	2752644	2752644						
323110B141	2752647	2752647						
323110B146	2752651	2752651						
323110B151	2752677	2752677						
323110B156	2752683	2752683						
323110B161	2752684	2752684						
323110B166	2752692	2752692						
323110B168	2752694	2752694						
323110B176	2752695	2752695						
323110B181 pt	2771200 pt	2771200 pt						
323110B181 pt	2771201	2771200 pt						
323110B191 pt	2752697 pt	2752671 pt						
323110B191 pt	2752697 pt	2752697						
323110B191 pt	3999984	3999999 pt						
323110B193 pt	2752699 pt	2752671 pt						
323110B193 pt	2752699 pt	2752699						
323110BYVW pt	2752600 pt	2752600 pt						
323110BYVW pt	2771200 pt	2771200 pt						
323110BYVW pt	3999900 pt	3999900 pt						
323110W pt	27520 pt	27520 pt						
323110W pt	27710 pt	27710 pt						
323110W pt	39990 pt	39990 pt						
323110WYVW pt	2752000 pt	2752000 pt						
323110WYVW pt	2771000 pt	2771000 pt						
323110WYVW pt	3999000 pt	3999000 pt						
323110WYVW pt	2752002 pt	2752002 pt						
323110WYVW pt	2771002 pt	2771002 pt						
323110WYVW pt	3999002 pt	3999002 pt						
3231111	27541	27541						
3231111111	2754133	2754133						
3231111116	2754135	2754135						
3231111YVW	2754100	2754100						
32311113	27542	27542						
32311113111	2754211	2754211						
32311113116	2754213	2754213						
32311113121	2754215	2754215						
32311113126	2754217	2754217						
32311113231	2754232	2754232						
32311113236	2754237	2754237						
32311113YVW	2754200	2754200						
3231115	27543	27543						
3231115100	2754300	2754300						
3231117	27545	27545						
3231117111	2754511	2754511						
3231117116	2754545	2754545						
3231117121	2754548	2754548						
3231117YVW	2754500	2754500						
3231119 pt	27546	27546						
3231119 pt	27712 pt	27712 pt						
3231119 pt	39999 pt	39999 pt						
3231119111	2754651	2754651						
3231119191 pt	2754695	2754695						
3231119191 pt	2771203	2771200 pt						
3231119191 pt	3999983	3999999 pt						
3231119YVW pt	2754600	2754600						
3231119YVW pt	2771200 pt	2771200 pt						
3231119YVW pt	3999900 pt	3999900 pt						
323111W pt	27540	27540						
323111W pt	27710 pt	27710 pt						
323111W pt	39990 pt	39990 pt						
323111WYVW pt	2754000	2754000						
323111WYVW pt	2771000 pt	2771000 pt						
323111WYVW pt	3999000 pt	3999000 pt						
323111WYVW pt	2754002	2754002						
323111WYVW pt	2771002 pt	2771002 pt						
323111WYVW pt	3999002 pt	3999002 pt						
3231121	2759B	2759B						
3231121111	2759B14	2759B14						
3231121216	2759B16	2759B16						
3231121321	2759B18	2759B18						
3231121426	2759B20	2759B20						
3231121531	2759B22	2759B22						
3231121636	2759B26	2759B26						
3231121741	2759B28	2759B28						
3231121846	2759B30	2759B30						
3231121YVW	2759B00	2759B00						
3231123 pt	2759C	2759C						
3231123 pt	27712 pt	27712 pt						
3231123 pt	39999 pt	39999 pt						
3231123111	2759C29	2759C29						
3231123116	2759C31	2759C31						
3231123221	2759C32	2759C32						
3231123226	2759C33	2759C33						
3231123231	2759C35	2759C34 pt						
3231123236	2759C36	2759C36						
3231123291 pt	2759C38	2759C38						
3231123291 pt	2771207	2771200 pt						
3231123291 pt	3999982	3999999 pt						
3231123YVW pt	2759C00	2759C00						
3231123YVW pt	2771200 pt	2771200 pt						
3231123YVW pt	3999900 pt	3999900 pt						
323112W pt	27590 pt	27590 pt						
323112W pt	27710 pt	27710 pt						
323112W pt	39990 pt	39990 pt						
323112WYVW pt	2759000 pt	2759000 pt						
323112WYVW pt	2771000 pt	2771000 pt						
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3231131 pt	27712 pt	27712 pt						
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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econgguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Compan-ies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-ditures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323113	Commercial screen printing ...	4 084	4 131	72 005	1 725 301	53 125	95 460	983 749	3 703 554	2 876 364	6 579 415	265 891
239630	Automotive & apparel trimmings (pt)	N	2 158	34 120	720 855	25 846	45 451	419 184	1 621 867	1 676 213	3 306 179	107 675
275920	Commercial printing, n.e.c. (pt)	N	1 970	37 795	1 000 959	27 214	49 877	562 859	2 075 100	1 196 054	3 262 591	157 871
277140	Greeting cards (pt)	N	3	90	3 487	65	132	1 706	6 587	4 097	10 645	345
399940	Manufacturing industries, n.e.c. (pt)	N	-	-	-	-	-	-	-	-	-	-

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments		All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-ditures (\$1,000)	
	E ¹	Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)					Wages (\$1,000)
323113, COMMERCIAL SCREEN PRINTING												
United States	2	4 131	774	72 005	1 725 301	53 125	95 460	983 749	3 703 554	2 876 364	6 579 415	265 891
Alabama	4	73	10	584	10 977	448	671	6 447	23 249	15 382	38 500	2 029
Arizona	3	78	9	738	14 329	552	886	7 792	29 033	22 640	51 587	3 869
Arkansas	3	35	1	197	3 772	134	207	1 920	8 595	5 955	14 705	389
California	2	569	148	12 700	299 679	9 818	17 599	166 134	594 061	478 681	1 072 321	39 916
Colorado	3	79	13	866	19 812	656	1 293	12 017	45 708	33 798	79 673	2 849
Connecticut	1	45	6	620	19 075	480	948	11 850	47 866	19 681	67 436	3 709
Florida	2	225	35	3 810	76 008	2 955	4 543	44 393	201 912	126 142	329 099	12 831
Georgia	1	111	17	1 247	30 743	795	1 372	14 018	65 303	57 352	124 357	6 920
Hawaii *	-	24	3	201	3 764	145	249	2 100	10 503	16 428	27 228	424
Idaho	1	16	1	106	1 656	80	117	1 035	3 888	3 014	6 906	263
Illinois	2	160	38	2 587	66 677	1 833	3 273	34 692	127 231	81 659	208 165	13 234
Indiana	-	65	9	1 443	33 324	1 051	1 833	17 843	99 859	121 886	220 634	4 399
Iowa	-	42	8	985	22 598	736	1 239	13 289	53 429	63 588	113 711	3 381
Kansas	3	50	14	2 231	63 772	1 666	3 494	34 881	129 959	98 789	228 667	8 505
Kentucky	1	39	10	803	19 544	604	1 091	11 645	51 544	30 367	82 291	1 884
Louisiana	2	41	6	364	6 983	249	422	3 509	12 168	10 263	22 723	764
Maine	5	23	3	239	4 992	162	269	2 592	10 146	11 844	22 083	760
Maryland	1	54	14	900	21 065	639	1 105	12 118	36 690	33 063	70 273	2 899
Massachusetts	4	111	28	2 239	70 383	1 641	3 101	44 601	131 215	94 597	225 921	8 745
Michigan	4	141	11	1 758	45 472	1 113	2 121	22 595	92 934	66 642	158 577	6 601
Minnesota	-	108	26	2 901	72 935	1 886	3 399	39 323	205 319	107 055	308 312	13 748
Mississippi	1	25	4	195	4 535	145	253	2 363	9 417	7 267	16 657	360
Missouri	1	95	17	1 193	25 794	912	1 672	15 943	64 324	46 760	108 345	2 843
Montana	-	5	1	149	2 471	111	156	1 384	6 038	6 444	12 475	719
Nebraska	2	33	2	261	5 407	193	264	3 047	13 158	6 400	19 320	568
Nevada	1	24	7	446	9 769	312	588	5 200	18 505	13 930	32 594	685
New Hampshire	9	33	4	674	24 386	321	613	8 405	73 373	90 925	166 453	4 898
New Jersey	3	147	29	2 862	67 659	2 223	3 997	41 495	136 856	87 871	224 497	7 567
New York	5	241	40	3 500	88 016	2 724	4 921	53 009	192 748	141 792	324 696	18 860
North Carolina	-	161	28	2 898	66 814	2 265	3 933	40 914	142 555	115 036	274 193	14 449
Ohio	1	178	44	4 642	114 897	3 261	6 163	63 378	247 959	187 947	429 312	22 846
Oklahoma	1	59	8	834	18 572	577	972	9 320	34 200	27 966	61 951	3 250
Oregon	4	61	4	505	10 882	370	635	6 306	24 637	18 453	43 004	1 750
Pennsylvania	2	149	28	2 152	44 096	1 650	2 884	26 909	84 896	54 091	139 517	5 138
Rhode Island	1	24	6	423	12 191	282	552	6 528	29 054	33 481	62 452	1 205
South Carolina	2	65	13	1 057	22 867	794	1 407	13 344	46 292	38 510	85 575	3 467
South Dakota	3	11	3	141	2 523	121	190	1 521	6 191	3 314	9 305	129
Tennessee	-	87	20	1 927	47 141	1 445	3 120	32 361	67 699	110 356	184 124	7 138
Texas	3	241	37	3 031	67 316	2 123	3 550	36 479	146 617	87 596	234 707	8 589
Utah	1	34	9	803	16 893	646	1 114	11 058	34 539	21 253	56 140	2 680
Vermont	2	13	1	102	1 921	78	133	1 199	4 126	4 147	8 250	404
Virginia	4	63	8	736	14 342	553	1 077	9 272	25 842	33 107	59 121	1 696
Washington	3	105	12	907	19 938	636	1 033	10 976	43 433	28 065	71 560	2 792
West Virginia	-	12	2	352	7 393	267	499	5 046	23 746	30 002	53 335	1 020
Wisconsin	1	132	35	4 424	116 140	3 276	6 165	70 294	235 419	174 632	408 091	13 872

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
323113, COMMERCIAL SCREEN PRINTING		323113, COMMERCIAL SCREEN PRINTING—Con.	
Companies ¹	number.. 4 084	Value added	\$1,000.. 3 703 554
All establishments	number.. 4 131	Total inventories, beginning of year	\$1,000.. 645 100
Establishments with 1 to 19 employees	number.. 3 357	Finished goods inventories, beginning of year	\$1,000.. 277 979
Establishments with 20 to 99 employees	number.. 649	Work-in-process inventories, beginning of year	\$1,000.. 102 984
Establishments with 100 employees or more	number.. 125	Materials and supplies inventories, beginning of year	\$1,000.. 264 137
All employees	number.. 72 005	Total inventories, end of year	\$1,000.. 679 882
Total compensation ²	\$1,000.. 2 063 468	Finished goods inventories, end of year	\$1,000.. 279 793
Annual payroll	\$1,000.. 1 725 301	Work-in-process inventories, end of year	\$1,000.. 101 673
Total fringe benefits	\$1,000.. 338 167	Materials and supplies inventories, end of year	\$1,000.. 298 416
Production workers, average for year	number.. 53 125	Gross book value of total assets at beginning of year	\$1,000.. 1 688 647
Production workers on March 12	number.. 52 916	Total capital expenditures (new and used)	\$1,000.. 265 891
Production workers on May 12	number.. 53 449	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 54 700
Production workers on August 12	number.. 53 540	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 211 191
Production workers on November 12	number.. 52 823	Total retirements ²	\$1,000.. 67 493
Production-worker hours	1,000.. 95 460	Gross book value of total assets at end of year	\$1,000.. 1 887 045
Production-worker wages	\$1,000.. 983 749	Total depreciation during year ²	\$1,000.. 140 579
Total cost of materials	\$1,000.. 2 876 364	Total rental payments ²	\$1,000.. 160 224
Cost of materials, parts, containers, etc., consumed	\$1,000.. 2 364 528	Buildings and other structures rental payments ²	\$1,000.. 86 375
Cost of resales	\$1,000.. 286 399	Machinery and equipment rental payments ²	\$1,000.. 73 849
Cost of fuels	\$1,000.. 23 615	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 9 215
Cost of purchased electricity	\$1,000.. 51 492	Response coverage ratio ⁴	percent.. 74
Cost of contract work	\$1,000.. 150 330	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 25 204
Quantity of electricity purchased for heat and power	1,000 kWh.. 770 343	Response coverage ratio ⁴	percent.. 74
Quantity of electricity generated less sold for heat and power	1,000 kWh.. -	Cost of purchased communications services ³	\$1,000.. 23 020
Total value of shipments	\$1,000.. 6 579 415	Response coverage ratio ⁴	percent.. 74
Primary products value of shipments	\$1,000.. 5 642 713	Cost of purchased legal services ³	\$1,000.. 10 247
Secondary products value of shipments	\$1,000.. 464 367	Response coverage ratio ⁴	percent.. 74
Total miscellaneous receipts	\$1,000.. 472 335	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 9 751
Value of resales	\$1,000.. 433 252	Response coverage ratio ⁴	percent.. 74
Contract receipts	\$1,000.. -	Cost of purchased advertising services ³	\$1,000.. 42 098
Other miscellaneous receipts	\$1,000.. 39 083	Response coverage ratio ⁴	percent.. 74
Primary products specialization ratio	percent.. 92	Cost of purchased software and other data processing services ³	\$1,000.. 8 321
Value of primary products shipments made in all industries	\$1,000.. 6 007 844	Response coverage ratio ⁴	percent.. 74
Value of primary products shipments made in this industry	\$1,000.. 5 642 713	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 5 650
Value of primary products shipments made in other industries	\$1,000.. 365 131	Response coverage ratio ⁴	percent.. 74
Coverage ratio	percent.. 93		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)	
	E ¹	Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)					Wages (\$1,000)
323113. COMMERCIAL SCREEN PRINTING												
All establishments	2	4 131	774	72 005	1 725 301	53 125	95 460	983 749	3 703 554	2 876 364	6 579 415	265 891
Establishments with 1 to 4 employees	7	1 868	—	3 825	68 566	3 016	4 267	39 919	152 905	141 137	294 319	12 310
Establishments with 5 to 9 employees	4	891	—	5 832	113 378	4 297	6 542	66 469	240 780	193 664	438 025	16 366
Establishments with 10 to 19 employees	2	598	—	8 067	186 608	5 803	9 955	107 045	389 391	288 685	677 639	24 588
Establishments with 20 to 49 employees	2	464	464	14 369	351 164	10 451	18 467	190 555	688 518	514 513	1 207 253	44 771
Establishments with 50 to 99 employees	2	185	185	12 848	324 394	9 467	17 666	182 598	727 888	461 115	1 185 475	53 177
Establishments with 100 to 249 employees	1	95	95	14 479	366 408	10 685	20 051	206 178	729 085	596 968	1 342 727	67 493
Establishments with 250 to 499 employees	2	22	22	7 163	185 010	5 402	11 118	106 504	453 670	387 231	832 845	27 553
Establishments with 500 to 999 employees	4	7	7	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	1	1	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	1 774	—	5 451	85 389	4 221	5 430	49 246	179 311	174 090	353 554	16 189

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323113	Commercial screen printing	4 131	72 005	1 725 301	53 125	95 460	983 749	3 703 554	2 876 364	6 579 415	265 891
3231131	Screen printing, except on textiles ...	937	33 047	899 578	23 893	44 950	503 365	1 864 887	1 044 858	2 900 721	141 862
3231133	Screen printing on garments, apparel accessories, and other fabric articles	933	28 408	632 423	21 176	39 186	368 573	1 430 868	1 448 149	2 886 929	87 823

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323113	Commercial screen printing	N	X	X	6 007 844	N	X	X	N
3231131	Screen printing, except on textiles	N	X	X	2 776 509	N	X	X	N
32311311	Screen printed labels	N	X	X	531 197	N	X	X	N
3231131111	Screen printed paper labels, custom and stock, including bordered, pressure-sensitive, flat	83	X	X	197 465	51	X	X	121 535
3231131116	Screen printed paper labels, custom and stock, including bordered, pressure-sensitive, rolls	31	X	X	78 945	19	X	X	56 775
3231131121	Other screen printed paper labels, custom and stock, including bordered	11	X	X	9 379	9	X	X	15 783
3231131126	Screen printed labels made of materials other than paper or cloth, custom and stock, including bordered	91	X	X	235 208	88	X	X	207 590
3231131181	Screen printed greeting cards, printed for publication by others	4	X	X	10 200	N	X	X	N
32311312	Screen printed advertising materials	N	X	X	560 696	N	X	X	N
3231131231	Screen printed display advertising posters, including outdoor advertising, car cards, window, etc.	153	X	X	254 524	132	X	X	176 255
3231131236	Screen printed display advertising, including counter, floor display, point-of-purchase, and other printed advertising display material	110	X	X	235 957	100	X	X	124 885
3231131241	Other screen printed advertising materials	36	X	X	70 215	59	X	X	83 448
32311313	Screen printed decalcomanias and pressure-sensitives (self-adhesive), including bumper stickers, etc., excluding labels	N	X	X	531 603	N	X	X	N
3231131346	Screen printed decalcomanias and pressure-sensitives (self-adhesive), including bumper stickers, etc., excluding labels	178	X	X	531 603	183	X	X	405 041
32311314	Screen printing, nec, except on textiles	N	X	X	678 147	N	X	X	N
3231131451	Screen printing on metal	108	X	X	137 461	96	X	X	86 745
3231131456	Screen printing on glass or plastics containers for others	54	X	X	187 011	56	X	X	98 814
3231131491	All other general commercial screen printing, nec (excluding printing on apparel or fabrics)	126	X	X	353 675	N	X	X	N
3231131Y	Screen printing, except on textiles, nsk	N	X	X	474 866	N	X	X	N
3231131YWV	Screen printing, except on textiles, nsk	N	X	X	474 866	N	X	X	N
3231133	Screen printing on garments, apparel accessories, and other fabric articles	N	X	X	2 496 153	N	X	X	N
32311331	Screen printing on garments, apparel accessories, and other fabric articles	N	X	X	2 357 337	N	X	X	N
3231133111	Screen printing on apparel and apparel accessories, made of any material	863	X	X	1 919 856	N	X	X	N
3231133116	Screen printing on fabric articles other than apparel or apparel accessories	120	X	X	390 338	N	X	X	N
3231133121	Stamped art goods for embroidering, punching, and needlework	17	X	X	47 143	8	X	X	36 599
3231133Y	Screen printing on garments, apparel accessories, and other fabric articles, nsk	N	X	X	138 816	N	X	X	N
3231133YWV	Screen printing on garments, apparel accessories, and other fabric articles, nsk	N	X	X	138 816	N	X	X	N
323113W	Commercial screen printing, nsk, total	N	X	X	735 182	N	X	X	N
323113WY	Commercial screen printing, nsk, total	N	X	X	735 182	N	X	X	N
323113WYWW	Commercial screen printing, nsk, for nonadministrative-record establishments	N	X	X	421 967	N	X	X	N
323113WYWY	Commercial screen printing, nsk, for administrative-record establishments	N	X	X	313 215	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231131	SCREEN PRINTING, EXCEPT ON TEXTILES		
	United States	2 776 509	N
	Alabama	14 440	N
	Arizona	15 091	N
	Arkansas	3 044	N
	California	325 392	N
	Colorado	34 204	N
	Connecticut	60 321	N
	Florida	84 610	N
	Georgia	52 968	N
	Idaho	2 561	N
	Illinois	141 223	N
	Indiana	49 185	N
	Iowa	58 265	N
	Kansas	124 248	N
	Kentucky	46 425	N
	Louisiana	6 268	N
	Maryland	20 587	N
	Massachusetts	74 586	N
	Michigan	74 475	N
	Minnesota	216 604	N
	Mississippi	9 355	N
	Missouri	43 795	N
	Nebraska	17 698	N
	Nevada	11 958	N
	New Hampshire	9 563	N
	New Jersey	122 396	N
	New York	112 537	N
	North Carolina	61 808	N
	North Dakota	3 219	N
	Ohio	235 087	N
	Oklahoma	39 908	N
	Oregon	13 250	N
Pennsylvania	87 400	N	
Rhode Island	4 821	N	
South Carolina	39 911	N	
South Dakota	9 116	N	
Tennessee	84 566	N	
Texas	128 642	N	
Utah	21 341	N	
Virginia	12 912	N	
Washington	28 687	N	
Wisconsin	244 965	N	
3231133	SCREEN PRINTING ON GARMENTS, APPAREL ACCESSORIES, AND OTHER FABRIC ARTICLES		
	United States	2 496 153	N
	Alabama	14 015	N
	Arizona	23 595	N
	Arkansas	5 659	N
	California	464 970	N
	Colorado	29 202	N
	Connecticut	3 149	N
	Florida	185 659	N
	Georgia	14 544	N
	Hawaii	23 821	N
	Idaho	3 421	N
	Illinois	45 230	N
	Iowa	31 894	N
	Kansas	101 597	N
	Kentucky	22 299	N
	Louisiana	9 700	N
	Maine	5 497	N
	Maryland	32 194	N
	Massachusetts	88 501	N
	Michigan	48 096	N
	Minnesota	46 073	N
	Mississippi	4 052	N
	Missouri	49 845	N
	Nebraska	5 952	N
	Nevada	11 511	N
	New Jersey	66 719	N
	New Mexico	5 304	N
	New York	116 758	N
	North Carolina	174 859	N
	Ohio	143 874	N
	Oklahoma	5 307	N
	Oregon	16 456	N
Pennsylvania	40 212	N	
Rhode Island	43 121	N	
South Carolina	35 349	N	
Tennessee	94 242	N	
Texas	58 323	N	
Utah	20 763	N	
Vermont	4 136	N	
Virginia	37 131	N	
Washington	28 300	N	
Wisconsin	80 326	N	
Wyoming	2 252	N	

See footnotes at end of table.

Table 6b. **Product Class Shipments for Selected States: 1997 and 1992—Con.**

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. **Materials Consumed by Kind: 1997 and 1992**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323113	COMMERCIAL SCREEN PRINTING				
32212203	Newsprint.....	X	1 222	X	N
32212009	Uncoated paper in sheets.....	X	13 339	X	N
32212011	Uncoated paper in rolls.....	X	2 684	X	N
32200011	Coated paper in sheets.....	X	27 323	X	N
32200013	Coated paper in rolls.....	X	7 130	X	N
32222200	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.....	X	195 191	X	N
31320001	Cloth and nonwoven fabrics for hardbound book covers.....	X	4 727	X	N
32552003	Glues and adhesives.....	X	13 800	X	N
32591003	Printing ink.....	X	81 196	X	N
32599203	Light sensitive films and papers.....	X	8 024	X	N
32599201	Unexposed photosensitive printing plates.....	X	655	X	N
32312201	Printing plates, prepared for printing.....	X	3 043	X	N
32312209	Engraved printing cylinders for gravure printing.....	X	D	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard.....	X	13 799	X	N
32223200	Purchased envelopes.....	X	1 977	X	N
31321003	Cotton broadwoven fabrics (piece goods).....mil sq yd..	S	33 286	X	N
31321013	Polyester broadwoven fabrics (piece goods).....mil sq yd..	S	10 520	X	N
31321009	Rayon and acetate broadwoven fabrics (piece goods).....mil sq yd..	D	D	X	N
31321021	Other broadwoven fabrics (piece goods).....mil sq yd..	S	5 308	X	N
31322103	Narrow fabrics (12 inches or less in width).....mil sq yd..	D	D	X	N
31311003	Yarn, all fibers.....mil lb..	S	2 497	X	N
31332001	Plastics coated, impregnated, or laminated fabrics.....mil sq yd..	S	713	X	N
31500000	Garments purchased to be printed and resold.....	X	632 149	X	N
00970099	All other materials and components, parts, containers, and supplies.....	X	437 832	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.....	X	867 714	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

323113 COMMERCIAL SCREEN PRINTING

This U.S. industry comprises establishments primarily engaged in screen printing without publishing (except books, grey goods, and manifold business forms). This industry includes establishments engaged in screen printing on purchased stock materials, such as stationery, invitations, labels, and similar items, on a job order basis. Establishments primarily engaged in printing on apparel

and textile products, such as T-shirts, caps, jackets, towels, and napkins, are included in this industry.

The data published with NAICS code 3231 13 include the following SIC industries:

- 2396 Automotive and apparel trimmings (pt)
- 2759 Commercial printing, n.e.c. (pt)
- 2771 Greeting cards (pt)
- 3999 Manufacturing industries, n.e.c. (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3231101.....	27521.....	27521.....	3231113.....	27542.....	27542.....	3231131491 pt.....	3999985.....	3999999 pt.....
3231101111.....	2752112.....	2752112.....	3231113111.....	2754211.....	2754211.....	3231131YVW pt.....	2759800.....	2759800.....
3231101113.....	2752114.....	2752114.....	3231113116.....	2754213.....	2754213.....	3231131YVW pt.....	2771200 pt.....	2771200 pt.....
3231101121.....	2752117.....	2752117.....	3231113121.....	2754215.....	2754215.....	3231131YVW pt.....	3999900 pt.....	3999900 pt.....
3231101YVW.....	2752100.....	2752100.....	3231113126.....	2754217.....	2754217.....			
3231103.....	27522.....	27522.....	3231113231.....	2754232.....	2754232.....	3231133 pt.....	23964.....	23964.....
3231103111.....	2752211.....	2752211.....	3231113236.....	2754237.....	2754237.....	3231133 pt.....	23969.....	93000 pt.....
3231103116.....	2752213.....	2752213.....	3231113YVW.....	2754200.....	2754200.....	3231133111.....	2396435.....	2396434 pt.....
3231103121.....	2752217.....	2752217.....				3231133116.....	2396436.....	2396434 pt.....
3231103126.....	2752220.....	2752220.....	3231115.....	27543.....	27543.....	3231133121.....	2396437.....	2396437.....
3231103131.....	2752234.....	2752234.....	3231115100.....	2754300.....	2754300.....	3231133YVW pt.....	2396400.....	2396400.....
3231103136.....	2752243.....	2752243.....				3231133YVW pt.....	2396900.....	9300000 pt.....
3231103YVW.....	2752200.....	2752200.....	3231117.....	27545.....	27545.....			
3231105.....	27523.....	27523.....	3231117111.....	2754511.....	2754511.....	323113W pt.....	23960 pt.....	23960 pt.....
3231105111.....	2752312.....	2752312.....	3231117116.....	2754545.....	2754545.....	323113W pt.....	27590 pt.....	27590 pt.....
3231105113.....	2752314.....	2752314.....	3231117121.....	2754548.....	2754548.....			
3231105121.....	2752318.....	2752318.....	3231117YVW.....	2754500.....	2754500.....			
3231105126.....	2752324.....	2752324.....	3231119 pt.....	27546.....	27546.....			
3231105128.....	2752326.....	2752326.....	3231119 pt.....	27712 pt.....	27712 pt.....	323113W pt.....	27710 pt.....	27710 pt.....
3231105128.....	2752326.....	2752326.....				323113W pt.....	27710 pt.....	27710 pt.....
3231105YVW.....	2752300.....	2752300.....	3231119 pt.....	39999 pt.....	39999 pt.....	323113WYVW pt.....	2396000 pt.....	2396000 pt.....
3231107.....	27524.....	27524.....	3231119111.....	2754651.....	2754651.....	323113WYVW pt.....	2759000 pt.....	2759000 pt.....
3231107111.....	2752412.....	2752412.....	3231119191 pt.....	2754695.....	2754695.....	323113WYVW pt.....	2771000 pt.....	2771000 pt.....
3231107113.....	2752414.....	2752414.....	3231119191 pt.....	2771203.....	2771203 pt.....	323113WYVW pt.....	3999000 pt.....	3999000 pt.....
3231107121.....	2752416.....	2752416.....	3231119191 pt.....	3999983.....	3999999 pt.....	323113WYVW pt.....	2396002 pt.....	2396002 pt.....
3231107123.....	2752418.....	2752418.....	3231119YVW pt.....	2754600.....	2754600.....	323113WYVW pt.....	2759002 pt.....	2759002 pt.....
3231107131.....	2752421.....	2752421.....	3231119YVW pt.....	2771200 pt.....	2771200 pt.....	323113WYVW pt.....	2771002 pt.....	2771002 pt.....
3231107133.....	2752422.....	2752422.....	3231119YVW pt.....	3999900 pt.....	3999900 pt.....	323113WYVW pt.....	3999002 pt.....	3999002 pt.....
3231107141.....	2752424.....	2752424.....	323111W pt.....	27540.....	27540.....			
3231107143.....	2752426.....	2752426.....	323111W pt.....	27710 pt.....	27710 pt.....	3231140 pt.....	27526 pt.....	27526 pt.....
3231107151.....	2752427.....	2752427.....				3231140 pt.....	27526 pt.....	27526 pt.....
3231107YVW.....	2752400.....	2752400.....	323111W pt.....	39990 pt.....	39990 pt.....	3231140 pt.....	27590 pt.....	27590 pt.....
3231109.....	27525.....	27525.....	323111WYVW pt.....	2754000.....	2754000.....	3231140100 pt.....	2759A pt.....	2759A pt.....
3231109111.....	2752512.....	2752512.....	323111WYVW pt.....	2771000 pt.....	2771000 pt.....	3231140100 pt.....	2752696.....	2752696.....
3231109113.....	2752514.....	2752514.....	323111WYVW pt.....	3999000 pt.....	3999000 pt.....	3231140100 pt.....	2759A12.....	2759A00 pt.....
3231109221.....	2752523.....	2752523.....	323111WYVW pt.....	2754002.....	2754002.....	3231140YVW pt.....	2752000 pt.....	2752000 pt.....
3231109226.....	2752526.....	2752526.....	323111WYVW pt.....	2771002 pt.....	2771002 pt.....	3231140YVW pt.....	2752600 pt.....	2752600 pt.....
3231109228.....	2752528.....	2752528.....	323111WYVW pt.....	3999002 pt.....	3999002 pt.....	3231140YVW pt.....	2759000 pt.....	2759000 pt.....
3231109236.....	2752532.....	2752532.....				3231140YVW pt.....	2759A00 pt.....	2759A00 pt.....
3231109241.....	2752533.....	2752533.....	3231121.....	2759B.....	2759B.....	3231140YVW pt.....	2752002 pt.....	2752002 pt.....
3231109246.....	2752541.....	2752541.....	3231121111.....	2759B14.....	2759B14.....	3231140YVW pt.....	2759002 pt.....	2759002 pt.....
3231109251.....	2752545.....	2752545.....	3231121216.....	2759B16.....	2759B16.....			
3231109256.....	2752552.....	2752552.....	3231121321.....	2759B18.....	2759B18.....			
3231109258.....	2752554.....	2752554.....	3231121426.....	2759B20.....	2759B20.....	3231150 pt.....	27590 pt.....	27590 pt.....
3231109YVW.....	2752500.....	2752500.....	3231121531.....	2759B22.....	2759B22.....	3231150 pt.....	2759A pt.....	2759A pt.....
323110B pt.....	27526 pt.....	27526 pt.....	3231121636.....	2759B26.....	2759B26.....	3231150100.....	2759A14.....	2759A00 pt.....
323110B pt.....	27712 pt.....	27712 pt.....	3231121741.....	2759B28.....	2759B28.....	3231150YVW pt.....	2759000 pt.....	2759000 pt.....
			3231121846.....	2759B30.....	2759B30.....	3231150YVW pt.....	2759A00 pt.....	2759A00 pt.....
			3231121YVW.....	2759B00.....	2759B00.....	3231150YVW.....	2759002 pt.....	2759002 pt.....
323110B pt.....	39999 pt.....	39999 pt.....	3231123 pt.....	2759C.....	2759C.....			
323110B111.....	2752611.....	2752611.....	3231123 pt.....	27712 pt.....	27712 pt.....	3231161.....	27612.....	27612.....
323110B116 pt.....	2752617 pt.....	2752616.....				3231161111.....	2761211.....	2761211.....
323110B116 pt.....	2752617 pt.....	2752618.....	3231123 pt.....	39999 pt.....	39999 pt.....	3231161121.....	2761213.....	2761213.....
323110B121.....	2752621.....	2752621.....	3231123111.....	2759C29.....	2759C29.....	3231161126.....	2761215.....	2761215.....
323110B126.....	2752636.....	2752636.....	3231123116.....	2759C31.....	2759C31.....	3231161231.....	2761253.....	2761253.....
323110B128.....	2752638.....	2752638.....	3231123221.....	2759C32.....	2759C32.....	3231161336.....	2761255.....	2761255.....
323110B136.....	2752644.....	2752644.....	3231123226.....	2759C33.....	2759C33.....	3231161441.....	2761261.....	2761261.....
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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Compan-ies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-ditures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323114	Quick printing	7 992	8 270	52 231	1 252 372	36 601	59 227	768 086	2 659 102	1 480 276	4 136 760	191 838
275220	Commercial printing, lithographic (pt)	N	8 037	46 385	1 074 878	32 570	51 411	666 858	2 271 839	1 272 437	3 541 394	159 100
275930	Commercial printing, n.e.c. (pt)	N	233	5 846	177 494	4 031	7 816	101 228	387 263	207 839	595 366	32 738

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments		All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-ditures (\$1,000)	
	E ¹	Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)					Wages (\$1,000)
323114, QUICK PRINTING												
United States	2	8 270	384	52 231	1 252 372	36 601	59 227	768 086	2 659 102	1 480 276	4 136 760	191 838
Alabama	1	98	7	1 117	24 358	740	1 321	14 402	58 314	50 167	108 654	2 489
Arizona	2	168	9	1 286	28 119	962	1 406	17 456	67 311	33 964	101 253	3 396
Arkansas	4	55	1	272	4 873	202	257	3 067	8 674	5 289	13 951	594
California	3	1 147	44	6 185	147 831	4 428	6 914	91 643	325 925	177 935	503 730	22 331
Colorado	2	198	6	1 090	25 836	749	1 209	16 351	49 170	32 148	81 200	2 899
Connecticut	1	132	6	1 195	38 232	899	1 788	24 727	74 457	42 728	117 222	5 272
Delaware	3	21	1	137	3 603	92	139	2 059	5 552	3 672	9 234	521
District of Columbia	-	38	5	570	17 147	411	724	10 457	24 562	15 361	39 919	1 646
Florida	3	618	19	3 157	69 678	2 174	3 282	42 470	149 299	85 854	235 302	9 348
Georgia	2	224	10	1 241	31 582	849	1 442	18 773	65 487	37 043	102 218	4 725
Hawaii *	1	24	1	255	7 297	180	343	4 649	8 282	9 425	17 724	1 536
Idaho	1	39	3	945	15 993	611	1 302	9 280	41 423	23 372	64 757	2 724
Illinois	2	431	22	2 698	70 993	1 869	3 159	42 613	153 752	90 079	242 519	11 067
Indiana	2	157	7	1 106	24 354	709	950	12 780	47 519	26 616	73 777	2 746
Iowa	1	79	5	720	16 516	516	919	9 364	30 979	14 205	45 298	2 764
Kansas	2	66	4	394	8 772	276	439	5 233	17 141	10 326	27 427	848
Louisiana	3	80	5	478	10 202	337	500	6 476	20 168	11 012	31 145	1 234
Maine	4	44	1	206	4 427	148	205	2 716	9 640	4 979	14 603	735
Maryland	1	148	9	920	26 033	633	1 146	15 880	56 868	24 277	81 693	3 218
Massachusetts	2	232	11	1 474	39 882	1 039	1 833	24 697	85 865	49 582	135 309	4 993
Michigan	3	285	15	1 755	41 203	1 227	1 907	25 273	82 966	44 346	127 334	5 460
Minnesota	2	198	18	1 516	39 887	1 037	1 759	21 783	86 167	47 803	134 101	5 312
Mississippi	3	37	2	205	3 930	142	187	2 110	7 951	4 909	12 891	727
Missouri	1	154	9	1 401	33 858	1 051	1 791	24 653	88 660	38 266	126 653	8 187
Montana	5	27	-	137	2 186	88	111	1 412	3 783	2 779	6 543	382
Nebraska	4	49	1	246	5 296	157	250	2 841	10 949	5 413	16 407	667
Nevada	3	56	3	295	7 100	196	287	3 996	15 214	7 708	22 721	1 256
New Hampshire	3	39	3	264	6 113	189	309	3 567	12 931	7 086	20 015	801
New Jersey	1	300	13	1 946	56 332	1 299	2 224	33 040	125 041	62 945	187 163	15 392
New Mexico	4	41	-	174	2 844	122	157	1 802	5 251	3 588	8 861	325
New York	3	419	20	2 362	62 913	1 656	2 756	39 586	123 163	81 419	204 490	10 411
North Carolina	2	188	7	1 095	25 986	765	1 259	16 087	52 078	29 662	81 730	6 626
Ohio	3	337	13	1 892	41 235	1 299	1 893	24 906	86 754	48 852	135 559	5 034
Oklahoma	3	77	3	507	10 202	374	636	6 978	18 218	9 740	27 944	1 379
Oregon	1	124	5	736	16 435	576	931	12 068	41 275	15 952	57 195	2 312
Pennsylvania	2	304	14	1 910	47 486	1 306	2 077	28 218	106 788	53 044	159 720	6 812
Rhode Island	4	49	-	215	4 823	156	213	3 071	9 147	5 551	14 678	618
South Carolina	3	105	2	573	11 457	385	551	6 934	24 037	13 194	37 211	2 606
Tennessee	2	142	8	909	19 613	635	919	11 048	43 211	24 611	67 915	3 328
Texas	3	540	22	3 036	70 128	2 219	3 477	43 791	150 809	86 208	237 248	10 025
Utah	1	46	8	534	10 276	358	523	6 259	21 297	13 479	34 815	1 704
Vermont	1	29	1	198	4 920	123	204	2 670	9 002	5 991	14 978	755
Virginia	2	195	11	1 340	31 418	947	1 560	19 586	65 728	35 453	101 311	4 415
Washington	1	181	8	1 121	26 934	798	1 252	17 447	58 172	29 682	87 725	4 151
West Virginia	4	24	-	100	1 814	63	81	1 157	4 255	2 732	6 969	286
Wisconsin	1	182	16	1 483	34 887	1 005	1 721	21 755	73 228	31 793	105 014	4 867

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
323114, QUICK PRINTING		323114, QUICK PRINTING—Con.	
Companies ¹	number.. 7 992	Value added	\$1,000.. 2 659 102
All establishments	number.. 8 270	Total inventories, beginning of year	\$1,000.. 211 919
Establishments with 1 to 19 employees	number.. 7 886	Finished goods inventories, beginning of year	\$1,000.. 37 056
Establishments with 20 to 99 employees	number.. 369	Work-in-process inventories, beginning of year	\$1,000.. 58 950
Establishments with 100 employees or more	number.. 15	Materials and supplies inventories, beginning of year	\$1,000.. 115 913
All employees	number.. 52 231	Total inventories, end of year	\$1,000.. 211 403
Total compensation ²	\$1,000.. 1 479 283	Finished goods inventories, end of year	\$1,000.. 43 697
Annual payroll	\$1,000.. 1 252 372	Work-in-process inventories, end of year	\$1,000.. 54 927
Total fringe benefits	\$1,000.. 226 911	Materials and supplies inventories, end of year	\$1,000.. 112 779
Production workers, average for year	number.. 36 601	Gross book value of total assets at beginning of year	\$1,000.. 1 452 846
Production workers on March 12	number.. 36 417	Total capital expenditures (new and used)	\$1,000.. 191 838
Production workers on May 12	number.. 36 623	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 16 135
Production workers on August 12	number.. 36 598	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 175 703
Production workers on November 12	number.. 36 766	Total retirements ²	\$1,000.. 52 215
Production-worker hours	1,000.. 59 227	Gross book value of total assets at end of year	\$1,000.. 1 592 469
Production-worker wages	\$1,000.. 768 086	Total depreciation during year ²	\$1,000.. 117 701
Total cost of materials	\$1,000.. 1 480 276	Total rental payments ²	\$1,000.. 161 052
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 116 450	Buildings and other structures rental payments ²	\$1,000.. 71 739
Cost of resales	\$1,000.. 178 113	Machinery and equipment rental payments ²	\$1,000.. 89 313
Cost of fuels	\$1,000.. 9 376	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 3 537
Cost of purchased electricity	\$1,000.. 27 493	Response coverage ratio ⁴	percent.. 78
Cost of contract work	\$1,000.. 148 844	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 28 845
Quantity of electricity purchased for heat and power	1,000 kWh.. 415 628	Response coverage ratio ⁴	percent.. 78
Quantity of electricity generated less sold for heat and power	1,000 kWh.. -	Cost of purchased communications services ³	\$1,000.. 15 921
Total value of shipments	\$1,000.. 4 136 760	Response coverage ratio ⁴	percent.. 78
Primary products value of shipments	\$1,000.. 3 314 735	Cost of purchased legal services ³	\$1,000.. 3 428
Secondary products value of shipments	\$1,000.. 296 814	Response coverage ratio ⁴	percent.. 78
Total miscellaneous receipts	\$1,000.. 525 211	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 8 655
Value of resales	\$1,000.. 245 122	Response coverage ratio ⁴	percent.. 78
Contract receipts	\$1,000.. -	Cost of purchased advertising services ³	\$1,000.. 25 692
Other miscellaneous receipts	\$1,000.. 280 089	Response coverage ratio ⁴	percent.. 78
Primary products specialization ratio	percent.. 91	Cost of purchased software and other data processing services ³	\$1,000.. 5 242
Value of primary products shipments made in all industries	\$1,000.. 3 794 510	Response coverage ratio ⁴	percent.. 78
Value of primary products shipments made in this industry	\$1,000.. 3 314 735	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 2 638
Value of primary products shipments made in other industries	\$1,000.. 479 775	Response coverage ratio ⁴	percent.. 78
Coverage ratio	percent.. 87		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)	
	E ¹	Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)					Wages (\$1,000)
323114, QUICK PRINTING												
All establishments	2	8 270	384	52 231	1 252 372	36 601	59 227	768 086	2 659 102	1 480 276	4 136 760	191 838
Establishments with 1 to 4 employees	7	4 881	—	11 398	230 020	8 119	11 251	147 551	501 423	312 045	812 582	36 305
Establishments with 5 to 9 employees	3	2 218	—	14 130	302 095	10 202	14 762	194 376	646 973	358 477	1 004 129	41 573
Establishments with 10 to 19 employees	1	787	—	10 208	258 177	6 936	11 951	161 288	550 882	288 522	838 506	38 686
Establishments with 20 to 49 employees	—	312	312	8 749	247 281	5 926	10 708	139 721	525 161	271 845	796 909	34 670
Establishments with 50 to 99 employees	1	57	57	3 842	111 972	2 630	4 915	61 272	220 836	129 824	351 181	20 574
Establishments with 100 to 249 employees	—	9	9	1 204	32 581	802	1 365	17 584	47 388	31 975	79 054	3 186
Establishments with 250 to 499 employees	—	3	3	1 012	28 723	797	1 514	19 544	65 462	15 128	80 702	11 255
Establishments with 500 to 999 employees	—	3	3	1 688	41 523	1 189	2 761	26 750	100 977	72 460	173 697	5 589
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	4 654	—	13 930	238 198	9 978	11 843	152 135	486 208	319 397	804 828	36 690

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323114	Quick printing	8 270	52 231	1 252 372	36 601	59 227	768 086	2 659 102	1 480 276	4 136 760	191 838

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323114	Quick printing	N	X	X	3 794 510	N	X	X	N
3231140	Quick printing	N	X	X	3 794 510	N	X	X	N
32311401	Quick printing	N	X	X	2 966 858	N	X	X	N
3231140100	Quick printing	3 693	X	X	2 966 858	N	X	X	N
3231140Y	Quick printing, nsk, total	N	X	X	827 652	N	X	X	N
3231140YWW	Quick printing, nsk, for nonadministrative-record establishments	N	X	X	78 132	N	X	X	N
3231140YWY	Quick printing, nsk, for administrative-record establishments	N	X	X	749 520	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Not applicable for this report]

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323114	QUICK PRINTING				
32212203	Newsprint	X	3 150	X	N
32212009	Uncoated paper in sheets	X	106 965	X	N
32212011	Uncoated paper in rolls	X	10 887	X	N
32200011	Coated paper in sheets	X	24 436	X	N
32200013	Coated paper in rolls	X	1 951	X	N
32222200	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.	X	8 551	X	N
31320001	Cloth and nonwoven fabrics for hardbound book covers	X	-	X	N
32552003	Glues and adhesives	X	2 005	X	N
32591003	Printing ink	X	6 743	X	N
32599203	Light sensitive films and papers	X	3 209	X	N
32599201	Unexposed photosensitive printing plates	X	2 730	X	N
32312201	Printing plates, prepared for printing	X	3 559	X	N
32312209	Engraved printing cylinders for gravure printing	X	158	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	3 482	X	N
32223200	Purchased envelopes	X	32 045	X	N
00970099	All other materials and components, parts, containers, and supplies	X	65 143	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	841 436	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

323114 QUICK PRINTING

This U.S. industry comprises establishments primarily engaged in traditional printing activities, such as short-run offset printing or prepress services, in combination with providing document photocopying service. Prepress services include receiving documents in electronic format and directly duplicating from the electronic file and formatting, colorizing, and otherwise modifying the original document

to improve presentation. These establishments, known as quick printers, generally provide short-run printing and copying with fast turnaround times.

The data published with NAICS code 3231 14 include the following SIC industries:

- 2752 Commercial printing, lithographic (pt)
- 2759 Commercial printing, n.e.c. (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3231101.....	27521.....	27521.....	3231113.....	27542.....	27542.....	3231131491 pt.....	3999985.....	3999999 pt.....
3231101111.....	2752112.....	2752112.....	3231113111.....	2754211.....	2754211.....	3231131YVW pt.....	2759800.....	2759800.....
3231101113.....	2752114.....	2752114.....	3231113116.....	2754213.....	2754213.....	3231131YVW pt.....	2771200 pt.....	2771200 pt.....
3231101121.....	2752117.....	2752117.....	3231113121.....	2754215.....	2754215.....	3231131YVW pt.....	3999900 pt.....	3999900 pt.....
3231101YVW.....	2752100.....	2752100.....	3231113126.....	2754217.....	2754217.....			
3231103.....	27522.....	27522.....	3231113231.....	2754232.....	2754232.....	3231133 pt.....	23964.....	23964.....
3231103111.....	2752211.....	2752211.....	3231113236.....	2754237.....	2754237.....	3231133 pt.....	23969.....	93000 pt.....
3231103116.....	2752213.....	2752213.....	3231113YVW.....	2754200.....	2754200.....	3231133111.....	2396435.....	2396434 pt.....
3231103121.....	2752217.....	2752217.....				3231133116.....	2396436.....	2396434 pt.....
3231103126.....	2752220.....	2752220.....	3231115.....	27543.....	27543.....	3231133121.....	2396437.....	2396437.....
3231103131.....	2752234.....	2752234.....	3231115100.....	2754300.....	2754300.....	3231133YVW pt.....	2396400.....	2396400.....
3231103136.....	2752243.....	2752243.....				3231133YVW pt.....	2396900.....	9300000 pt.....
3231103YVW.....	2752200.....	2752200.....	3231117.....	27545.....	27545.....			
3231105.....	27523.....	27523.....	3231117111.....	2754511.....	2754511.....	323113W pt.....	23960 pt.....	23960 pt.....
3231105111.....	2752312.....	2752312.....	3231117116.....	2754545.....	2754545.....	323113W pt.....	27590 pt.....	27590 pt.....
3231105113.....	2752314.....	2752314.....	3231117121.....	2754548.....	2754548.....			
3231105121.....	2752318.....	2752318.....	3231117YVW.....	2754500.....	2754500.....	323113W pt.....	27590 pt.....	27590 pt.....
3231105126.....	2752324.....	2752324.....						
3231105128.....	2752326.....	2752326.....	3231119 pt.....	27546.....	27546.....	323113W pt.....	27710 pt.....	27710 pt.....
3231105128.....	2752326.....	2752326.....	3231119 pt.....	27712 pt.....	27712 pt.....	323113W pt.....	39990 pt.....	39990 pt.....
3231105YVW.....	2752300.....	2752300.....	3231119 pt.....	39999 pt.....	39999 pt.....	323113WYVW pt.....	2396000 pt.....	2396000 pt.....
3231107.....	27524.....	27524.....	3231119111.....	2754651.....	2754651.....	323113WYVW pt.....	2759000 pt.....	2759000 pt.....
3231107111.....	2752412.....	2752412.....	3231119191 pt.....	2754695.....	2754695.....	323113WYVW pt.....	2771000 pt.....	2771000 pt.....
3231107113.....	2752414.....	2752414.....	3231119191 pt.....	2771203.....	2771203.....	323113WYVW pt.....	3999000 pt.....	3999000 pt.....
3231107121.....	2752416.....	2752416.....	3231119191 pt.....	3999983.....	3999999 pt.....	323113WYVW pt.....	2396002 pt.....	2396002 pt.....
3231107123.....	2752418.....	2752418.....	3231119YVW pt.....	2754600.....	2754600.....	323113WYVW pt.....	2759002 pt.....	2759002 pt.....
3231107131.....	2752421.....	2752421.....	3231119YVW pt.....	2771200 pt.....	2771200 pt.....	323113WYVW pt.....	2771002 pt.....	2771002 pt.....
3231107133.....	2752422.....	2752422.....	3231119YVW pt.....	3999900 pt.....	3999900 pt.....	323113WYVW pt.....	3999002 pt.....	3999002 pt.....
3231107141.....	2752424.....	2752424.....	323111W pt.....	27540.....	27540.....			
3231107143.....	2752426.....	2752426.....	323111W pt.....	27710 pt.....	27710 pt.....	3231140 pt.....	27526 pt.....	27526 pt.....
3231107151.....	2752427.....	2752427.....				3231140 pt.....	27590 pt.....	27590 pt.....
3231107YVW.....	2752400.....	2752400.....	323111W pt.....	39990 pt.....	39990 pt.....	3231140 pt.....	27590 pt.....	27590 pt.....
3231109.....	27525.....	27525.....	323111WYVW pt.....	2754000.....	2754000.....	3231140100 pt.....	2759A pt.....	2759A pt.....
3231109111.....	2752512.....	2752512.....	323111WYVW pt.....	2771000 pt.....	2771000 pt.....	3231140100 pt.....	2752696.....	2752696.....
3231109113.....	2752514.....	2752514.....	323111WYVW pt.....	3999000 pt.....	3999000 pt.....	3231140100 pt.....	2759A12.....	2759A00 pt.....
3231109221.....	2752523.....	2752523.....	323111WYVW pt.....	2754002.....	2754002.....	3231140YVW pt.....	2752000 pt.....	2752000 pt.....
3231109226.....	2752526.....	2752526.....	323111WYVW pt.....	2771002 pt.....	2771002 pt.....	3231140YVW pt.....	2752600 pt.....	2752600 pt.....
3231109228.....	2752528.....	2752528.....	323111WYVW pt.....	3999002 pt.....	3999002 pt.....	3231140YVW pt.....	2759000 pt.....	2759000 pt.....
3231109236.....	2752532.....	2752532.....				3231140YVW pt.....	2759A00 pt.....	2759A00 pt.....
3231109241.....	2752533.....	2752533.....	3231121.....	2759B.....	2759B.....	3231140YVW pt.....	2752002 pt.....	2752002 pt.....
3231109246.....	2752541.....	2752541.....	3231121111.....	2759B14.....	2759B14.....	3231140YVW pt.....	2759002 pt.....	2759002 pt.....
3231109251.....	2752545.....	2752545.....	3231121216.....	2759B16.....	2759B16.....			
3231109256.....	2752552.....	2752552.....	3231121321.....	2759B18.....	2759B18.....	3231150 pt.....	27590 pt.....	27590 pt.....
3231109258.....	2752554.....	2752554.....	3231121426.....	2759B20.....	2759B20.....	3231150 pt.....	2759A pt.....	2759A pt.....
3231109YVW.....	2752500.....	2752500.....	3231121531.....	2759B22.....	2759B22.....	3231150100.....	2759A14.....	2759A00 pt.....
323110B pt.....	27526 pt.....	27526 pt.....	3231121636.....	2759B26.....	2759B26.....	3231150YVW pt.....	2759000 pt.....	2759000 pt.....
323110B pt.....	27712 pt.....	27712 pt.....	3231121741.....	2759B28.....	2759B28.....	3231150YVW pt.....	2759A00 pt.....	2759A00 pt.....
323110B pt.....	39999 pt.....	39999 pt.....	3231121846.....	2759B30.....	2759B30.....	3231150YVW pt.....	2759002 pt.....	2759002 pt.....
323110B111.....	2752611.....	2752611.....	3231121YVW.....	2759B00.....	2759B00.....			
323110B116 pt.....	2752617 pt.....	2752616.....	3231123 pt.....	2759C.....	2759C.....	3231161.....	27612.....	27612.....
323110B116 pt.....	2752617 pt.....	2752618.....	3231123 pt.....	27712 pt.....	27712 pt.....	3231161111.....	2761211.....	2761211.....
323110B121.....	2752621.....	2752621.....	3231123 pt.....	39999 pt.....	39999 pt.....	3231161121.....	2761213.....	2761213.....
323110B126.....	2752636.....	2752636.....	3231123111.....	2759C29.....	2759C29.....	3231161126.....	2761215.....	2761215.....
323110B128.....	2752638.....	2752638.....	3231123116.....	2759C31.....	2759C31.....	3231161231.....	2761253.....	2761253.....
323110B128.....	2752638.....	2752638.....	3231123221.....	2759C32.....	2759C32.....	3231161336.....	2761255.....	2761255.....
323110B136.....	2752644.....	2752644.....	3231123226.....	2759C33.....	2759C33.....	3231161441.....	2761261.....	2761261.....
323110B141.....	2752647.....	2752647.....	3231123231.....	2759C35.....	2759C34 pt.....	3231161YVW.....	2761200.....	2761200.....
323110B146.....	2752651.....	2752651.....	3231123236.....	2759C36.....	2759C36.....			
323110B151.....	2752677.....	2752677.....	3231123291 pt.....	2759C38.....	2759C38.....	3231163.....	27613.....	27613.....
323110B156.....	2752683.....	2752683.....	3231123291 pt.....	2771207.....	2771200 pt.....	3231163111.....	2761311.....	2761311.....
323110B161.....	2752684.....	2752684.....	3231123291 pt.....	3999982.....	3999999 pt.....	3231163116.....	2761313.....	2761313.....
323110B166.....	2752692.....	2752692.....	3231123YVW pt.....	2759C00.....	2759C00.....	3231163YVW.....	2761300.....	2761300.....
323110B168.....	2752694.....	2752694.....	3231123YVW pt.....	2771200 pt.....	2771200 pt.....			
323110B176.....	2752695.....	2752695.....	3231123YVW pt.....	3999900 pt.....	3999900 pt.....	3231165.....	27615.....	27615.....
323110B181 pt.....	2771200 pt.....	2771200 pt.....	323112W pt.....	27590 pt.....	27590 pt.....	3231165111.....	2761531.....	2761531.....
323110B181 pt.....	2771201.....	2771200 pt.....	323112W pt.....	27710 pt.....	27710 pt.....	3231165116.....	2761535.....	2761535.....
323110B191 pt.....	2752697 pt.....	2752671 pt.....	323112W pt.....	39990 pt.....	39990 pt.....	3231165121.....	2761541.....	2761541.....
323110B191 pt.....	2752697 pt.....	2752697 pt.....	323112WYVW pt.....	2759000 pt.....	2759000 pt.....	3231165126.....	2761543.....	2761543.....
323110B191 pt.....	3999984.....	3999999 pt.....	323112WYVW pt.....	2771000 pt.....	2771000 pt.....	3231165131.....	2761545.....	2761545.....
323110B193 pt.....	2752699 pt.....	2752671 pt.....	323112WYVW pt.....	3999000 pt.....	3999000 pt.....	3231165236.....	2761555.....	2761555.....
323110B193 pt.....	2752699 pt.....	2752699 pt.....	323112WYVW pt.....	2771000 pt.....	2771000 pt.....	3231165241.....	2761561.....	2761561.....
323110BYVW pt.....	2752600 pt.....	2752600 pt.....	323112WYVW pt.....	3999000 pt.....	3999000 pt.....	3231165346.....	2761563.....	2761563.....
323110BYVW pt.....	2771200 pt.....	2771200 pt.....	323112WYVW pt.....	2759002 pt.....	2759002 pt.....	3231165451.....	2761565.....	2761565.....
323110BYVW pt.....	3999900 pt.....	3999900 pt.....	323112WYVW pt.....	2771002 pt.....	2771002 pt.....	3231165YVW.....	2761500.....	2761500.....
323110W pt.....	27520 pt.....	27520 pt.....	323112WYVW pt.....	3999002 pt.....	3999002 pt.....			
323110W pt.....	27710 pt.....	27710 pt.....	3231131 pt.....	27598.....	27598.....	3231167.....	27617.....	27617.....
323110W pt.....	39990 pt.....	39990 pt.....	3231131 pt.....	27712 pt.....	27712 pt.....	3231167111.....	2761761.....	2761761.....
323110WYVW pt.....	2752000 pt.....	2752000 pt.....	3231131 pt.....	39999 pt.....	39999 pt.....	3231167116.....	2761763.....	2761763.....
323110WYVW pt.....	2771000 pt.....	2771000 pt.....	3231131111.....	2759811.....	2759811.....	3231167121.....	2761765.....	2761765.....
323110WYVW pt.....	3999000 pt.....	3999000 pt.....	3231131116.....	2759813.....	2759813.....	3231167126.....	2761773.....	2761773.....
323110WYVW pt.....	2752002 pt.....	2752002 pt.....	3231131121.....	2759815.....	2759815.....	3231167131.....	2761775.....	2761775.....
323110WYVW pt.....	2771002 pt.....	2771002 pt.....	3231131181.....	2759817.....	2759817.....	3231167YVW.....	2761700.....	2761700.....
323110WYVW pt.....	3999002 pt.....	3999002 pt.....	3231131216.....	2759819.....	2759819.....			
			3231131181.....	2771205.....	2771200 pt.....	3231169.....	27823.....	27823.....
			3231131231.....	2759819.....	2759819.....	3231169100 pt.....	2782321.....	2782300 pt.....
			3231131236.....	2759821.....	2759821.....	3231169100 pt.....	2782319.....	2782300 pt.....
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323118WYWW.....	2782000 pt.....	2782000 pt.....						
323118WYWW.....	2782002 pt.....	2782002 pt.....						

1997 Economic Census

Manufacturing

Industry Series



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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econgguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323115 275940	Digital printing	388	388	4 201	122 919	2 817	5 076	67 481	271 111	134 326	405 975	27 701
	Commercial printing, n.e.c. (pt)	N	388	4 201	122 919	2 817	5 076	67 481	271 111	134 326	405 975	27 701

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)	
	E ¹	Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)					Wages (\$1,000)
323115, DIGITAL PRINTING												
United States	2	388	59	4 201	122 919	2 817	5 076	67 481	271 111	134 326	405 975	27 701
California	2	49	7	569	16 762	378	605	9 281	36 670	16 227	52 940	6 503
Colorado	2	10	2	141	4 065	97	188	2 365	7 630	5 350	12 992	520
Illinois	1	24	3	192	5 201	132	268	3 368	13 395	6 578	20 132	771
Michigan	1	10	2	113	2 763	68	118	1 333	6 829	4 676	11 511	215
New York	3	35	7	398	13 912	275	525	6 996	29 166	13 813	42 905	1 498
Pennsylvania	2	20	5	314	10 212	185	362	5 200	21 752	10 652	32 491	3 233
Texas	-	18	3	243	7 163	174	290	3 759	16 040	7 546	23 874	1 836
Utah	5	9	2	113	3 212	71	144	1 918	7 608	4 372	11 977	402
Washington	4	14	3	152	3 713	111	180	2 187	7 646	3 297	10 827	641

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
323115, DIGITAL PRINTING		323115, DIGITAL PRINTING—Con.	
Companies ¹	number.. 388	Value added	\$.1,000.. 271 111
All establishments	number.. 388	Total inventories, beginning of year	\$.1,000.. 22 891
Establishments with 1 to 19 employees	number.. 329	Finished goods inventories, beginning of year	\$.1,000.. 4 594
Establishments with 20 to 99 employees	number.. 59	Work-in-process inventories, beginning of year	\$.1,000.. 6 108
Establishments with 100 employees or more	number.. —	Materials and supplies inventories, beginning of year	\$.1,000.. 12 189
All employees	number.. 4 201	Total inventories, end of year	\$.1,000.. 22 452
Total compensation ²	\$.1,000.. 146 103	Finished goods inventories, end of year	\$.1,000.. 4 692
Annual payroll	\$.1,000.. 122 919	Work-in-process inventories, end of year	\$.1,000.. 5 472
Total fringe benefits	\$.1,000.. 23 184	Materials and supplies inventories, end of year	\$.1,000.. 12 288
Production workers, average for year	number.. 2 817	Gross book value of total assets at beginning of year	\$.1,000.. 133 848
Production workers on March 12	number.. 2 796	Total capital expenditures (new and used)	\$.1,000.. 27 701
Production workers on May 12	number.. 2 813	Capital expenditures for buildings and other structures	
Production workers on August 12	number.. 2 775	(new and used)	\$.1,000.. 3 625
Production workers on November 12	number.. 2 884	Capital expenditures for machinery and equipment (new	
Production-worker hours	1,000.. 5 076	and used)	\$.1,000.. 24 076
Production-worker wages	\$.1,000.. 67 481	Total retirements ²	\$.1,000.. 3 669
Total cost of materials	\$.1,000.. 134 326	Gross book value of total assets at end of year	\$.1,000.. 157 880
Cost of materials, parts, containers, etc., consumed	\$.1,000.. 113 270	Total depreciation during year ²	\$.1,000.. 11 060
Cost of resales	\$.1,000.. 9 469	Total rental payments ²	\$.1,000.. 25 355
Cost of fuels	\$.1,000.. 853	Buildings and other structures rental payments ²	\$.1,000.. 11 449
Cost of purchased electricity	\$.1,000.. 2 592	Machinery and equipment rental payments ²	\$.1,000.. 13 906
Cost of contract work	\$.1,000.. 8 142	Cost of purchased services for the repair of buildings and other	
Quantity of electricity purchased for heat and power	1,000 kWh.. 38 356	structures ³	\$.1,000.. 250
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Response coverage ratio ⁴	percent.. 70
Total value of shipments	\$.1,000.. 405 975	Cost of purchased services for the repair of machinery and	
Primary products value of shipments	\$.1,000.. 319 526	equipment ³	\$.1,000.. 1 275
Secondary products value of shipments	\$.1,000.. 59 902	Response coverage ratio ⁴	percent.. 70
Total miscellaneous receipts	\$.1,000.. 26 547	Cost of purchased communications services ³	\$.1,000.. 594
Value of resales	\$.1,000.. 13 484	Response coverage ratio ⁴	percent.. 70
Contract receipts	\$.1,000.. —	Cost of purchased legal services ³	\$.1,000.. 130
Other miscellaneous receipts	\$.1,000.. 13 063	Response coverage ratio ⁴	percent.. 70
Primary products specialization ratio	percent.. 84	Cost of purchased accounting and bookkeeping services ³	\$.1,000.. 356
Value of primary products shipments made in all industries	\$.1,000.. 493 891	Response coverage ratio ⁴	percent.. 70
Value of primary products shipments made in this industry	\$.1,000.. 319 526	Cost of purchased advertising services ³	\$.1,000.. 715
Value of primary products shipments made in other		Response coverage ratio ⁴	percent.. 70
industries	\$.1,000.. 174 365	Cost of purchased software and other data processing	
Coverage ratio	percent.. 64	services ³	\$.1,000.. 234
		Response coverage ratio ⁴	percent.. 70
		Cost of purchased refuse removal (including hazardous waste)	
		services ³	\$.1,000.. 143
		Response coverage ratio ⁴	percent.. 70

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323115, DIGITAL PRINTING												
All establishments	2	388	59	4 201	122 919	2 817	5 076	67 481	271 111	134 326	405 975	27 701
Establishments with 1 to 4 employees	6	160	—	360	9 034	264	405	5 329	20 397	12 884	33 351	1 881
Establishments with 5 to 9 employees	2	100	—	660	17 616	449	767	10 318	41 399	19 542	60 989	3 813
Establishments with 10 to 19 employees	1	69	—	917	29 243	602	1 065	15 630	65 284	30 121	95 627	5 972
Establishments with 20 to 49 employees	2	46	46	1 393	37 680	917	1 688	20 875	79 898	40 730	120 693	8 800
Establishments with 50 to 99 employees	2	13	13	871	29 346	585	1 151	15 329	64 133	31 049	95 315	7 235
Establishments with 100 to 249 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 250 to 499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 500 to 999 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	123	—	435	8 712	299	411	5 076	18 251	12 709	30 985	1 370

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323115	Digital printing	388	4 201	122 919	2 817	5 076	67 481	271 111	134 326	405 975	27 701

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323115	Digital printing	N	X	X	493 891	N	X	X	N
3231150	Digital printing	N	X	X	493 891	N	X	X	N
32311501	Digital printing	N	X	X	455 741	N	X	X	N
3231150100	Digital printing	521	X	X	455 741	N	X	X	N
3231150Y	Digital printing, nsk, total	N	X	X	38 150	N	X	X	N
3231150YWW	Digital printing, nsk, for nonadministrative-record establishments	N	X	X	8 510	N	X	X	N
3231150YWY	Digital printing, nsk, for administrative-record establishments	N	X	X	29 640	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Not applicable for this report]

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323115	DIGITAL PRINTING				
32212203	Newsprint	X	-	X	N
32212009	Uncoated paper in sheets	X	5 113	X	N
32212011	Uncoated paper in rolls	X	D	X	N
32200011	Coated paper in sheets	X	3 996	X	N
32200013	Coated paper in rolls	X	635	X	N
32222200	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.	X	2 228	X	N
31320001	Cloth and nonwoven fabrics for hardbound book covers	X	-	X	N
32552003	Glues and adhesives	X	D	X	N
32591003	Printing ink	X	1 151	X	N
32599203	Light sensitive films and papers	X	944	X	N
32599201	Unexposed photosensitive printing plates	X	D	X	N
32312201	Printing plates, prepared for printing	X	D	X	N
32312209	Engraved printing cylinders for gravure printing	X	-	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	307	X	N
32223200	Purchased envelopes	X	344	X	N
00970099	All other materials and components, parts, containers, and supplies	X	8 563	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	87 374	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

323115 DIGITAL PRINTING

This U.S. industry comprises establishments primarily engaged in printing graphical materials using digital printing equipment. Establishments known as digital printers typically provide sophisticated prepress services including

using scanners to input images and computers to manipulate and format the graphic images prior to printing.

The data published with NAICS code 323115 include the following SIC industry:

2759 Commercial printing, n.e.c. (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G.

Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3231101.....	27521.....	27521.....	3231113.....	27542.....	27542.....	3231131491 pt.....	3999985.....	3999999 pt.....
3231101111.....	2752112.....	2752112.....	3231113111.....	2754211.....	2754211.....	3231131YVW pt.....	2759800.....	2759800.....
3231101113.....	2752114.....	2752114.....	3231113116.....	2754213.....	2754213.....	3231131YVW pt.....	2771200 pt.....	2771200 pt.....
3231101121.....	2752117.....	2752117.....	3231113121.....	2754215.....	2754215.....	3231131YVW pt.....	3999900 pt.....	3999900 pt.....
3231101YVW.....	2752100.....	2752100.....	3231113126.....	2754217.....	2754217.....			
3231103.....	27522.....	27522.....	3231113231.....	2754232.....	2754232.....	3231133 pt.....	23964.....	23964.....
3231103111.....	2752211.....	2752211.....	3231113236.....	2754237.....	2754237.....	3231133 pt.....	23969.....	93000 pt.....
3231103116.....	2752213.....	2752213.....	3231113YVW.....	2754200.....	2754200.....	3231133111.....	2396435.....	2396434 pt.....
3231103121.....	2752217.....	2752217.....				3231133116.....	2396436.....	2396434 pt.....
3231103126.....	2752220.....	2752220.....	3231115.....	27543.....	27543.....	3231133121.....	2396437.....	2396437.....
3231103131.....	2752234.....	2752234.....	3231115100.....	2754300.....	2754300.....	3231133YVW pt.....	2396400.....	2396400.....
3231103136.....	2752243.....	2752243.....				3231133YVW pt.....	2396900.....	9300000 pt.....
3231103YVW.....	2752200.....	2752200.....	3231117.....	27545.....	27545.....			
3231105.....	27523.....	27523.....	3231117111.....	2754511.....	2754511.....	323113W pt.....	23960 pt.....	23960 pt.....
3231105111.....	2752312.....	2752312.....	3231117116.....	2754545.....	2754545.....	323113W pt.....	27590 pt.....	27590 pt.....
3231105113.....	2752314.....	2752314.....	3231117121.....	2754548.....	2754548.....			
3231105121.....	2752318.....	2752318.....	3231117YVW.....	2754500.....	2754500.....			
3231105126.....	2752324.....	2752324.....	3231119 pt.....	27546.....	27546.....			
3231105128.....	2752326.....	2752326.....	3231119 pt.....	27712 pt.....	27712 pt.....	323113W pt.....	27710 pt.....	27710 pt.....
3231105128.....	2752326.....	2752326.....				323113W pt.....	27710 pt.....	27710 pt.....
3231105YVW.....	2752300.....	2752300.....	3231119 pt.....	39999 pt.....	39999 pt.....	323113WYVW pt.....	2396000 pt.....	2396000 pt.....
3231107.....	27524.....	27524.....	3231119111.....	2754651.....	2754651.....	323113WYVW pt.....	2759000 pt.....	2759000 pt.....
3231107111.....	2752412.....	2752412.....	3231119191 pt.....	2754695.....	2754695.....	323113WYVW pt.....	2771000 pt.....	2771000 pt.....
3231107113.....	2752414.....	2752414.....	3231119191 pt.....	2771203.....	2771203.....	323113WYVW pt.....	3999000 pt.....	3999000 pt.....
3231107121.....	2752416.....	2752416.....	3231119191 pt.....	3999983.....	3999999 pt.....	323113WYVW pt.....	2396002 pt.....	2396002 pt.....
3231107123.....	2752418.....	2752418.....	3231119YVW pt.....	2754600.....	2754600.....	323113WYVW pt.....	2759002 pt.....	2759002 pt.....
3231107131.....	2752421.....	2752421.....	3231119YVW pt.....	2771200 pt.....	2771200 pt.....	323113WYVW pt.....	2771002 pt.....	2771002 pt.....
3231107133.....	2752422.....	2752422.....	3231119YVW pt.....	3999900 pt.....	3999900 pt.....	323113WYVW pt.....	3999002 pt.....	3999002 pt.....
3231107141.....	2752424.....	2752424.....	323111W pt.....	27540.....	27540.....			
3231107143.....	2752426.....	2752426.....	323111W pt.....	27710 pt.....	27710 pt.....	3231140 pt.....	27526 pt.....	27526 pt.....
3231107151.....	2752427.....	2752427.....				3231140 pt.....	27526 pt.....	27526 pt.....
3231107YVW.....	2752400.....	2752400.....	323111W pt.....	39990 pt.....	39990 pt.....	3231140 pt.....	27590 pt.....	27590 pt.....
3231109.....	27525.....	27525.....	323111WYVW pt.....	2754000.....	2754000.....	3231140100 pt.....	2759A pt.....	2759A pt.....
3231109111.....	2752512.....	2752512.....	323111WYVW pt.....	2771000 pt.....	2771000 pt.....	3231140100 pt.....	2752696.....	2752696.....
3231109113.....	2752514.....	2752514.....	323111WYVW pt.....	3999000 pt.....	3999000 pt.....	3231140100 pt.....	2759A12.....	2759A00 pt.....
3231109221.....	2752523.....	2752523.....	323111WYVW pt.....	2754002.....	2754002.....	3231140YVW pt.....	2752000 pt.....	2752000 pt.....
3231109226.....	2752526.....	2752526.....	323111WYVW pt.....	2771002 pt.....	2771002 pt.....	3231140YVW pt.....	2752600 pt.....	2752600 pt.....
3231109228.....	2752528.....	2752528.....	323111WYVW pt.....	3999002 pt.....	3999002 pt.....	3231140YVW pt.....	2759000 pt.....	2759000 pt.....
3231109236.....	2752532.....	2752532.....				3231140YVW pt.....	2759A00 pt.....	2759A00 pt.....
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3231109246.....	2752541.....	2752541.....	3231121111.....	2759B14.....	2759B14.....	3231140YVW pt.....	2759002 pt.....	2759002 pt.....
3231109251.....	2752545.....	2752545.....	3231121216.....	2759B16.....	2759B16.....			
3231109256.....	2752552.....	2752552.....	3231121321.....	2759B18.....	2759B18.....			
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323110B pt.....	27526 pt.....	27526 pt.....	3231121636.....	2759B26.....	2759B26.....	3231150100.....	2759A14.....	2759A00 pt.....
323110B pt.....	27712 pt.....	27712 pt.....	3231121741.....	2759B28.....	2759B28.....	3231150YVW pt.....	2759000 pt.....	2759000 pt.....
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			3231121YVW.....	2759B00.....	2759B00.....	3231150YVW.....	2759002 pt.....	2759002 pt.....
323110B pt.....	39999 pt.....	39999 pt.....	3231123 pt.....	2759C.....	2759C.....			
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323110B116 pt.....	2752617 pt.....	2752616.....				3231161111.....	2761211.....	2761211.....
323110B116 pt.....	2752617 pt.....	2752618.....	3231123 pt.....	39999 pt.....	39999 pt.....	3231161121.....	2761213.....	2761213.....
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323110B126.....	2752636.....	2752636.....	3231123116.....	2759C31.....	2759C31.....	3231161231.....	2761253.....	2761253.....
323110B128.....	2752638.....	2752638.....	3231123221.....	2759C32.....	2759C32.....	3231161336.....	2761255.....	2761255.....
323110B136.....	2752644.....	2752644.....	3231123226.....	2759C33.....	2759C33.....	3231161441.....	2761261.....	2761261.....
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323110B146.....	2752651.....	2752651.....	3231123236.....	2759C36.....	2759C36.....			
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			3231123291 pt.....	2771207.....	2771200 pt.....	3231163111.....	2761311.....	2761311.....
323110B156.....	2752683.....	2752683.....	3231123291 pt.....	3999982.....	3999999 pt.....	3231163116.....	2761313.....	2761313.....
323110B161.....	2752684.....	2752684.....	3231123YVW pt.....	2759C00.....	2759C00.....	3231163YVW.....	2761300.....	2761300.....
323110B166.....	2752692.....	2752692.....	3231123YVW pt.....	2771200 pt.....	2771200 pt.....			
323110B168.....	2752694.....	2752694.....	3231123YVW pt.....	3999900 pt.....	3999900 pt.....			
323110B176.....	2752695.....	2752695.....				3231165.....	27615.....	27615.....
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323110B181 pt.....	2771201.....	2771200 pt.....	323112W pt.....	27710 pt.....	27710 pt.....	3231165116.....	2761535.....	2761535.....
323110B191 pt.....	2752697 pt.....	2752671 pt.....				3231165121.....	2761541.....	2761541.....
323110B191 pt.....	2752697 pt.....	2752697 pt.....	323112W pt.....	39990 pt.....	39990 pt.....	3231165126.....	2761543.....	2761543.....
323110B191 pt.....	3999984.....	3999999 pt.....	323112WYVW pt.....	2759000 pt.....	2759000 pt.....	3231165131.....	2761545.....	2761545.....
			323112WYVW pt.....	2771000 pt.....	2771000 pt.....	3231165236.....	2761555.....	2761555.....
323110B193 pt.....	2752699 pt.....	2752671 pt.....	323112WYVW pt.....	3999000 pt.....	3999000 pt.....	3231165241.....	2761561.....	2761561.....
323110B193 pt.....	2752699 pt.....	2752699 pt.....	323112WYVW pt.....	2759002 pt.....	2759002 pt.....	3231165346.....	2761563.....	2761563.....
323110BYVW pt.....	2752600 pt.....	2752600 pt.....	323112WYVW pt.....	2771002 pt.....	2771002 pt.....	3231165451.....	2761565.....	2761565.....
323110BYVW pt.....	2771200 pt.....	2771200 pt.....	323112WYVW pt.....	3999002 pt.....	3999002 pt.....	3231165YVW.....	2761500.....	2761500.....
323110BYVW pt.....	3999900 pt.....	3999900 pt.....						
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323110W pt.....	27710 pt.....	27710 pt.....	3231131 pt.....	27712 pt.....	27712 pt.....	3231167111.....	2761761.....	2761761.....
						3231167116.....	2761763.....	2761763.....
323110WYVW pt.....	39990 pt.....	39990 pt.....	3231131 pt.....	39999 pt.....	39999 pt.....	3231167121.....	2761765.....	2761765.....
323110WYVW pt.....	2752000 pt.....	2752000 pt.....	3231131111.....	2759811.....	2759811.....	3231167126.....	2761773.....	2761773.....
323110WYVW pt.....	2771000 pt.....	2771000 pt.....	3231131116.....	2759813.....	2759813.....	3231167131.....	2761775.....	2761775.....
323110WYVW pt.....	3999000 pt.....	3999000 pt.....	3231131121.....	2759815.....	2759815.....	3231167YVW.....	2761700.....	2761700.....
323110WYVW pt.....	2752002 pt.....	2752002 pt.....	3231131181.....	2759817.....	2759817.....			
323110WYVW pt.....	2771002 pt.....	2771002 pt.....	3231131186.....	2759819.....	2759819.....			
323110WYVW pt.....	3999002 pt.....	3999002 pt.....	3231131211.....	2759821.....	2759821.....			
			3231131231.....	2759823.....	2759823.....			
			3231131236.....	2759825.....	2759825.....			
			3231131241.....	2759827.....	2759827.....			
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1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
323116W pt.....	27820 pt.....	27820 pt.....	3231191.....	27591.....	27591.....	323119W pt.....	39999 pt.....	39999 pt.....
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323116WYWW pt...	2782000 pt.....	2782000 pt.....	3231191100 pt.....	2759113 pt.....	2759112.....	323119WYWW pt...	2771000 pt.....	2771000 pt.....
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323116WYWW pt...	2782002 pt.....	2782002 pt.....				323119WYWW pt...	2771200 pt.....	2771200 pt.....
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3231171111.....	2732310.....	2732310.....	3231193116.....	2759214.....	2759214.....	323119WYWW pt...	3999986.....	3999999 pt.....
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3231171426.....	2732316.....	2732316.....	3231193131.....	2759221.....	2759221.....	323119WYWW pt...	3999002 pt.....	3999002 pt.....
3231171531.....	2732318.....	2732318.....	3231193136.....	2759223.....	2759223.....			
3231171YVV.....	2732300.....	2732300.....	3231193141.....	2759227.....	2759227.....	3231211.....	27891.....	27891.....
			3231193YVV.....	2759200.....	2759200.....	3231211111.....	2789110.....	2789110.....
						3231211116.....	2789113.....	2789113.....
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3231173YVV.....	2732400.....	2732400.....	3231195100 pt.....	2759317 pt.....	2759312.....			
			3231195100 pt.....	2759317 pt.....	2759318.....			
3231175.....	27325.....	27325.....				3231213.....	27892.....	27892.....
3231175111.....	2732532.....	2732532.....	3231197.....	27594.....	27594.....	323121311.....	2789223.....	2789223.....
3231175116.....	2732535.....	2732535.....	3231197100 pt.....	2759400.....	2759400.....	3231213216.....	2789224.....	2789224.....
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			3231197100 pt.....	2759421 pt.....	2759413.....	3231213326.....	2789226.....	2789226.....
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3231177321.....	2732644.....	2732644.....						
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3231177636.....	2732647.....	2732647.....	3231199116.....	2759514.....	2759514.....	323121WYWW.....	2789002.....	2789002.....
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3231177YVV.....	2732600.....	2732600.....	3231199126.....	2759518.....	2759518.....	3231221 pt.....	27962.....	27962.....
			3231199131.....	2759520.....	2759520.....	3231221 pt.....	27963 pt.....	27963 pt.....
3231179.....	2732A.....	2732A.....	3231199136.....	2759522.....	2759522.....	3231221100 pt.....	2791000 pt.....	2791000 pt.....
3231179111.....	2732A52.....	2732A52.....	3231199141.....	2759524.....	2759524.....	3231221100 pt.....	2791000 pt.....	2791016.....
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3231179131.....	2732A57.....	2732A57.....	323119B pt.....	27712 pt.....	27712 pt.....	3231221100 pt.....	2796200 pt.....	2796200.....
3231179YVV.....	2732A00.....	2732A00.....	323119B111.....	2759611.....	2759611.....	3231221100 pt.....	2796200 pt.....	2796231.....
			323119B116.....	2759613.....	2759613.....	3231221100 pt.....	2796200 pt.....	2796239.....
323117A.....	2732B.....	2732B.....	323119B121.....	2759615.....	2759615.....	3231221100 pt.....	2796200 pt.....	2796241.....
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			323119B131.....	2759617.....	2759617.....	3231221100 pt.....	2796352.....	2796352.....
323117C.....	2732C.....	2732C.....	323119B136.....	2759619.....	2759619.....	3231221100 pt.....	2796375.....	2796373.....
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			323119B146.....	2759623.....	2759623.....	3231223 pt.....	27963 pt.....	27963 pt.....
323117W.....	27320.....	27320.....	323119B191 pt.....	2759627.....	2759627.....	323122306 pt.....	2796100 pt.....	2796100 pt.....
323117WYWW.....	2732000.....	2732000.....	323119B191 pt.....	2771209.....	2771200 pt.....	323122306 pt.....	2796100 pt.....	2796111.....
323117WYWW.....	2732002.....	2732002.....	323119BYVV pt.....	2759600.....	2759600.....	323122306 pt.....	2796100 pt.....	2796115.....
			323119BYVV pt.....	2771200 pt.....	2771200 pt.....	3231223111 pt.....	2796100 pt.....	2796131.....
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3231181YVV.....	2782400.....	2782400.....	323119E126.....	2759935.....	2759935.....	3231223191 pt.....	2796371 pt.....	2796369.....
			323119EYVV.....	2759900.....	2759900.....	3231223YVV pt.....	2796100 pt.....	2796370.....
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3231183111.....	2782501.....	2782501.....	323119W pt.....	27590 pt.....	27590 pt.....			
3231183116.....	2782503.....	2782503.....	323119W pt.....	27710 pt.....	27710 pt.....	323122W pt.....	27910 pt.....	27910 pt.....
3231183121.....	2782506.....	2782506.....				323122W pt.....	27960.....	27960.....
3231183126.....	2782508.....	2782508.....	323119W pt.....	27710 pt.....	27710 pt.....	323122WYWW pt...	2791000 pt.....	2791000 pt.....
3231183131.....	2782511.....	2782511.....	323119W pt.....	27712 pt.....	27712 pt.....	323122WYWW pt...	2796000.....	2796000.....
3231183136.....	2782522.....	2782522.....	323119W pt.....	39990 pt.....	39990 pt.....	323122WYWW pt...	2791002.....	2791002.....
3231183YVV.....	2782500.....	2782500.....				323122WYWW pt...	2796002.....	2796002.....
323118W.....	27820 pt.....	27820 pt.....						
323118WYWW.....	2782000 pt.....	2782000 pt.....						
323118WYWW.....	2782002 pt.....	2782002 pt.....						

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-di-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323116	Manifold business form printing	719	1 039	56 423	1 690 008	39 431	76 131	1 088 048	5 706 765	3 928 756	9 631 710	258 580
276100	Manifold business forms	N	921	40 815	1 293 444	28 657	56 241	823 029	4 236 354	3 511 565	7 738 705	208 849
278210	Blankbooks & looseleaf binders (pt)	N	118	15 608	396 564	10 774	19 890	265 019	1 470 411	417 191	1 893 005	49 731

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments		All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-di-tures (\$1,000)	
	E ¹	Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)					Wages (\$1,000)
323116, MANIFOLD BUSINESS FORM PRINTING												
United States	2	1 039	573	56 423	1 690 008	39 431	76 131	1 088 048	5 706 765	3 928 756	9 631 710	258 580
Alabama	-	10	7	735	17 063	535	992	13 162	43 079	23 694	67 502	932
Arizona	-	23	9	644	18 905	459	919	12 144	55 348	36 447	91 845	5 042
California	1	116	60	5 426	161 471	3 771	7 258	104 548	523 068	368 669	892 247	25 767
Colorado	-	17	8	1 978	41 295	864	1 597	20 774	196 278	54 768	250 671	3 958
Connecticut	4	12	7	424	14 091	368	822	10 650	50 996	34 399	85 381	4 819
Florida	1	39	20	1 364	43 304	888	1 601	23 844	116 545	111 991	230 184	7 020
Georgia	3	32	20	1 877	45 823	1 458	2 751	33 730	175 568	124 480	298 026	8 886
Illinois	-	67	33	3 322	114 521	2 318	4 377	70 199	286 241	360 266	644 806	11 695
Indiana	4	21	17	1 477	46 726	1 115	2 256	32 491	176 047	113 365	292 130	8 323
Iowa	1	15	12	1 290	42 660	857	1 671	24 161	150 539	103 080	253 007	8 713
Kansas	-	20	12	2 808	75 085	1 932	3 451	51 531	160 252	168 511	328 490	9 791
Kentucky	7	11	8	573	16 527	446	914	11 351	51 719	42 377	93 168	2 335
Louisiana	3	12	4	211	5 371	168	327	3 775	13 747	7 712	21 440	303
Maine	-	3	3	102	2 786	70	132	1 918	6 141	5 258	11 412	422
Maryland	1	15	9	978	23 728	776	1 605	19 033	105 678	57 543	162 052	5 265
Massachusetts	-	19	9	912	33 241	681	1 370	22 481	135 239	66 891	203 023	2 350
Michigan	2	38	21	1 472	43 850	1 001	1 684	24 061	115 565	79 143	195 161	3 659
Minnesota	-	24	15	1 884	55 633	1 070	2 033	28 627	178 742	105 129	285 953	3 550
Missouri	1	26	12	1 285	43 723	926	1 919	30 038	217 157	121 815	339 520	7 726
Nebraska	-	4	3	280	10 001	175	306	5 277	40 296	18 179	58 805	697
Nevada	7	7	2	122	3 493	89	160	2 280	9 390	8 407	17 763	409
New Jersey	6	32	16	1 832	63 473	1 183	2 211	35 728	123 342	143 545	271 984	6 010
New York	1	60	23	2 369	67 178	1 498	2 825	39 901	232 472	115 026	348 086	15 370
North Carolina	2	29	13	1 403	35 564	921	1 844	24 320	134 642	61 475	195 691	6 625
Ohio	1	44	28	3 070	99 627	2 144	4 258	64 344	360 886	151 575	513 089	25 365
Oklahoma	-	14	5	606	16 423	439	801	11 386	50 371	25 474	76 001	1 191
Oregon	2	20	14	962	31 295	686	1 400	19 723	78 603	45 926	124 076	4 136
Pennsylvania	1	61	42	4 538	135 460	3 215	6 340	85 569	476 626	448 403	919 526	25 726
South Carolina	2	11	8	565	18 000	379	842	11 087	53 704	86 148	139 157	1 541
Tennessee	2	30	16	1 159	33 378	831	1 651	21 299	140 113	80 788	220 463	4 613
Texas	-	86	50	4 156	123 600	3 187	6 275	83 399	473 695	309 656	778 222	14 698
Utah	4	14	10	1 213	34 067	989	1 955	26 875	162 279	76 037	239 042	4 414
Vermont	-	5	3	447	16 458	361	740	12 577	84 241	52 320	136 252	4 364
Virginia	-	23	12	1 349	41 201	909	1 730	27 359	156 222	79 942	235 639	8 764
Washington	-	19	11	911	29 936	694	1 158	20 127	86 035	43 119	129 824	3 521
Wisconsin	7	24	15	1 231	41 937	966	1 900	29 642	127 764	112 412	239 513	4 502

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
323116, MANIFOLD BUSINESS FORM PRINTING		323116, MANIFOLD BUSINESS FORM PRINTING— Con.	
Companies ¹	number.. 719	Value added	\$1,000.. 5 706 765
All establishments	number.. 1 039	Total inventories, beginning of year	\$1,000.. 738 911
Establishments with 1 to 19 employees	number.. 466	Finished goods inventories, beginning of year	\$1,000.. 355 096
Establishments with 20 to 99 employees	number.. 416	Work-in-process inventories, beginning of year	\$1,000.. 84 397
Establishments with 100 employees or more	number.. 157	Materials and supplies inventories, beginning of year	\$1,000.. 299 418
All employees	number.. 56 423	Total inventories, end of year	\$1,000.. 753 180
Total compensation ²	\$1,000.. 2 094 410	Finished goods inventories, end of year	\$1,000.. 359 416
Annual payroll	\$1,000.. 1 690 008	Work-in-process inventories, end of year	\$1,000.. 83 888
Total fringe benefits	\$1,000.. 404 402	Materials and supplies inventories, end of year	\$1,000.. 309 876
Production workers, average for year	number.. 39 431	Gross book value of total assets at beginning of year	\$1,000.. 3 066 221
Production workers on March 12	number.. 40 185	Total capital expenditures (new and used)	\$1,000.. 258 580
Production workers on May 12	number.. 39 521	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 35 586
Production workers on August 12	number.. 39 213	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 222 994
Production workers on November 12	number.. 38 805	Total retirements ²	\$1,000.. 118 359
Production-worker hours	1,000.. 76 131	Gross book value of total assets at end of year	\$1,000.. 3 206 442
Production-worker wages	\$1,000.. 1 088 048	Total depreciation during year ²	\$1,000.. 213 600
Total cost of materials	\$1,000.. 3 928 756	Total rental payments ²	\$1,000.. 103 664
Cost of materials, parts, containers, etc., consumed	\$1,000.. 3 412 629	Buildings and other structures rental payments ²	\$1,000.. 53 987
Cost of resales	\$1,000.. 383 271	Machinery and equipment rental payments ²	\$1,000.. 49 677
Cost of fuels	\$1,000.. 13 645	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 7 966
Cost of purchased electricity	\$1,000.. 59 668	Response coverage ratio ⁴	percent.. 62
Cost of contract work	\$1,000.. 59 543	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 43 600
Quantity of electricity purchased for heat and power	1,000 kWh.. 1 005 880	Response coverage ratio ⁴	percent.. 62
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 20 959
Total value of shipments	\$1,000.. 9 631 710	Response coverage ratio ⁴	percent.. 62
Primary products value of shipments	\$1,000.. 8 014 437	Cost of purchased legal services ³	\$1,000.. 2 521
Secondary products value of shipments	\$1,000.. 1 055 305	Response coverage ratio ⁴	percent.. 62
Total miscellaneous receipts	\$1,000.. 561 968	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 14 964
Value of resales	\$1,000.. 525 921	Response coverage ratio ⁴	percent.. 62
Contract receipts	\$1,000.. —	Cost of purchased advertising services ³	\$1,000.. 26 628
Other miscellaneous receipts	\$1,000.. 36 047	Response coverage ratio ⁴	percent.. 62
Primary products specialization ratio	percent.. 88	Cost of purchased software and other data processing services ³	\$1,000.. 3 242
Value of primary products shipments made in all industries	\$1,000.. 8 305 505	Response coverage ratio ⁴	percent.. 62
Value of primary products shipments made in this industry	\$1,000.. 8 014 437	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 3 077
Value of primary products shipments made in other industries	\$1,000.. 291 068	Response coverage ratio ⁴	percent.. 62
Coverage ratio	percent.. 96		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323116. MANIFOLD BUSINESS FORM PRINTING												
All establishments	2	1 039	573	56 423	1 690 008	39 431	76 131	1 088 048	5 706 765	3 928 756	9 631 710	258 580
Establishments with 1 to 4 employees	8	209	—	422	10 984	352	556	7 812	33 639	29 332	62 813	1 787
Establishments with 5 to 9 employees	7	111	—	751	21 482	582	945	14 763	62 698	53 281	115 816	3 454
Establishments with 10 to 19 employees	5	146	—	2 060	56 431	1 493	2 695	36 970	172 969	139 274	311 819	8 185
Establishments with 20 to 49 employees	2	238	238	7 858	241 789	5 812	11 245	157 066	626 630	525 952	1 156 581	28 227
Establishments with 50 to 99 employees	1	178	178	12 397	396 247	8 690	17 351	239 628	1 110 522	1 107 188	2 213 118	50 366
Establishments with 100 to 249 employees	2	124	124	18 620	591 589	13 398	26 947	399 666	2 356 208	1 456 155	3 805 610	103 429
Establishments with 250 to 499 employees	1	26	26	8 912	242 235	6 283	11 374	154 596	829 224	394 530	1 225 750	29 017
Establishments with 500 to 999 employees	1	5	5	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	2	2	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	301	—	1 831	44 089	1 424	2 091	30 907	137 092	122 735	259 043	7 737

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323116	Manifold business form printing	1 039	56 423	1 690 008	39 431	76 131	1 088 048	5 706 765	3 928 756	9 631 710	258 580
3231161	Unit set forms, loose or bound	119	8 831	282 352	5 990	12 158	172 478	1 129 592	601 229	1 726 941	57 157
3231163	Manifold books and pegboard accounting systems	9	474	12 212	358	682	8 594	56 214	32 970	89 103	1 737
3231165	Custom continuous business forms ..	275	20 976	674 768	14 923	29 792	442 955	2 004 054	1 456 355	3 458 903	104 111
3231167	Stock continuous business forms ...	40	3 230	115 325	1 955	3 805	60 689	402 661	882 857	1 282 661	12 712
3231169	Checkbooks (including inserts and refills, but excluding those in continuous form and die-cut)	117	15 550	394 753	10 751	19 848	264 524	1 466 374	412 500	1 884 348	49 404

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323116	Manifold business form printing	N	X	X	8 305 505	N	X	X	N
3231161	Unit set forms, loose or bound	N	X	X	1 618 023	N	X	X	1 363 479
32311611	Unit set forms, loose or bound, except custom printed	N	X	X	573 383	N	X	X	N
3231161111	Unit set label-form combination business forms, loose or bound	21	X	X	30 491	16	X	X	21 113
3231161121	Unit set business forms, loose or bound, stock (including imprinted), with one-time carbon	30	X	X	315 279	31	X	X	80 923
3231161126	Unit set business forms, loose or bound, stock (including imprinted), carbonless	55	X	X	227 613	42	X	X	97 950
32311612	Unit set business forms, loose or bound, custom-printed, with one-time carbon	N	X	X	273 353	N	X	X	N
3231161231	Unit set business forms, loose or bound, custom-printed, with one-time carbon	148	X	X	273 353	183	X	X	340 059
32311613	Unit set business forms, loose or bound, custom-printed, carbonless	N	X	X	514 076	N	X	X	N
3231161336	Unit set business forms, loose or bound, custom-printed, carbonless	267	X	X	514 076	253	X	X	607 405
32311614	Tabulating card sets	N	X	X	12 505	N	X	X	N
3231161441	Tabulating card sets	7	X	X	12 505	10	X	X	9 234
3231161Y	Unit set forms, loose or bound, nsk	N	X	X	244 706	N	X	X	N
3231161YVW	Unit set forms, loose or bound, nsk	N	X	X	244 706	N	X	X	206 795
3231163	Manifold books and pegboard accounting systems	N	X	X	160 104	N	X	X	330 534
32311631	Manifold books and pegboard accounting systems	N	X	X	121 368	N	X	X	N
3231163111	Pegboard accounting systems	18	X	X	68 748	18	X	X	103 067
3231163116	Sales and other manifold books	39	X	X	52 620	33	X	X	168 002
3231163Y	Manifold books and pegboard accounting systems, nsk	N	X	X	38 736	N	X	X	N
3231163YVW	Manifold books and pegboard accounting systems, nsk	N	X	X	38 736	N	X	X	59 465
3231165	Custom continuous business forms	N	X	X	2 549 541	N	X	X	2 647 581
32311651	Label-form combination, jumbo roll-feed, and self-mailer custom-printed continuous business forms	N	X	X	543 868	N	X	X	N
3231165111	Custom continuous label-form combination business forms	45	X	X	374 638	45	X	X	105 561
3231165116	Custom continuous jumbo roll-feed business forms	29	X	X	91 341	18	X	X	88 344
3231165121	Custom continuous peel-back self-mailer business forms	20	X	X	21 462	20	X	X	61 228
3231165126	Custom continuous insert self-mailer business forms	18	X	X	36 550	19	X	X	100 120
3231165131	All other custom continuous self-mailer business forms	8	X	X	19 877	11	X	X	30 960
32311652	One-part custom-printed continuous business forms	N	X	X	485 963	N	X	X	N
3231165236	Custom continuous business forms, one-part, with product affixed	24	X	X	121 997	34	X	X	82 799
3231165241	All other custom continuous business forms, nec, one-part with no product affixed	140	X	X	363 966	147	X	X	522 711
32311653	All other custom continuous multiple-part business forms, with one-time carbon	N	X	X	233 817	N	X	X	N
3231165346	All other custom continuous multiple-part business forms, with one-time carbon	124	X	X	233 817	170	X	X	387 467
32311654	All other custom continuous multiple-part business forms, carbonless	N	X	X	881 635	N	X	X	N
3231165451	All other custom continuous multiple-part business forms, carbonless	214	X	X	881 635	225	X	X	911 382
3231165Y	Custom continuous forms, nsk	N	X	X	404 258	N	X	X	N
3231165YVW	Custom continuous forms, nsk	N	X	X	404 258	N	X	X	357 009
3231167	Stock continuous business forms	N	X	X	1 065 457	N	X	X	1 590 806
32311671	Stock continuous business forms	N	X	X	929 196	N	X	X	N
3231167111	Stock continuous label-form combination business forms	7	X	X	102 380	6	X	X	42 231
3231167116	Stock continuous jumbo roll-feed business forms	5	X	X	42 758	6	X	X	19 622
3231167121	All other stock continuous business forms, nec, one-part	25	X	X	620 347	38	X	X	811 429
3231167126	All other stock continuous business forms, nec, multiple-part with one-time carbon	17	X	X	61 996	26	X	X	89 141
3231167131	All other stock continuous business forms, nec, multiple-part, carbonless	26	X	X	101 715	30	X	X	260 170
3231167Y	Stock continuous forms, nsk	N	X	X	136 261	N	X	X	N
3231167YVW	Stock continuous forms, nsk	N	X	X	136 261	N	X	X	368 213

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323116	Manifold business form printing—Con.								
3231169	Checkbooks (including inserts and refills, but excluding those in continuous form and die-cut)	N	X	X	1 628 776	N	X	X	1 677 577
32311691	Checkbooks (including inserts and refills, but excluding those in continuous form and die-cut)	N	X	X	1 628 776	N	X	X	N
3231169100	Checkbooks (including inserts and refills, but excluding those in continuous form and die-cut)	42	X	X	1 628 776	N	X	X	N
323116W	Manifold business form printing, nsk, total	N	X	X	1 283 604	N	X	X	N
323116WY	Manifold business form printing, nsk, total	N	X	X	1 283 604	N	X	X	N
323116WYWW	Manifold business form printing, nsk, for nonadministrative-record establishments	N	X	X	1 046 513	N	X	X	N
323116WYWY	Manifold business form printing, nsk, for administrative-record establishments	N	X	X	237 091	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231161	UNIT SET FORMS, LOOSE OR BOUND		
	United States	1 618 023	1 363 479
	Alabama	11 286	N
	Arizona	14 461	10 089
	California	131 995	111 556
	Colorado	13 701	9 472
	Connecticut	18 319	15 650
	Florida	23 541	25 155
	Georgia	85 383	38 534
	Illinois	144 651	120 224
	Indiana	59 462	49 426
	Iowa	97 831	9 545
	Kansas	107 081	45 996
	Maryland	4 220	11 833
	Massachusetts	15 269	17 153
	Michigan	30 645	23 196
	Minnesota	20 570	20 427
	Mississippi	3 403	N
	Missouri	83 470	59 925
	Nevada	2 583	N
	New Jersey	21 883	23 233
	New York	49 455	51 773
	North Carolina	32 400	41 766
	Ohio	108 682	64 859
	Oregon	20 575	33 991
	Pennsylvania	145 596	168 855
	Tennessee	105 854	118 738
	Texas	126 820	93 038
	Virginia	28 159	22 835
	Washington	13 219	12 762
	Wisconsin	17 313	16 179
3231163	MANIFOLD BOOKS AND PEGBOARD ACCOUNTING SYSTEMS		
	United States	160 104	330 534
	California	33 384	44 709
	Georgia	3 429	24 784
	Illinois	19 233	N
	New Jersey	4 109	4 227
	Ohio	10 621	31 510
	Pennsylvania	2 924	3 557
	Texas	6 522	12 603

See footnotes at end of table.

Table 6b. **Product Class Shipments for Selected States: 1997 and 1992—Con.**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231165	CUSTOM CONTINUOUS BUSINESS FORMS		
	United States	2 549 541	2 647 581
	Arizona	47 379	18 049
	Arkansas	79 076	84 379
	California	215 266	212 188
	Colorado	21 657	22 244
	Connecticut	42 259	38 874
	Florida	50 468	47 599
	Georgia	34 100	80 219
	Illinois	149 932	198 641
	Indiana	62 034	74 327
	Iowa	89 059	119 409
	Kansas	93 688	90 176
	Kentucky	27 983	36 210
	Maryland	75 310	56 965
	Massachusetts	22 775	14 642
	Michigan	63 413	57 831
	Minnesota	50 868	49 056
	Missouri	53 145	45 236
	New Hampshire	40 915	N
	New Jersey	20 154	44 750
	New York	62 888	89 893
	North Carolina	15 004	39 838
	Ohio	219 218	166 795
	Oregon	40 090	58 475
	Pennsylvania	178 015	193 565
	South Carolina	69 383	45 228
	Tennessee	33 456	50 055
	Texas	176 173	173 248
	Vermont	110 831	111 333
Virginia	69 716	54 161	
Washington	27 907	11 668	
Wisconsin	48 462	95 785	
3231167	STOCK CONTINUOUS BUSINESS FORMS		
	United States	1 065 457	1 590 806
	California	145 665	130 603
	Illinois	103 558	126 445
	Iowa	12 680	78 037
	Kansas	3 247	N
	Minnesota	13 697	N
	Missouri	54 085	69 801
	New York	2 868	7 619
	Ohio	7 761	21 701
	Pennsylvania	246 204	307 299
	Texas	77 041	137 431
	3231169	CHECKBOOKS (INCLUDING INSERTS AND REFILLS, BUT EXCLUDING THOSE IN CONTINUOUS FORM AND DIE-CUT)	
United States		1 628 776	1 677 577
Alabama		37 650	N
California		144 783	196 921
Connecticut		24 288	28 285
Florida		45 899	91 366
Georgia		77 159	48 993
Illinois		77 189	N
Missouri		19 410	N
New York		75 714	48 707
North Carolina		80 531	45 786
Ohio		27 399	N
Pennsylvania		102 583	79 889
Tennessee		41 418	44 688
Texas		194 776	137 873
Utah		30 640	N
Wisconsin		19 297	32 973

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323116	MANIFOLD BUSINESS FORM PRINTING				
32200015	Coated paper	X	273 953	X	N
32212019	Uncoated paper	X	979 815	X	1 376 095
32212021	Carbonless paper	X	531 837	X	N
32212023	Carbonizing tissue stock for conversion into one-time carbon paper	X	8 801	X	16 538
33994400	One-time carbon paper	X	26 396	X	55 119
32222200	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.	X	31 162	X	73 186
32591003	Printing ink	X	27 943	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	72 851	X	N
00970099	All other materials and components, parts, containers, and supplies	X	197 488	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	1 262 383	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

323116 MANIFOLD BUSINESS FORM PRINTING

This U.S. industry comprises establishments primarily engaged in printing special forms, including checkbooks, for use in the operation of a business. The forms may be in single and multiple sets, including carbonized, interleaved with carbon, or otherwise processed for multiple reproduction.

The data published with NAICS code 323116 include the following SIC industries:

- 2761 Manifold business forms
- 2782 Blankbooks and looseleaf binders (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
323116W pt.....	27820 pt.....	27820 pt.....	3231191.....	27591.....	27591.....	323119W pt.....	39999 pt.....	39999 pt.....
323116WYWW pt...	2761000.....	2761000.....	3231191100 pt.....	2759100.....	2759100.....	323119WYWW pt...	2759000 pt.....	2759000 pt.....
323116WYWW pt...	2782000 pt.....	2782000 pt.....	3231191100 pt.....	2759113 pt.....	2759112.....	323119WYWW pt...	2771000 pt.....	2771000 pt.....
323116WYWW pt...	2761002.....	2761002.....	3231191100 pt.....	2759113 pt.....	2759114.....	323119WYWW pt...	2771211.....	2771200 pt.....
323116WYWW pt...	2782002 pt.....	2782002 pt.....				323119WYWW pt...	2771200 pt.....	2771200 pt.....
			3231193.....	27592.....	27592.....	323119WYWW pt...	3999000 pt.....	3999000 pt.....
3231171.....	27323.....	27323.....	323119311.....	2759212.....	2759212.....	323119WYWW pt...	3999900 pt.....	3999900 pt.....
3231171111.....	2732310.....	2732310.....	3231193116.....	2759214.....	2759214.....	323119WYWW pt...	3999986.....	3999999 pt.....
3231171216.....	2732312.....	2732312.....	3231193121.....	2759216.....	2759216.....	323119WYWW pt...	2759002 pt.....	2759002 pt.....
3231171321.....	2732314.....	2732314.....	3231193126.....	2759218.....	2759218.....	323119WYWW pt...	2771002 pt.....	2771002 pt.....
3231171426.....	2732316.....	2732316.....	3231193131.....	2759221.....	2759221.....	323119WYWW pt...	3999002 pt.....	3999002 pt.....
3231171531.....	2732318.....	2732318.....	3231193136.....	2759223.....	2759223.....			
3231171YVV.....	2732300.....	2732300.....	3231193141.....	2759227.....	2759227.....	3231211.....	27891.....	27891.....
			3231193YVV.....	2759200.....	2759200.....	3231211111.....	2789110.....	2789110.....
						3231211116.....	2789113.....	2789113.....
3231173.....	27324.....	27324.....				3231211121.....	2789125.....	2789125.....
3231173111.....	2732422.....	2732422.....	3231195.....	27593.....	27593.....	3231211226.....	2789141.....	2789141.....
3231173116.....	2732425.....	2732425.....	3231195100 pt.....	2759300.....	2759300.....	3231211YVV.....	2789100.....	2789100.....
3231173YVV.....	2732400.....	2732400.....	3231195100 pt.....	2759317 pt.....	2759312.....			
			3231195100 pt.....	2759317 pt.....	2759318.....	3231213.....	27892.....	27892.....
3231175.....	27325.....	27325.....				323121311.....	2789223.....	2789223.....
3231175111.....	2732532.....	2732532.....	3231197.....	27594.....	27594.....	3231213216.....	2789224.....	2789224.....
3231175116.....	2732535.....	2732535.....	3231197100 pt.....	2759400.....	2759400.....	3231213321.....	2789225.....	2789225.....
3231175YVV.....	2732500.....	2732500.....	3231197100 pt.....	2759421 pt.....	2759411.....	3231213326.....	2789226.....	2789226.....
			3231197100 pt.....	2759421 pt.....	2759413.....	3231213431.....	2789281.....	2789281.....
3231177.....	27326.....	27326.....	3231197100 pt.....	2759421 pt.....	2759415.....	3231213536.....	2789292.....	2789292.....
3231177111.....	2732642.....	2732642.....	3231197100 pt.....	2759421 pt.....	2759417.....	3231213YVV.....	2789200.....	2789200.....
3231177216.....	2732643.....	2732643.....						
3231177321.....	2732644.....	2732644.....	3231199.....	27595.....	27595.....	323121W.....	27890.....	27890.....
3231177426.....	2732645.....	2732645.....	323119911.....	2759512.....	2759512.....	323121WYVV.....	2789000.....	2789000.....
3231177531.....	2732646.....	2732646.....	3231199116.....	2759514.....	2759514.....	323121WYVV.....	2789002.....	2789002.....
3231177636.....	2732647.....	2732647.....	3231199121.....	2759516.....	2759516.....			
3231177741.....	2732648.....	2732648.....	3231199126.....	2759518.....	2759518.....	3231221 pt.....	27910 pt.....	27910 pt.....
3231177YVV.....	2732600.....	2732600.....	3231199131.....	2759520.....	2759520.....	3231221 pt.....	27962.....	27962.....
			3231199136.....	2759522.....	2759522.....	3231221100 pt.....	27963 pt.....	27963 pt.....
3231179.....	2732A.....	2732A.....	3231199141.....	2759524.....	2759524.....	3231221100 pt.....	2791000 pt.....	2791016.....
3231179111.....	2732A52.....	2732A52.....	3231199141.....	2759524.....	2759524.....	3231221100 pt.....	2791000 pt.....	2791018.....
3231179116.....	2732A54.....	2732A54.....	3231199YVV.....	2759500.....	2759500.....	3231221100 pt.....	2791000 pt.....	2791032.....
3231179121.....	2732A55.....	2732A55.....				3231221100 pt.....	2791000 pt.....	2791034.....
3231179126.....	2732A56.....	2732A56.....	323119B pt.....	27596.....	27596.....	3231221100 pt.....	2796200 pt.....	2796200.....
3231179131.....	2732A57.....	2732A57.....	323119B pt.....	27712 pt.....	27712 pt.....	3231221100 pt.....	2796200 pt.....	2796231.....
3231179YVV.....	2732A00.....	2732A00.....	323119B111.....	2759611.....	2759611.....	3231221100 pt.....	2796200 pt.....	2796239.....
			323119B116.....	2759613.....	2759613.....	3231221100 pt.....	2796200 pt.....	2796241.....
323117A.....	2732B.....	2732B.....	323119B121.....	2759615.....	2759615.....	3231221100 pt.....	2796300 pt.....	2796300 pt.....
323117A100.....	2732B00.....	2732B00.....	323119B126.....	2759616.....	2759616.....	3231221100 pt.....	2796352.....	2796352.....
			323119B131.....	2759617.....	2759617.....	3231221100 pt.....	2796375.....	2796373.....
323117C.....	2732C.....	2732C.....	323119B136.....	2759619.....	2759619.....			
323117C100.....	2732C00.....	2732C00.....	323119B141.....	2759621.....	2759621.....	3231223 pt.....	27961.....	27961.....
			323119B146.....	2759623.....	2759623.....	3231223 pt.....	27963 pt.....	27963 pt.....
323117W.....	27320.....	27320.....	323119B191 pt.....	2759627.....	2759627.....	323122306 pt.....	2796100 pt.....	2796100 pt.....
323117WYVV.....	2732000.....	2732000.....	323119B191 pt.....	2771209.....	2771200 pt.....	323122306 pt.....	2796100 pt.....	2796111.....
323117WYVV.....	2732002.....	2732002.....	323119BYVV pt.....	2759600.....	2759600.....	323122306 pt.....	2796100 pt.....	2796115.....
			323119BYVV pt.....	2771200 pt.....	2771200 pt.....	323122311 pt.....	2796327 pt.....	2796325.....
3231181.....	27824.....	27824.....	323119E.....	27599.....	27599.....	323122311 pt.....	2796327 pt.....	2796330.....
3231181111.....	2782441.....	2782441.....	323119E111.....	2759912.....	2759912.....	323122316.....	2796345.....	2796345.....
3231181116.....	2782445.....	2782445.....	323119E116.....	2759922.....	2759922.....	3231223121.....	2796347.....	2796347.....
3231181121.....	2782451.....	2782451.....	323119E121.....	2759933.....	2759933.....	3231223126.....	2796353.....	2796353.....
3231181YVV.....	2782400.....	2782400.....	323119E126.....	2759935.....	2759935.....	3231223191 pt.....	2796371 pt.....	2796369.....
			323119EYVV.....	2759900.....	2759900.....	3231223YVV pt.....	2796100 pt.....	2796100 pt.....
3231183.....	27825.....	27825.....				3231223YVV pt.....	2796300 pt.....	2796300 pt.....
3231183111.....	2782501.....	2782501.....	323119W pt.....	27590 pt.....	27590 pt.....			
3231183116.....	2782503.....	2782503.....	323119W pt.....	27710 pt.....	27710 pt.....	323122W pt.....	27910 pt.....	27910 pt.....
3231183121.....	2782506.....	2782506.....				323122W pt.....	27960.....	27960.....
3231183126.....	2782508.....	2782508.....	323119W pt.....	27710 pt.....	27710 pt.....	323122WYVV pt...	2791000 pt.....	2791000 pt.....
3231183131.....	2782511.....	2782511.....	323119W pt.....	27712 pt.....	27712 pt.....	323122WYVV pt...	2796000.....	2796000.....
3231183136.....	2782522.....	2782522.....	323119W pt.....	27712 pt.....	27712 pt.....	323122WYVV pt...	2791002.....	2791002.....
3231183YVV.....	2782500.....	2782500.....	323119W pt.....	39990 pt.....	39990 pt.....	323122WYVV pt...	2796002.....	2796002.....
323118W.....	27820 pt.....	27820 pt.....						
323118WYVV.....	2782000 pt.....	2782000 pt.....						
323118WYVV.....	2782002 pt.....	2782002 pt.....						

1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-ditures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323117	Book printing	692	744	48 054	1 501 435	37 777	74 191	1 026 934	3 231 796	2 186 871	5 417 700	290 147
273200	Book printing	N	744	48 054	1 501 435	37 777	74 191	1 026 934	3 231 796	2 186 871	5 417 700	290 147

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-ditures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323117, BOOK PRINTING												
United States	1	744	319	48 054	1 501 435	37 777	74 191	1 026 934	3 231 796	2 186 871	5 417 700	290 147
California	2	90	33	2 606	92 187	2 070	3 954	57 152	206 810	117 393	327 461	18 286
Colorado	4	14	5	356	11 486	270	590	7 233	23 053	13 365	36 462	2 171
Florida	3	42	13	883	26 571	708	1 469	18 745	55 930	33 574	88 655	3 341
Georgia	2	18	6	398	11 450	299	569	7 982	21 024	15 426	36 372	701
Illinois	-	52	20	2 334	71 809	1 674	3 009	43 475	152 343	100 929	252 211	18 958
Iowa	-	10	6	894	26 627	714	1 331	20 837	51 521	36 759	90 812	2 965
Kansas	-	9	4	1 000	24 531	717	1 476	17 252	77 010	13 426	89 837	1 852
Kentucky	1	9	6	445	8 771	251	438	5 127	16 938	10 147	26 853	2 183
Maryland	3	34	16	1 728	63 216	1 362	2 709	41 146	121 610	103 149	225 722	10 218
Massachusetts	3	25	18	2 225	75 601	1 759	3 612	51 397	155 611	94 606	250 849	8 789
Michigan	-	26	18	2 938	91 547	2 349	4 454	62 108	170 625	128 212	297 258	14 679
Minnesota	2	15	10	662	23 370	472	952	13 998	48 814	42 154	90 418	3 005
Missouri	-	16	10	2 690	79 799	2 073	4 110	48 981	194 661	176 669	369 028	17 817
New Jersey	2	29	10	601	20 516	483	869	13 745	56 180	33 211	89 142	1 555
New York	2	64	26	2 788	94 108	2 298	4 647	67 516	176 004	120 998	297 083	16 196
North Carolina	-	18	8	1 576	58 814	1 267	2 695	35 047	112 185	47 553	162 019	8 325
Ohio	-	21	10	2 632	85 799	2 167	4 503	65 156	213 322	126 472	341 191	21 912
Oregon	4	9	4	415	13 537	321	646	9 319	29 950	21 176	51 063	3 552
Pennsylvania	-	33	20	4 176	130 605	3 329	6 765	92 077	284 387	127 529	410 000	46 287
South Carolina	7	7	2	182	4 501	148	241	3 053	9 310	5 880	15 182	753
Tennessee	-	20	13	4 348	112 859	3 747	7 355	90 427	252 005	140 886	388 506	27 024
Texas	7	33	11	989	32 287	653	1 321	19 053	59 317	56 955	117 455	7 711
Utah	-	7	4	439	14 803	310	609	9 761	43 246	56 143	98 651	2 021
Vermont	1	4	3	467	13 136	376	689	9 879	18 205	17 564	35 763	1 143
Virginia	-	13	9	2 708	82 506	2 181	4 390	59 177	203 811	142 282	345 997	6 720
Washington	-	10	4	774	17 890	491	558	9 140	25 686	26 760	54 185	1 147
Wisconsin	-	23	9	2 308	86 462	1 717	3 543	55 950	171 686	187 866	357 939	18 001

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
323117, BOOK PRINTING		323117, BOOK PRINTING—Con.	
Companies ¹	number.. 692	Value added	\$1,000.. 3 231 796
All establishments	number.. 744	Total inventories, beginning of year	\$1,000.. 389 067
Establishments with 1 to 19 employees	number.. 425	Finished goods inventories, beginning of year	\$1,000.. 36 565
Establishments with 20 to 99 employees	number.. 215	Work-in-process inventories, beginning of year	\$1,000.. 163 232
Establishments with 100 employees or more	number.. 104	Materials and supplies inventories, beginning of year	\$1,000.. 189 270
All employees	number.. 48 054	Total inventories, end of year	\$1,000.. 390 149
Total compensation ²	\$1,000.. 1 838 858	Finished goods inventories, end of year	\$1,000.. 40 621
Annual payroll	\$1,000.. 1 501 435	Work-in-process inventories, end of year	\$1,000.. 160 143
Total fringe benefits	\$1,000.. 337 423	Materials and supplies inventories, end of year	\$1,000.. 189 385
Production workers, average for year	number.. 37 777	Gross book value of total assets at beginning of year	\$1,000.. 2 944 384
Production workers on March 12	number.. 38 258	Total capital expenditures (new and used)	\$1,000.. 290 147
Production workers on May 12	number.. 38 393	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 34 687
Production workers on August 12	number.. 37 144	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 255 460
Production workers on November 12	number.. 37 313	Total retirements ²	\$1,000.. 72 673
Production-worker hours	1,000.. 74 191	Gross book value of total assets at end of year	\$1,000.. 3 161 858
Production-worker wages	\$1,000.. 1 026 934	Total depreciation during year ²	\$1,000.. 224 855
Total cost of materials	\$1,000.. 2 186 871	Total rental payments ²	\$1,000.. 82 119
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 818 877	Buildings and other structures rental payments ²	\$1,000.. 43 436
Cost of resales	\$1,000.. 45 107	Machinery and equipment rental payments ²	\$1,000.. 38 683
Cost of fuels	\$1,000.. 15 182	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 9 772
Cost of purchased electricity	\$1,000.. 54 753	Response coverage ratio ⁴	percent.. 84
Cost of contract work	\$1,000.. 252 952	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 65 747
Quantity of electricity purchased for heat and power	1,000 kWh.. 1 011 180	Response coverage ratio ⁴	percent.. 84
Quantity of electricity generated less sold for heat and power	1,000 kWh.. -	Cost of purchased communications services ³	\$1,000.. 13 398
Total value of shipments	\$1,000.. 5 417 700	Response coverage ratio ⁴	percent.. 84
Primary products value of shipments	\$1,000.. 4 766 506	Cost of purchased legal services ³	\$1,000.. 7 976
Secondary products value of shipments	\$1,000.. 558 581	Response coverage ratio ⁴	percent.. 84
Total miscellaneous receipts	\$1,000.. 92 613	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 4 967
Value of resales	\$1,000.. 67 560	Response coverage ratio ⁴	percent.. 84
Contract receipts	\$1,000.. -	Cost of purchased advertising services ³	\$1,000.. 6 208
Other miscellaneous receipts	\$1,000.. 25 053	Response coverage ratio ⁴	percent.. 84
Primary products specialization ratio	percent.. 89	Cost of purchased software and other data processing services ³	\$1,000.. 8 421
Value of primary products shipments made in all industries	\$1,000.. 5 518 174	Response coverage ratio ⁴	percent.. 84
Value of primary products shipments made in this industry	\$1,000.. 4 766 506	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 5 413
Value of primary products shipments made in other industries	\$1,000.. 751 668	Response coverage ratio ⁴	percent.. 84
Coverage ratio	percent.. 86		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323117, BOOK PRINTING												
All establishments	1	744	319	48 054	1 501 435	37 777	74 191	1 026 934	3 231 796	2 186 871	5 417 700	290 147
Establishments with 1 to 4 employees	7	215	—	398	9 380	324	504	6 333	24 239	13 846	37 999	1 622
Establishments with 5 to 9 employees	7	108	—	708	19 874	565	938	13 752	41 282	29 036	70 304	3 366
Establishments with 10 to 19 employees	7	102	—	1 380	40 467	1 061	1 777	26 014	81 926	51 082	133 018	9 139
Establishments with 20 to 49 employees	2	150	150	4 835	155 048	3 698	6 998	98 943	319 252	198 338	516 358	38 252
Establishments with 50 to 99 employees	1	65	65	4 733	156 536	3 595	7 390	101 793	327 879	211 596	534 634	26 073
Establishments with 100 to 249 employees	1	57	57	9 373	304 732	7 077	13 661	189 913	630 306	465 579	1 100 958	51 101
Establishments with 250 to 499 employees	—	27	27	9 774	312 270	7 583	15 487	212 622	654 147	504 296	1 153 635	88 673
Establishments with 500 to 999 employees	—	16	16	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	4	4	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	333	—	2 048	49 255	1 670	2 522	34 938	100 809	68 562	169 258	9 225

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323117	Book printing	744	48 054	1 501 435	37 777	74 191	1 026 934	3 231 796	2 186 871	5 417 700	290 147
3231171	Textbook printing and binding	35	5 758	193 962	4 523	9 131	139 860	465 339	436 547	897 338	55 170
3231173	Technical, scientific, and professional book printing and binding	73	7 622	260 152	5 713	11 481	160 373	510 716	365 969	880 640	33 233
3231175	Religious book printing and binding ..	17	1 585	47 700	1 265	2 419	32 332	103 617	65 895	168 270	10 187
3231177	General book (trade, etc.) printing and binding	60	16 645	516 542	13 562	27 325	383 973	1 094 097	708 719	1 806 606	102 612
3231179	Other book printing and binding, nec.	42	7 454	195 892	5 733	10 850	129 174	495 468	259 264	752 107	33 624
323117A	Books, printing only, not bound	14	964	36 539	746	1 365	22 398	57 383	30 748	90 200	4 667
323117C	Pamphlet printing and binding or printing only (excluding advertising pamphlets)	67	2 623	97 812	1 873	3 933	53 933	192 580	111 608	303 086	22 751

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323117	Book printing	N	X	X	5 518 174	N	X	X	4 730 237
3231171	Textbook printing and binding	N	X	X	993 509	N	X	X	683 748
32311711	Hardbound elementary and high school (grades K through 12) textbook printing and binding, including teachers' editions	N	X	X	225 473	N	X	X	N
3231171111	Hardbound elementary and high school (grades K through 12) textbook printing and binding, including teachers' editions	17	X	X	225 473	21	X	X	162 316
32311712	Paperbound elementary and high school (grades K through 12) textbook printing and binding, including teachers' editions	N	X	X	299 551	N	X	X	N
3231171216	Paperbound elementary and high school (grades K through 12) textbook printing and binding, including teachers' editions	58	X	X	299 551	57	X	X	168 070
32311713	Hardbound college (grades 13 and up, for any post high school level courses) textbook printing and binding	N	X	X	172 610	N	X	X	N
3231171321	Hardbound college (grades 13 and up, for any post high school level courses) textbook printing and binding	25	X	X	172 610	24	X	X	140 290
32311714	Paperbound college (grades 13 and up, for any post high school level courses) textbook printing and binding	N	X	X	220 139	N	X	X	N
3231171426	Paperbound college (grades 13 and up, for any post high school level courses) textbook printing and binding	66	X	X	220 139	62	X	X	150 734
32311715	Workbook and standardized test printing and binding, all grade levels	N	X	X	67 552	N	X	X	N
3231171531	Workbook and standardized test printing and binding, all grade levels	45	X	X	67 552	30	X	X	47 349
3231171Y	Textbooks, printing and binding, nsk	N	X	X	8 184	N	X	X	N
3231171YWV	Textbooks, printing and binding, nsk	N	X	X	8 184	N	X	X	14 989
3231173	Technical, scientific, and professional book printing and binding	N	X	X	914 520	N	X	X	1 014 861
32311731	Technical, scientific, and professional book printing and binding	N	X	X	892 398	N	X	X	N
3231173111	Hardbound technical, scientific, and professional book printing and binding	40	X	X	138 710	45	X	X	152 772
3231173116	Paperbound technical, scientific, and professional book printing and binding	223	X	X	753 688	262	X	X	802 012
3231173Y	Technical, scientific, and professional book printing and binding, nsk	N	X	X	22 122	N	X	X	N
3231173YWV	Technical, scientific, and professional book printing and binding, nsk	N	X	X	22 122	N	X	X	60 077
3231175	Religious book printing and binding	N	X	X	342 078	N	X	X	206 998
32311751	Religious book printing and binding	N	X	X	337 697	N	X	X	N
3231175111	Hardbound (including flexible cover) religious book printing and binding	39	X	X	209 626	25	X	X	76 825
3231175116	Paperbound religious book printing and binding	81	X	X	128 071	69	X	X	89 069
3231175Y	Religious books, printing and binding, nsk	N	X	X	4 381	N	X	X	N
3231175YWV	Religious book printing and binding, nsk	N	X	X	4 381	N	X	X	41 104
3231177	General book (trade, etc.) printing and binding	N	X	X	1 263 703	N	X	X	1 125 713
32311771	Hardbound book club and mail order book printing and binding	N	X	X	196 455	N	X	X	N
3231177111	Hardbound book club and mail order book printing and binding	19	X	X	196 455	13	X	X	128 527
32311772	Paperbound book club and mail order book printing and binding	N	X	X	96 381	N	X	X	N
3231177216	Paperbound book club and mail order book printing and binding	50	X	X	96 381	38	X	X	81 155
32311773	Mass market rack-size paperbound book printing and binding, distributed predominantly to mass market outlets	N	X	X	218 790	N	X	X	N
3231177321	Mass market rack-size paperbound book printing and binding, distributed predominantly to mass market outlets	30	X	X	218 790	27	X	X	131 698
32311774	Hardbound adult trade book printing and binding, sold primarily through retail or wholesale book sellers	N	X	X	335 481	N	X	X	N
3231177426	Hardbound adult trade book printing and binding, sold primarily through retail or wholesale book sellers	33	X	X	335 481	36	X	X	364 820

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323117	Book printing—Con.								
3231177	General book (trade, etc.) printing and binding—Con.								
32311775	Paperbound adult trade book printing and binding, sold primarily through retail or wholesale book sellers	N	X	X	248 643	N	X	X	N
3231177531	Paperbound adult trade book printing and binding, sold primarily through retail or wholesale book sellers	68	X	X	248 643	62	X	X	280 089
32311776	Hardbound juvenile book printing and binding (fiction and nonfiction, including toy and coloring books)	N	X	X	76 347	N	X	X	N
3231177636	Hardbound juvenile book printing and binding (fiction and nonfiction, including toy and coloring books)	15	X	X	76 347	12	X	X	44 686
32311777	Paperbound juvenile book printing and binding (fiction and nonfiction, including toy and coloring books)	N	X	X	79 402	N	X	X	N
3231177741	Paperbound juvenile book printing and binding (fiction and nonfiction, including toy and coloring books)	45	X	X	79 402	33	X	X	47 937
3231177Y	General book (trade, etc.) printing and binding, nsk	N	X	X	12 204	N	X	X	N
3231177YVW	General book (trade, etc.) printing and binding, nsk	N	X	X	12 204	N	X	X	46 801
3231179	Other book printing and binding, nec	N	X	X	861 439	N	X	X	729 351
32311791	Other book printing and binding, nec	N	X	X	844 814	N	X	X	N
3231179111	Encyclopedia printing and binding	5	X	X	D	3	X	X	49 182
3231179116	Other hardbound reference book printing and binding (including dictionaries, thesauruses, etc.)	20	X	X	D	10	X	X	44 538
3231179121	Other paperbound reference book printing and binding (including dictionaries, thesauruses, etc.)	55	X	X	150 647	42	X	X	64 334
3231179126	All other hardbound book printing and binding, nec (including music books, university press books, etc.)	41	X	X	276 481	36	X	X	310 285
3231179131	All other paperbound book printing and binding, nec (including music books, university press books, etc.)	133	X	X	267 853	98	X	X	255 034
3231179Y	Other books, nec, printing and binding, nsk	N	X	X	16 625	N	X	X	N
3231179YVW	Other books, nec, printing and binding, nsk	N	X	X	16 625	N	X	X	5 978
323117A	Books, printing only, not bound	N	X	X	129 660	N	X	X	137 225
323117A1	Books, printing only, not bound	N	X	X	129 660	N	X	X	N
323117A100	Books, printing only, not bound	116	X	X	129 660	94	X	X	137 225
323117C	Pamphlet printing and binding or printing only (excluding advertising pamphlets)	N	X	X	474 886	N	X	X	308 321
323117C1	Pamphlets printing and binding or printing only (excluding advertising pamphlets)	N	X	X	474 886	N	X	X	N
323117C100	Pamphlets printing and binding or printing only (excluding advertising pamphlets)	422	X	X	474 886	338	X	X	308 321
323117W	Book printing, nsk, total	N	X	X	538 379	N	X	X	524 020
323117WY	Book printing, nsk, total	N	X	X	538 379	N	X	X	N
323117WYVW	Book printing, nsk, for nonadministrative-record establishments	N	X	X	378 988	N	X	X	455 224
323117WYVY	Book printing, nsk, for administrative-record establishments	N	X	X	159 391	N	X	X	68 796

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231171	TEXTBOOK PRINTING AND BINDING		
	United States	993 509	683 748
	California	9 620	20 093
	Colorado	2 038	2 981
	Florida	4 371	N
	Illinois	33 286	22 606
	Iowa	47 090	N
	Maryland	18 286	6 276
	Massachusetts	38 294	38 238
	Michigan	48 307	35 977
	Minnesota	5 270	N
	New Hampshire	2 036	N
	New York	42 865	34 347
	Ohio	140 257	76 897
	Pennsylvania	18 269	10 099
	Tennessee	58 435	N
	Virginia	26 128	N
	Wisconsin	158 984	110 120
3231173	TECHNICAL, SCIENTIFIC, AND PROFESSIONAL BOOK PRINTING AND BINDING		
	United States	914 520	1 014 861
	California	99 612	79 966
	Colorado	23 953	18 328
	Florida	5 422	9 677
	Illinois	18 040	12 162
	Indiana	39 789	N
	Kansas	2 954	3 231
	Maryland	46 169	33 243
	Massachusetts	116 604	105 831
	Michigan	70 555	87 760
	Minnesota	22 940	7 997
	Missouri	7 691	17 347
	New Jersey	11 095	9 509
	New York	34 186	28 841
	North Carolina	8 191	N
	Ohio	25 832	38 279
	Oregon	44 527	114 252
	Pennsylvania	76 508	91 266
	Tennessee	30 468	N
	Texas	53 044	42 192
	Utah	4 577	22 908
	Virginia	35 408	40 571
	Washington	44 860	N
	Wisconsin	29 846	14 209
3231175	RELIGIOUS BOOK PRINTING AND BINDING		
	United States	342 078	206 998
	Illinois	20 380	12 049
	Michigan	26 582	21 500
	New York	3 696	N
	Ohio	20 166	N
	Texas	4 459	3 344
	Virginia	15 672	N
	Wisconsin	7 649	7 736
3231177	GENERAL BOOK (TRADE, ETC.) PRINTING AND BINDING		
	United States	1 263 703	1 125 713
	California	24 598	62 206
	Florida	15 490	N
	Illinois	37 332	6 408
	Kansas	6 415	N
	Kentucky	19 476	N
	Maryland	22 024	27 648
	Massachusetts	33 837	9 641
	Michigan	55 301	66 825
	Minnesota	17 317	N
	Missouri	28 403	N
	New York	91 152	75 654
	Ohio	115 560	N
	Pennsylvania	158 499	134 077
	Tennessee	140 918	N
	Texas	2 379	8 427
	Virginia	214 242	N
	Wisconsin	69 836	101 957
3231179	OTHER BOOK PRINTING AND BINDING, NEC		
	United States	861 439	729 351
	California	72 195	6 059
	Colorado	2 841	3 264
	Florida	13 219	6 879
	Illinois	38 882	9 870
	Iowa	2 567	13 219
	Maryland	58 888	N
	Massachusetts	18 139	60 490
	Michigan	37 593	N
	Minnesota	11 930	2 832
	Missouri	124 715	N

See footnotes at end of table.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992—Con.

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231179	OTHER BOOK PRINTING AND BINDING, NEC—Con.		
	New Jersey.....	6 020	N
	New York.....	22 400	9 068
	Ohio.....	44 458	23 716
	Pennsylvania.....	62 116	85 731
	Tennessee.....	68 505	N
	Texas.....	19 973	N
	Virginia.....	30 042	5 552
	Wisconsin.....	20 572	13 449
323117A	BOOKS, PRINTING ONLY, NOT BOUND		
	United States.....	129 660	137 225
	California.....	8 568	8 524
	Illinois.....	13 978	9 061
	Maryland.....	5 627	2 746
	Michigan.....	26 584	2 053
	Minnesota.....	2 548	2 531
	New York.....	6 819	4 039
	Pennsylvania.....	5 635	19 946
	Texas.....	8 034	2 438
	Virginia.....	5 326	3 696
323117C	PAMPHLET PRINTING AND BINDING OR PRINTING ONLY (EXCLUDING ADVERTISING PAMPHLETS)		
	United States.....	474 886	308 321
	Alabama.....	3 819	2 305
	Arizona.....	2 610	N
	California.....	36 638	27 893
	Colorado.....	2 912	2 628
	Connecticut.....	2 699	3 127
	Florida.....	10 728	7 209
	Georgia.....	9 462	4 495
	Illinois.....	70 226	42 679
	Indiana.....	5 318	13 115
	Iowa.....	3 210	2 148
	Kansas.....	5 679	3 010
	Kentucky.....	5 680	N
	Maryland.....	21 721	20 177
	Massachusetts.....	22 762	10 956
	Michigan.....	6 950	6 266
	Minnesota.....	13 532	12 229
	Missouri.....	13 671	9 768
	Nebraska.....	2 159	N
	New Jersey.....	10 831	12 335
	New York.....	34 813	29 411
	Ohio.....	17 719	8 985
	Pennsylvania.....	13 935	6 025
	Tennessee.....	3 454	5 621
	Texas.....	15 901	4 674
	Utah.....	3 813	16 225
	Vermont.....	2 152	N
	Virginia.....	12 371	8 039
	Washington.....	2 906	N
	Wisconsin.....	6 760	9 467

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323117	BOOK PRINTING				
32212203	Newsprint.....	X	44 107	X	35 739
32212009	Uncoated paper in sheets.....	X	183 827	X	116 646
32212011	Uncoated paper in rolls.....	X	389 580	X	314 599
32200011	Coated paper in sheets.....	X	143 550	X	149 305
32200013	Coated paper in rolls.....	X	280 369	X	194 917
32222200	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.....	X	20 285	X	14 494
31320001	Cloth and nonwoven fabrics for hardbound book covers.....	X	46 058	X	55 942
32552003	Glues and adhesives.....	X	32 431	X	29 327
32591003	Printing ink.....	X	69 164	X	65 043
32599203	Light sensitive films and papers.....	X	35 820	X	29 861

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1997 and 1992—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323117	BOOK PRINTING—Con.				
32599201	Unexposed photosensitive printing plates	X	38 342	X	23 592
32312201	Printing plates, prepared for printing	X	30 931	X	34 200
32312209	Engraved printing cylinders for gravure printing	X	D	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	62 029	X	60 180
32223200	Purchased envelopes	X	D	X	N
00970099	All other materials and components, parts, containers, and supplies	X	196 651	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	241 973	X	178 212

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

323117 BOOK PRINTING

This U.S. industry comprises establishments primarily engaged in printing or printing and binding books and pamphlets without publishing.

The data published with NAICS code 323117 include the following SIC industry:

2732 Book printing

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3231101.....	27521.....	27521.....	3231113.....	27542.....	27542.....	3231131491 pt.....	3999985.....	3999999 pt.....
3231101111.....	2752112.....	2752112.....	3231113111.....	2754211.....	2754211.....	3231131YV pt.....	2759800.....	2759800.....
3231101113.....	2752114.....	2752114.....	3231113116.....	2754213.....	2754213.....	3231131YV pt.....	2771200 pt.....	2771200 pt.....
3231101121.....	2752117.....	2752117.....	3231113121.....	2754215.....	2754215.....	3231131YV pt.....	3999900 pt.....	3999900 pt.....
3231101YV.....	2752100.....	2752100.....	3231113126.....	2754217.....	2754217.....	3231133 pt.....	23964.....	23964.....
3231103.....	27522.....	27522.....	3231113231.....	2754232.....	2754232.....	3231133 pt.....	23969.....	93000 pt.....
3231103111.....	2752211.....	2752211.....	3231113236.....	2754237.....	2754237.....	3231133111.....	2396435.....	2396434 pt.....
3231103116.....	2752213.....	2752213.....	3231113YV.....	2754200.....	2754200.....	3231133116.....	2396436.....	2396434 pt.....
3231103121.....	2752217.....	2752217.....	3231115.....	27543.....	27543.....	3231133121.....	2396437.....	2396437.....
3231103126.....	2752220.....	2752220.....	3231115100.....	2754300.....	2754300.....	3231133YV pt.....	2396400.....	2396400.....
3231103131.....	2752234.....	2752234.....	3231117.....	27545.....	27545.....	3231133YV pt.....	2396900.....	9300000 pt.....
3231103136.....	2752243.....	2752243.....	3231117111.....	2754511.....	2754511.....	323113W pt.....	23960 pt.....	23960 pt.....
3231103YV.....	2752200.....	2752200.....	3231117116.....	2754545.....	2754545.....	323113W pt.....	27590 pt.....	27590 pt.....
3231105.....	27523.....	27523.....	3231117121.....	2754548.....	2754548.....	323113W pt.....	27590 pt.....	27590 pt.....
3231105111.....	2752312.....	2752312.....	3231117YV.....	2754500.....	2754500.....	323113W pt.....	27710 pt.....	27710 pt.....
3231105113.....	2752314.....	2752314.....	3231119 pt.....	27546.....	27546.....	323113W pt.....	39990 pt.....	39990 pt.....
3231105121.....	2752318.....	2752318.....	3231119 pt.....	27712 pt.....	27712 pt.....	323113WYV pt.....	2396000 pt.....	2396000 pt.....
3231105126.....	2752324.....	2752324.....	3231119 pt.....	39999 pt.....	39999 pt.....	323113WYV pt.....	2759000 pt.....	2759000 pt.....
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3231105YV.....	2752300.....	2752300.....	3231119 pt.....	2754695.....	2754695.....	323113WYV pt.....	3999000 pt.....	3999000 pt.....
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3231107131.....	2752421.....	2752421.....	323111W pt.....	27710 pt.....	27710 pt.....	3231140 pt.....	27526 pt.....	27526 pt.....
3231107133.....	2752422.....	2752422.....	323111W pt.....	39990 pt.....	39990 pt.....	3231140 pt.....	27590 pt.....	27590 pt.....
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3231107143.....	2752426.....	2752426.....	323111WYV pt.....	2771000 pt.....	2771000 pt.....	3231140100 pt.....	2752696.....	2752696.....
3231107151.....	2752427.....	2752427.....	323111WYV pt.....	3999000 pt.....	3999000 pt.....	3231140100 pt.....	2759A12.....	2759A00 pt.....
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323110B176.....	2752695.....	2752695.....	3231123 pt.....	2759C35.....	2759C35.....	3231165346.....	2761563.....	2761563.....
323110B181 pt.....	2771200 pt.....	2771200 pt.....	3231123 pt.....	2759C36.....	2759C36.....	3231165451.....	2761565.....	2761565.....
323110B181 pt.....	2771201.....	2771200 pt.....	3231123 pt.....	2759C38.....	2759C38.....	3231165YV.....	2761500.....	2761500.....
323110B191 pt.....	2752697 pt.....	2752671 pt.....	3231123 pt.....	2771207.....	2771200 pt.....	3231167.....	27617.....	27617.....
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323110B193 pt.....	2752699 pt.....	2752699 pt.....	3231123 pt.....	2771200 pt.....	2771200 pt.....	3231167126.....	2761773.....	2761773.....
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323110W pt.....	3999000 pt.....	3999000 pt.....	3231123 pt.....	2759002 pt.....	2759002 pt.....	3231169100 pt.....	2782317.....	2782300 pt.....
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323110WYV pt.....	2771002 pt.....	2771002 pt.....	3231123 pt.....	3999002 pt.....	3999002 pt.....	3231169100 pt.....	2782311.....	2782300 pt.....
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3231111YV.....	2754100.....	2754100.....	3231123 pt.....	2759831.....	2759831.....			

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
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323116WYWW pt...	2761000.....	2761000.....	3231191100 pt.....	2759100.....	2759100.....	323119WYWW pt...	2759000 pt.....	2759000 pt.....
323116WYWW pt...	2782000 pt.....	2782000 pt.....	3231191100 pt.....	2759113 pt.....	2759112.....	323119WYWW pt...	2771000 pt.....	2771000 pt.....
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3231171321.....	2732314.....	2732314.....	3231193126.....	2759218.....	2759218.....	323119WYWW pt...	2771002 pt.....	2771002 pt.....
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			3231193YVV.....	2759200.....	2759200.....	3231211111.....	2789110.....	2789110.....
						3231211116.....	2789113.....	2789113.....
3231173.....	27324.....	27324.....				3231211121.....	2789125.....	2789125.....
3231173111.....	2732422.....	2732422.....	3231195.....	27593.....	27593.....	3231211226.....	2789141.....	2789141.....
3231173116.....	2732425.....	2732425.....	3231195100 pt.....	2759300.....	2759300.....	3231211YVV.....	2789100.....	2789100.....
3231173YVV.....	2732400.....	2732400.....	3231195100 pt.....	2759317 pt.....	2759312.....			
			3231195100 pt.....	2759317 pt.....	2759318.....			
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			3231197100 pt.....	2759421 pt.....	2759413.....	3231213326.....	2789226.....	2789226.....
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3231179111.....	2732A52.....	2732A52.....	3231199141.....	2759524.....	2759524.....	3231221100 pt.....	2791000 pt.....	2791016.....
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			323119B116.....	2759613.....	2759613.....	3231221100 pt.....	2796200 pt.....	2796239.....
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323117C100.....	2732C00.....	2732C00.....	323119B141.....	2759621.....	2759621.....	3231223 pt.....	27961.....	27961.....
			323119B146.....	2759623.....	2759623.....	3231223 pt.....	27963 pt.....	27963 pt.....
323117W.....	27320.....	27320.....	323119B191 pt.....	2759627.....	2759627.....	323122306 pt.....	2796100 pt.....	2796100 pt.....
323117WYWW.....	2732000.....	2732000.....	323119B191 pt.....	2771209.....	2771200 pt.....	323122306 pt.....	2796100 pt.....	2796111.....
323117WYWW.....	2732002.....	2732002.....	323119BYVV pt.....	2759600.....	2759600.....	323122306 pt.....	2796100 pt.....	2796115.....
			323119BYVV pt.....	2771200 pt.....	2771200 pt.....	3231223111 pt.....	2796100 pt.....	2796131.....
3231181.....	27824.....	27824.....	323119E.....	27599.....	27599.....	3231223116 pt.....	2796327 pt.....	2796325.....
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3231183111.....	2782501.....	2782501.....	323119W pt.....	27590 pt.....	27590 pt.....			
3231183116.....	2782503.....	2782503.....	323119W pt.....	27710 pt.....	27710 pt.....	323122W pt.....	27910 pt.....	27910 pt.....
3231183121.....	2782506.....	2782506.....				323122W pt.....	27960.....	27960.....
3231183126.....	2782508.....	2782508.....	323119W pt.....	27710 pt.....	27710 pt.....	323122WYWW pt...	2791000 pt.....	2791000 pt.....
3231183131.....	2782511.....	2782511.....	323119W pt.....	27712 pt.....	27712 pt.....	323122WYWW pt...	2796000.....	2796000.....
3231183136.....	2782522.....	2782522.....	323119W pt.....	39990 pt.....	39990 pt.....	323122WYWW pt...	2791002.....	2791002.....
3231183YVV.....	2782500.....	2782500.....				323122WYWW pt...	2796002.....	2796002.....
323118W.....	27820 pt.....	27820 pt.....						
323118WYWW.....	2782000 pt.....	2782000 pt.....						
323118WYWW.....	2782002 pt.....	2782002 pt.....						

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1997

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1997 Economic Census

Manufacturing

Industry Series



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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323118	Blankbook, looseleaf binder, & device mfg	284	301	17 710	508 075	12 715	26 095	261 252	1 531 537	1 041 023	2 563 825	82 754
278220	Blankbooks & looseleaf binders (pt)	N	301	17 710	508 075	12 715	26 095	261 252	1 531 537	1 041 023	2 563 825	82 754

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323118, BLANKBOOK, LOOSELEAF BINDER, & DEVICE MFG												
United States	1	301	165	17 710	508 075	12 715	26 095	261 252	1 531 537	1 041 023	2 563 825	82 754
Arizona	4	8	5	302	7 515	261	602	5 031	15 120	8 316	23 147	350
California	1	31	12	1 596	40 788	1 063	2 086	21 812	151 254	128 740	278 840	7 684
Colorado	5	7	2	105	2 119	97	180	1 478	5 300	1 800	7 150	193
Florida	6	10	5	272	5 753	200	332	3 349	16 608	6 502	22 982	292
Georgia	1	10	2	105	2 742	85	167	1 482	6 089	3 084	9 162	84
Illinois	—	29	16	1 653	59 951	1 084	2 195	21 556	215 351	152 100	367 345	8 839
Maryland	1	7	5	249	6 174	205	415	3 736	12 386	7 019	18 932	790
Massachusetts	—	9	6	712	20 459	576	1 393	14 463	82 188	46 133	128 639	3 911
Michigan	2	11	7	601	20 249	433	786	11 684	69 198	31 813	101 543	2 538
Missouri	—	10	5	1 160	24 465	895	1 556	16 020	68 696	42 724	112 556	1 735
New Jersey	3	14	7	373	9 392	290	549	6 391	32 054	11 623	43 375	513
New York	2	37	24	2 202	52 497	1 783	4 053	34 967	175 716	97 162	273 521	5 038
Ohio	1	14	7	518	14 927	384	757	9 232	32 512	20 741	52 760	1 374
Pennsylvania	—	11	9	1 600	42 089	1 022	1 875	22 765	109 540	58 147	167 105	3 638
Tennessee	5	4	4	249	5 586	170	441	3 402	8 651	10 470	20 092	525
Texas	—	18	12	1 075	24 753	848	1 779	16 153	62 668	40 364	100 810	6 187
Virginia	—	4	3	183	3 989	127	271	2 330	8 731	6 034	14 805	360

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
323118, BLANKBOOK, LOOSELEAF BINDER, & DEVICE MFG		323118, BLANKBOOK, LOOSELEAF BINDER, & DEVICE MFG—Con.	
Companies ¹	number.. 284	Value added	\$1,000.. 1 531 537
All establishments	number.. 301	Total inventories, beginning of year	\$1,000.. 237 948
Establishments with 1 to 19 employees	number.. 136	Finished goods inventories, beginning of year	\$1,000.. 101 333
Establishments with 20 to 99 employees	number.. 121	Work-in-process inventories, beginning of year	\$1,000.. 36 999
Establishments with 100 employees or more	number.. 44	Materials and supplies inventories, beginning of year	\$1,000.. 99 616
All employees	number.. 17 710	Total inventories, end of year	\$1,000.. 247 335
Total compensation ²	\$1,000.. 636 491	Finished goods inventories, end of year	\$1,000.. 103 529
Annual payroll	\$1,000.. 508 075	Work-in-process inventories, end of year	\$1,000.. 43 538
Total fringe benefits	\$1,000.. 128 416	Materials and supplies inventories, end of year	\$1,000.. 100 268
Production workers, average for year	number.. 12 715	Gross book value of total assets at beginning of year	\$1,000.. 560 206
Production workers on March 12	number.. 12 781	Total capital expenditures (new and used)	\$1,000.. 82 754
Production workers on May 12	number.. 12 689	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 10 985
Production workers on August 12	number.. 12 751	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 71 769
Production workers on November 12	number.. 12 639	Total retirements ²	\$1,000.. 26 906
Production-worker hours	1,000.. 26 095	Gross book value of total assets at end of year	\$1,000.. 616 054
Production-worker wages	1,000.. 261 252	Total depreciation during year ²	\$1,000.. 49 485
Total cost of materials	\$1,000.. 1 041 023	Total rental payments ²	\$1,000.. 27 156
Cost of materials, parts, containers, etc., consumed	\$1,000.. 856 221	Buildings and other structures rental payments ²	\$1,000.. 16 100
Cost of resales	\$1,000.. 150 626	Machinery and equipment rental payments ²	\$1,000.. 11 056
Cost of fuels	\$1,000.. 2 903	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 3 025
Cost of purchased electricity	\$1,000.. 14 759	Response coverage ratio ⁴	percent.. 80
Cost of contract work	\$1,000.. 16 514	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 12 621
Quantity of electricity purchased for heat and power	1,000 kWh.. 213 517	Response coverage ratio ⁴	percent.. 80
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 17 092
Total value of shipments	\$1,000.. 2 563 825	Response coverage ratio ⁴	percent.. 80
Primary products value of shipments	\$1,000.. 2 143 981	Cost of purchased legal services ³	\$1,000.. 10 176
Secondary products value of shipments	\$1,000.. 150 400	Response coverage ratio ⁴	percent.. 80
Total miscellaneous receipts	\$1,000.. 269 444	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 3 478
Value of resales	\$1,000.. 260 667	Response coverage ratio ⁴	percent.. 80
Contract receipts	\$1,000.. —	Cost of purchased advertising services ³	\$1,000.. 31 524
Other miscellaneous receipts	\$1,000.. 8 777	Response coverage ratio ⁴	percent.. 80
Primary products specialization ratio	percent.. 93	Cost of purchased software and other data processing services ³	\$1,000.. 5 279
Value of primary products shipments made in all industries	\$1,000.. 2 375 058	Response coverage ratio ⁴	percent.. 80
Value of primary products shipments made in this industry	\$1,000.. 2 143 981	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 1 836
Value of primary products shipments made in other industries	\$1,000.. 231 077	Response coverage ratio ⁴	percent.. 80
Coverage ratio	percent.. 90		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323118, BLANKBOOK, LOOSELEAF BINDER, & DEVICE MFG												
All establishments	1	301	165	17 710	508 075	12 715	26 095	261 252	1 531 537	1 041 023	2 563 825	82 754
Establishments with 1 to 4 employees	8	58	—	118	2 626	96	167	1 865	10 748	2 720	13 440	187
Establishments with 5 to 9 employees	8	32	—	215	5 195	179	332	3 649	16 821	4 623	21 328	294
Establishments with 10 to 19 employees	6	46	—	676	17 171	522	1 029	11 204	59 369	20 075	79 121	875
Establishments with 20 to 49 employees	2	73	73	2 325	59 832	1 765	3 428	34 901	137 708	68 831	205 317	6 900
Establishments with 50 to 99 employees	2	48	48	3 206	82 600	2 529	4 953	51 034	200 750	137 649	335 284	8 887
Establishments with 100 to 249 employees	1	30	30	4 298	110 273	3 336	7 035	67 091	362 568	235 542	596 547	14 215
Establishments with 250 to 499 employees	—	8	8	2 518	66 895	1 742	3 734	38 109	288 780	206 259	491 773	21 692
Establishments with 500 to 999 employees	—	5	5	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	1	1	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	90	—	798	16 988	633	1 139	12 118	63 428	15 410	78 448	1 200

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323118	Blankbook, looseleaf binder, & device mfg	301	17 710	508 075	12 715	26 095	261 252	1 531 537	1 041 023	2 563 825	82 754
3231181	Blankbook making, except checkbooks	30	5 224	177 156	3 366	7 115	73 154	445 870	323 334	762 533	28 927
3231183	Looseleaf binders, devices, and forms, including those used for time planners-organizers, appointment books, photo albums, scrap books, etc.	126	10 387	280 005	7 727	15 876	154 551	910 511	671 404	1 580 812	50 078

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323118	Blankbooks and looseleaf binders and devices	N	X	X	2 375 058	N	X	X	N
3231181	Blankbook making, except checkbooks	N	X	X	553 688	N	X	X	404 711
32311811	Blankbook making, except checkbooks	N	X	X	552 990	N	X	X	N
3231181111	Albums and scrapbooks, including photograph, stamp, and all other bound books used for storage, excluding looseleaf	26	X	X	239 980	28	X	X	236 634
3231181116	Diaries, time planners-organizers, and appointment books, including refills, excluding looseleaf	20	X	X	249 744	16	X	X	103 723
3231181121	All other blankbooks, including ledger and account books, columnar books, memo books, and address books	21	X	X	63 266	22	X	X	50 472
3231181Y	Blankbook making, except checkbooks, nsk	N	X	X	698	N	X	X	N
3231181YV	Blankbook making, except checkbooks, nsk	N	X	X	698	N	X	X	13 882
3231183	Looseleaf binders, devices, and forms, including those used for time planners-organizers, appointment books, photo albums, scrap books, etc.	N	X	X	1 570 505	N	X	X	1 104 404
32311831	Looseleaf binders, devices, and forms	N	X	X	1 421 737	N	X	X	N
3231183111	Stock (cataloged) three-ring looseleaf binders	41	X	X	528 194	39	X	X	344 625
3231183116	Custom (including decorated) three-ring looseleaf binders	96	X	X	397 414	105	X	X	322 955
3231183121	Flexible prong, plastics channel, presentation, report, and brief cover binders	16	X	X	153 686	30	X	X	98 512
3231183126	Post binders	15	X	X	7 054	21	X	X	12 240
3231183131	All other binders, including rigid prong, post-and-sleeve, and ring other than three-ring	28	X	X	109 432	26	X	X	55 617
3231183136	Looseleaf devices and forms, including indexes, sheet protectors, looseleaf refills for time planners-organizers, photo albums, etc., metals, and looseleaf binder components and devices	76	X	X	225 957	73	X	X	174 018
3231183Y	Looseleaf binders, devices, and forms, nsk	N	X	X	148 768	N	X	X	N
3231183YV	Looseleaf binders, devices, and forms, nsk	N	X	X	148 768	N	X	X	96 437
323118W	Blankbooks and looseleaf binders and devices, nsk, total	N	X	X	250 865	N	X	X	N
323118WY	Blankbook and looseleaf binder and device manufacturing, nsk, total	N	X	X	250 865	N	X	X	N
323118WYV	Blankbook and looseleaf binder and device manufacturing, nsk, for nonadministrative-record establishments	N	X	X	174 019	N	X	X	N
323118WYVY	Blankbook and looseleaf binder and device manufacturing, nsk, for administrative-record establishments	N	X	X	76 846	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231181	BLANKBOOK MAKING, EXCEPT CHECKBOOKS		
	United States	553 688	404 711
	Illinois	20 676	N
	Minnesota	64 399	N
	New York	48 524	55 297
	Ohio	21 838	N
	Texas	7 912	N

See footnotes at end of table.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992—Con.

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231183	LOOSELEAF BINDERS, DEVICES, AND FORMS, INCLUDING THOSE USED FOR TIME PLANNERS-ORGANIZERS, APPOINTMENT BOOKS, PHOTO ALBUMS, SCRAP BOOKS, ETC.		
	United States	1 570 505	1 104 404
	Arizona	13 173	N
	California	158 687	228 103
	Colorado	3 993	2 806
	Georgia	18 590	11 874
	Illinois	239 420	116 444
	Indiana	43 836	33 461
	Maryland	18 467	26 714
	Massachusetts	96 395	35 060
	Michigan	72 590	51 756
	Minnesota	19 018	14 163
	Missouri	93 070	63 710
	New Jersey	9 780	16 787
	New York	193 631	153 972
	North Carolina	7 354	2 145
	Ohio	11 945	16 224
	Pennsylvania	81 588	74 885
	Tennessee	38 510	58 010
	Texas	81 388	65 682
	Virginia	40 279	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323118	BLANKBOOK, LOOSELEAF BINDER, & DEVICE MFG				
32200015	Coated paper	X	46 214	X	N
32212011	Uncoated paper in rolls	X	30 306	X	N
32212009	Uncoated paper in sheets	X	12 941	X	N
32213001	Paperboard (including news, chip, pasted, tablet, check, binders' board), except for shipping	X	88 679	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	39 185	X	N
31332005	Coated or impregnated woven and nonwoven fabrics, except rubberized	X	16 604	X	N
32311000	Metal and plastic looseleaf components, including ring type	X	91 176	X	N
32610001	Plastics film and sheet	X	165 823	X	N
001900D4	All other plastics consumed, except looseleaf devices and components	X	12 780	X	N
33120095	Steel, strip and wire	X	14 633	X	N
32591003	Printing ink	X	3 954	X	N
32212021	Carbonless paper	X	2 589	X	N
00970099	All other materials and components, parts, containers, and supplies	X	149 002	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	182 335	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

323118 BLANKBOOK, AND LOOSELEAF BINDER AND DEVICE MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing blankbooks, looseleaf devices, and binders. Establishments in this industry may print or print and bind.

The data published with NAICS code 323118 include the following SIC industry:

2782 Blankbooks and looseleaf binders (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsk) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
323116W pt.....	27820 pt.....	27820 pt.....	3231191.....	27591.....	27591.....	323119W pt.....	39999 pt.....	39999 pt.....
323116WYWW pt...	2761000.....	2761000.....	3231191100 pt.....	2759100.....	2759100.....	323119WYWW pt...	2759000 pt.....	2759000 pt.....
323116WYWW pt...	2782000 pt.....	2782000 pt.....	3231191100 pt.....	2759113 pt.....	2759112.....	323119WYWW pt...	2771000 pt.....	2771000 pt.....
323116WYWW pt...	2761002.....	2761002.....	3231191100 pt.....	2759113 pt.....	2759114.....	323119WYWW pt...	2771211.....	2771200 pt.....
323116WYWW pt...	2782002 pt.....	2782002 pt.....				323119WYWW pt...	2771200 pt.....	2771200 pt.....
			3231193.....	27592.....	27592.....	323119WYWW pt...	3999000 pt.....	3999000 pt.....
3231171.....	27323.....	27323.....	3231193111.....	2759212.....	2759212.....	323119WYWW pt...	3999900 pt.....	3999900 pt.....
3231171111.....	2732310.....	2732310.....	3231193116.....	2759214.....	2759214.....	323119WYWW pt...	3999986.....	3999999 pt.....
3231171216.....	2732312.....	2732312.....	3231193121.....	2759216.....	2759216.....	323119WYWW pt...	2759002 pt.....	2759002 pt.....
3231171321.....	2732314.....	2732314.....	3231193126.....	2759218.....	2759218.....	323119WYWW pt...	2771002 pt.....	2771002 pt.....
3231171426.....	2732316.....	2732316.....	3231193131.....	2759221.....	2759221.....	323119WYWW pt...	3999002 pt.....	3999002 pt.....
3231171531.....	2732318.....	2732318.....	3231193136.....	2759223.....	2759223.....			
3231171YVV.....	2732300.....	2732300.....	3231193141.....	2759227.....	2759227.....	3231211.....	27891.....	27891.....
			3231193YVV.....	2759200.....	2759200.....	3231211111.....	2789110.....	2789110.....
						3231211116.....	2789113.....	2789113.....
3231173.....	27324.....	27324.....				3231211121.....	2789125.....	2789125.....
3231173111.....	2732422.....	2732422.....	3231195.....	27593.....	27593.....	3231211226.....	2789141.....	2789141.....
3231173116.....	2732425.....	2732425.....	3231195100 pt.....	2759300.....	2759300.....	3231211YVV.....	2789100.....	2789100.....
3231173YVV.....	2732400.....	2732400.....	3231195100 pt.....	2759317 pt.....	2759312.....			
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3231175YVV.....	2732500.....	2732500.....	3231197100 pt.....	2759421 pt.....	2759411.....	3231213321.....	2789225.....	2789225.....
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3231177636.....	2732647.....	2732647.....	3231199116.....	2759514.....	2759514.....	323121WYWW.....	2789002.....	2789002.....
3231177741.....	2732648.....	2732648.....	3231199121.....	2759516.....	2759516.....	3231221 pt.....	27910 pt.....	27910 pt.....
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			3231199131.....	2759520.....	2759520.....	3231221 pt.....	27963 pt.....	27963 pt.....
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3231183121.....	2782506.....	2782506.....				323122W pt.....	27960.....	27960.....
3231183126.....	2782508.....	2782508.....	323119W pt.....	27710 pt.....	27710 pt.....	323122WYWW pt...	2791000 pt.....	2791000 pt.....
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3231183YVV.....	2782500.....	2782500.....				323122WYWW pt...	2796002.....	2796002.....
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Manufacturing

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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Compan-ies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-di-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323119 275950	Other commercial printing	3 404	3 436	33 126	920 292	23 008	40 596	534 735	1 954 384	1 339 273	3 290 246	125 237
	Commercial printing, n.e.c. (pt)	N	3 426	32 735	910 078	22 729	40 125	527 914	1 934 975	1 331 471	3 263 454	124 808
277150	Greeting cards (pt)	N	10	391	10 214	279	471	6 821	19 409	7 802	26 792	429
399945	Manufacturing industries, n.e.c. (pt)	N	-	-	-	-	-	-	-	-	-	-

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-di-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323119, OTHER COMMERCIAL PRINTING												
United States	4	3 436	353	33 126	920 292	23 008	40 596	534 735	1 954 384	1 339 273	3 290 246	125 237
Alabama	3	41	5	338	6 722	254	406	4 193	12 898	10 208	23 091	882
Arizona	3	50	2	318	6 861	202	294	3 497	17 057	12 639	29 921	1 595
Arkansas	7	28	5	323	5 377	224	302	3 281	12 420	6 854	19 293	1 749
California	4	371	43	3 419	97 778	2 338	4 094	60 575	186 313	120 321	306 673	11 778
Colorado	3	78	2	451	13 214	317	608	7 467	22 906	16 852	39 769	2 550
Connecticut	4	51	9	868	26 380	531	985	13 836	65 156	38 487	103 865	3 216
Florida	5	195	15	1 369	31 238	940	1 526	18 184	62 439	41 767	104 101	4 550
Georgia	5	93	11	703	19 423	477	821	11 033	38 355	27 193	65 382	3 760
Illinois	5	221	26	2 366	78 504	1 679	3 195	48 532	170 475	114 190	282 845	11 995
Indiana	5	70	8	917	20 634	646	1 170	12 937	50 862	24 542	75 572	2 293
Iowa	2	38	6	434	12 446	335	633	6 280	31 212	17 683	47 863	1 775
Kansas	1	23	2	298	7 805	233	451	4 225	22 159	11 554	32 276	1 673
Kentucky	6	45	8	560	11 394	317	496	5 491	31 237	18 087	48 266	2 610
Louisiana	4	41	2	268	5 342	189	282	3 150	9 540	7 490	16 939	650
Maryland	3	64	6	494	12 677	342	596	7 497	31 285	16 448	47 693	1 236
Massachusetts	3	88	9	1 116	35 562	844	1 584	21 326	71 841	54 366	126 299	5 012
Michigan	6	110	12	1 031	27 504	767	1 411	16 822	60 092	34 801	95 292	3 756
Minnesota	3	69	10	1 013	32 823	652	1 325	17 223	53 627	54 459	107 571	3 170
Mississippi	1	20	2	143	3 512	104	167	2 423	5 428	9 887	15 225	321
Missouri	7	87	9	693	16 504	480	778	8 949	33 141	22 306	55 891	2 242
Nebraska	1	22	1	226	5 214	165	274	2 811	12 221	6 042	18 161	638
New Jersey	4	143	21	2 172	73 911	1 484	2 709	41 902	161 910	110 409	271 567	10 433
New York	4	290	33	2 886	81 311	1 943	3 645	46 206	166 689	114 521	281 203	9 211
North Carolina	4	94	9	719	17 710	530	862	11 056	43 789	27 226	73 893	2 828
Ohio	4	144	18	1 438	40 478	1 023	1 868	23 530	107 448	74 261	181 815	5 488
Oklahoma	6	61	2	272	5 446	199	290	3 740	12 373	6 155	18 565	747
Oregon	6	43	3	386	9 885	263	438	5 251	21 098	9 605	30 476	1 275
Pennsylvania	6	149	22	2 071	64 987	1 464	2 729	37 617	153 587	90 130	243 641	8 707
Rhode Island	8	20	4	264	8 523	165	296	3 824	19 808	10 250	30 242	794
South Carolina	9	28	2	167	4 047	115	206	2 357	8 355	5 593	13 955	607
Tennessee	7	65	7	712	20 477	512	974	12 139	42 785	27 998	70 859	2 620
Texas	5	216	14	1 400	31 612	958	1 499	17 678	63 337	47 839	111 022	3 728
Utah	9	20	1	199	5 045	147	256	3 029	10 357	7 267	17 647	733
Virginia	4	66	5	468	11 768	322	571	7 059	21 281	18 868	40 283	1 277
Washington	4	71	6	489	12 723	347	639	7 801	30 137	23 578	53 206	1 740
Wisconsin	1	65	5	963	23 416	658	839	9 713	47 466	40 634	88 024	5 262

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
323119, OTHER COMMERCIAL PRINTING		323119, OTHER COMMERCIAL PRINTING—Con.	
Companies ¹	number.. 3 404	Value added	\$1,000.. 1 954 384
All establishments	number.. 3 436	Total inventories, beginning of year	\$1,000.. 255 768
Establishments with 1 to 19 employees	number.. 3 083	Finished goods inventories, beginning of year	\$1,000.. 67 326
Establishments with 20 to 99 employees	number.. 314	Work-in-process inventories, beginning of year	\$1,000.. 63 303
Establishments with 100 employees or more	number.. 39	Materials and supplies inventories, beginning of year	\$1,000.. 125 139
All employees	number.. 33 126	Total inventories, end of year	\$1,000.. 250 355
Total compensation ²	\$1,000.. 1 096 188	Finished goods inventories, end of year	\$1,000.. 70 082
Annual payroll	\$1,000.. 920 292	Work-in-process inventories, end of year	\$1,000.. 63 958
Total fringe benefits	\$1,000.. 175 896	Materials and supplies inventories, end of year	\$1,000.. 116 315
Production workers, average for year	number.. 23 008	Gross book value of total assets at beginning of year	\$1,000.. 1 071 672
Production workers on March 12	number.. 22 900	Total capital expenditures (new and used)	\$1,000.. 125 237
Production workers on May 12	number.. 22 984	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 20 781
Production workers on August 12	number.. 22 855	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 104 456
Production workers on November 12	number.. 23 289	Total retirements ²	\$1,000.. 32 176
Production-worker hours	1,000.. 40 596	Gross book value of total assets at end of year	\$1,000.. 1 164 733
Production-worker wages	\$1,000.. 534 735	Total depreciation during year ²	\$1,000.. 81 795
Total cost of materials	\$1,000.. 1 339 273	Total rental payments ²	\$1,000.. 72 688
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 138 350	Buildings and other structures rental payments ²	\$1,000.. 33 536
Cost of resales	\$1,000.. 112 425	Machinery and equipment rental payments ²	\$1,000.. 39 152
Cost of fuels	\$1,000.. 7 887	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 3 045
Cost of purchased electricity	\$1,000.. 24 768	Response coverage ratio ⁴	percent.. 58
Cost of contract work	\$1,000.. 55 843	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 7 804
Quantity of electricity purchased for heat and power	1,000 kWh.. 351 416	Response coverage ratio ⁴	percent.. 58
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 7 703
Total value of shipments	\$1,000.. 3 290 246	Response coverage ratio ⁴	percent.. 58
Primary products value of shipments	\$1,000.. 2 784 005	Cost of purchased legal services ³	\$1,000.. 1 368
Secondary products value of shipments	\$1,000.. 285 275	Response coverage ratio ⁴	percent.. 58
Total miscellaneous receipts	\$1,000.. 220 966	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 4 488
Value of resales	\$1,000.. 194 462	Response coverage ratio ⁴	percent.. 58
Contract receipts	\$1,000.. —	Cost of purchased advertising services ³	\$1,000.. 3 677
Other miscellaneous receipts	\$1,000.. 26 504	Response coverage ratio ⁴	percent.. 58
Primary products specialization ratio	percent.. 90	Cost of purchased software and other data processing services ³	\$1,000.. 809
Value of primary products shipments made in all industries	\$1,000.. 3 519 646	Response coverage ratio ⁴	percent.. 58
Value of primary products shipments made in this industry	\$1,000.. 2 784 005	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 1 704
Value of primary products shipments made in other industries	\$1,000.. 735 641	Response coverage ratio ⁴	percent.. 58
Coverage ratio	percent.. 79		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)	
	E ¹	Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)					Wages (\$1,000)
323119, OTHER COMMERCIAL PRINTING												
All establishments	4	3 436	353	33 126	920 292	23 008	40 596	534 735	1 954 384	1 339 273	3 290 246	125 237
Establishments with 1 to 4 employees	8	1 987	—	4 220	86 466	3 094	4 227	50 375	180 176	124 725	304 940	14 071
Establishments with 5 to 9 employees	6	719	—	4 678	99 673	3 193	4 770	58 496	203 888	134 482	337 917	13 035
Establishments with 10 to 19 employees	4	377	—	5 030	131 835	3 393	5 912	75 680	268 302	174 999	443 304	18 578
Establishments with 20 to 49 employees	5	235	235	7 061	200 374	4 860	9 098	117 011	426 559	292 035	718 265	30 549
Establishments with 50 to 99 employees	3	79	79	5 443	169 982	3 857	7 940	98 255	369 027	227 521	597 485	22 390
Establishments with 100 to 249 employees	2	32	32	4 445	156 181	3 121	6 099	96 022	339 120	272 906	608 050	19 636
Establishments with 250 to 499 employees	5	6	6	D	D	D	D	D	D	D	D	D
Establishments with 500 to 999 employees	—	1	1	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	1 745	—	5 356	94 780	3 751	4 774	55 369	197 666	140 483	338 251	14 909

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323119	Other commercial printing	3 436	33 126	920 292	23 008	40 596	534 735	1 954 384	1 339 273	3 290 246	125 237
3231191	Magazine and periodical printing (letterpress)	20	276	7 138	176	328	4 018	13 734	8 837	22 536	520
3231193	Label and wrapper printing (letterpress)	72	3 530	135 285	2 425	4 389	71 236	342 680	255 132	596 601	23 068
3231195	Catalog and directory printing (letterpress)	23	264	8 049	179	327	4 744	14 044	8 140	21 604	1 425
3231197	Financial and legal printing (letterpress)	12	261	7 846	179	337	5 038	11 260	10 113	21 286	742
3231199	Advertising printing (letterpress)	107	2 122	68 195	1 448	2 918	39 389	132 846	72 579	204 671	10 938
323119B	Other general job printing (letterpress)	358	7 389	214 151	5 195	10 087	130 166	469 701	302 537	768 656	23 029
323119E	Engraving (printing)	106	2 831	92 361	1 978	3 847	57 873	166 869	113 436	280 652	8 170

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323119	Other commercial printing	N	X	X	3 519 646	N	X	X	N
3231191	Magazine and periodical printing (letterpress)	N	X	X	25 521	N	X	X	62 372
32311911	Magazine and periodical printing (letterpress)	N	X	X	25 521	N	X	X	N
3231191100	Magazine and periodical printing (letterpress)	41	X	X	25 521	N	X	X	N
3231193	Label and wrapper printing (letterpress)	N	X	X	684 853	N	X	X	290 844
32311931	Label and wrapper printing (letterpress)	N	X	X	556 928	N	X	X	N
3231193111	Label printing (letterpress), custom and stock labels, including bordered, made of paper, flat (except pressure-sensitive)	23	X	X	22 204	21	X	X	27 656
3231193116	Label printing (letterpress), custom and stock labels, including bordered, made of paper, rolls (except pressure-sensitive)	18	X	X	38 323	8	X	X	20 286
3231193121	Label printing (letterpress), custom and stock labels, including bordered, made of paper, pressure-sensitive (self-adhesive), flat	13	X	X	14 338	23	X	X	23 641
3231193126	Label printing (letterpress), custom and stock labels, including bordered, made of paper, pressure-sensitive (self-adhesive), rolls	56	X	X	451 619	47	X	X	120 099
3231193131	Label printing (letterpress), custom and stock labels, including bordered, made of materials other than paper or cloth	11	X	X	15 983	10	X	X	23 630
3231193136	Printed rolls and sheets for packaging purposes (letterpress), made of paper (single-web)	5	X	X	D	12	X	X	N
3231193141	Printed rolls and sheets for packaging purposes (letterpress), made of materials other than paper or cloth, including multiweb structures	2	X	X	D	3	X	X	N
3231193Y	Label and wrapper printing (letterpress), nsk	N	X	X	127 925	N	X	X	N
3231193YWV	Label and wrapper printing (letterpress), nsk	N	X	X	127 925	N	X	X	47 120
3231195	Catalog and directory printing (letterpress)	N	X	X	31 755	N	X	X	90 186
32311951	Catalog and directory printing (letterpress)	N	X	X	31 755	N	X	X	N
3231195100	Catalog and directory printing (letterpress)	57	X	X	31 755	N	X	X	N
3231197	Financial and legal printing (letterpress)	N	X	X	24 412	N	X	X	75 211
32311971	Financial and legal printing (letterpress)	N	X	X	24 412	N	X	X	N
3231197100	Financial and legal printing (letterpress)	32	X	X	24 412	N	X	X	N
3231199	Advertising printing (letterpress)	N	X	X	268 924	N	X	X	332 103
32311991	Advertising printing (letterpress)	N	X	X	185 496	N	X	X	N
3231199111	Direct mail advertising printing (letterpress), including circulars, letters, pamphlets, cards, and printed envelopes	66	X	X	54 493	71	X	X	118 815
3231199116	Display advertising poster printing (letterpress), including outdoor advertising, car cards, window, etc.	29	X	X	18 026	18	X	X	17 000
3231199121	Counter, floor display, point-of-purchase, and other display advertising material printing (letterpress)	9	X	X	D	15	X	X	24 950
3231199126	Preprinted newspaper advertising insert printing (letterpress) (advertising supplements not regularly issued), rolls, including hi-fi and specticolor	-	X	X	D	5	X	X	7 375
3231199131	Preprinted newspaper advertising insert printing (letterpress) (advertising supplements not regularly issued), sections (two pages or more)	-	X	X	-	6	X	X	6 368
3231199136	Shopping news printing (letterpress)	2	X	X	D	2	X	X	1 061
3231199141	Other advertising printing (letterpress), including brochures, pamphlets, book jackets, magazine inserts, circular folders, etc.	62	X	X	90 232	74	X	X	82 418
3231199Y	Advertising printing (letterpress), nsk	N	X	X	83 428	N	X	X	N
3231199YWV	Advertising printing (letterpress), nsk	N	X	X	83 428	N	X	X	74 116
323119B	Other general job printing (letterpress)	N	X	X	936 671	N	X	X	N
323119B1	Other general job printing (letterpress)	N	X	X	596 661	N	X	X	N
323119B111	Scientific and technical recording chart and chart paper printing (letterpress) (containing preprinted grids and scale markings)	5	X	X	D	8	X	X	22 421
323119B116	Newspaper printing (letterpress)	5	X	X	D	31	X	X	110 178
323119B121	Printed decalcomanias and pressure-sensitives (self-adhesive) (letterpress), including bumper stickers, etc., excluding labels	54	X	X	36 843	35	X	X	38 595

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323119	Other commercial printing—Con.								
323119B	Other general job printing (letterpress)—Con.								
323119B1	Other general job printing (letterpress)—Con.								
323119B126	Business card printing (letterpress)	27	X	X	16 654	28	X	X	21 443
323119B131	Other business form printing, nec (letterpress), excluding blankbooks and looseleaf forms	76	X	X	76 907	54	X	X	69 390
323119B136	Tag printing (letterpress), including embossed	26	X	X	53 636	35	X	X	66 613
323119B141	Ticket, coupon, and food and beverage check printing (letterpress), including transportation and amusement	22	X	X	49 332	19	X	X	34 915
323119B146	Calendar and calendar pad printing (letterpress)	12	X	X	46 200	11	X	X	29 173
323119B191	All other general commercial letterpress printing, nec, including customized stationery	152	X	X	265 348	N	X	X	N
323119BY	Other general job printing (letterpress), nsk	N	X	X	340 010	N	X	X	N
323119BYWV	Other general job printing (letterpress), nsk	N	X	X	340 010	N	X	X	N
323119E	Engraving (printing)	N	X	X	257 962	N	X	X	289 715
323119E1	Engraving (printing)	N	X	X	211 896	N	X	X	N
323119E111	Security engraving	4	X	X	D	2	X	X	N
323119E116	Social engraving	8	X	X	D	21	X	X	N
323119E121	Business card engraving	31	X	X	36 752	33	X	X	21 270
323119E126	Other commercial engraving	47	X	X	81 674	63	X	X	97 430
323119EY	Engraving (printing), nsk	N	X	X	46 066	N	X	X	N
323119EYWV	Engraving (printing), nsk	N	X	X	46 066	N	X	X	51 657
323119W	Other commercial printing, nsk, total	N	X	X	1 289 548	N	X	X	N
323119WY	Other commercial printing, nsk, total	N	X	X	1 289 548	N	X	X	N
323119WYWV	Other commercial printing, nsk, for nonadministrative-record establishments	N	X	X	963 773	N	X	X	N
323119WYWY	Other commercial printing, nsk, for administrative-record establishments	N	X	X	325 775	N	X	X	N

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231191	MAGAZINE AND PERIODICAL PRINTING (LETTERPRESS)		
	United States	25 521	62 372
	California	2 123	6 472
	New York	7 684	9 796
3231193	LABEL AND WRAPPER PRINTING (LETTERPRESS)		
	United States	684 853	290 844
	Arizona	11 303	6 521
	California	55 865	18 765
	Georgia	2 474	8 272
	Illinois	75 878	14 415
	Indiana	2 027	2 916
	Michigan	5 260	4 346
	Minnesota	39 871	26 510
	Missouri	8 352	N
	New Jersey	75 504	36 182
	New York	36 765	23 893

See footnotes at end of table.

Table 6b. **Product Class Shipments for Selected States: 1997 and 1992—Con.**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231193	LABEL AND WRAPPER PRINTING (LETTERPRESS)—Con.		
	North Carolina	27 854	4 936
	Ohio	94 476	38 383
	Pennsylvania	34 528	5 861
	Tennessee	17 798	N
	Texas	35 035	3 197
	Washington	5 335	N
	Wisconsin	76 980	30 194
3231195	CATALOG AND DIRECTORY PRINTING (LETTERPRESS)		
	United States	31 755	90 186
	California	2 010	N
	New York	2 637	N
3231197	FINANCIAL AND LEGAL PRINTING (LETTERPRESS)		
	United States	24 412	75 211
	New Jersey	2 071	9 138
3231199	ADVERTISING PRINTING (LETTERPRESS)		
	United States	268 924	332 103
	Alabama	8 357	N
	Arizona	9 537	N
	Arkansas	8 231	2 089
	California	33 574	14 809
	Florida	16 591	21 272
	Georgia	9 489	N
	Illinois	10 945	45 089
	Indiana	2 191	3 198
	Kentucky	14 630	3 434
	Louisiana	3 441	N
	Maryland	3 755	6 756
	Michigan	4 176	11 744
	Minnesota	2 999	12 627
	Missouri	4 241	9 384
	New Jersey	20 443	3 238
	New York	13 174	61 733
	North Carolina	2 393	3 247
	Ohio	7 761	11 973
	Pennsylvania	14 294	10 376
	Tennessee	10 466	2 428
	Texas	6 668	8 859
	Wisconsin	4 382	7 868
323119B	OTHER GENERAL JOB PRINTING (LETTERPRESS)		
	United States	936 671	N
	Alabama	5 539	N
	Arizona	8 259	N
	Arkansas	9 318	N
	California	58 947	N
	Colorado	7 315	N
	Connecticut	30 637	N
	Florida	18 544	N
	Georgia	13 574	N
	Idaho	4 005	N
	Illinois	32 370	N
	Indiana	33 075	N
	Kansas	11 380	N
	Kentucky	7 037	N
	Louisiana	7 876	N
	Maryland	27 157	N
	Massachusetts	37 692	N
	Michigan	24 768	N
	Minnesota	35 619	N
	Mississippi	4 527	N
	Missouri	13 991	N
	Nebraska	16 738	N
	New Jersey	42 556	N
	New Mexico	2 108	N
	New York	75 941	N
	North Carolina	15 208	N
	North Dakota	2 242	N
	Ohio	35 848	N
	Oklahoma	6 845	N
	Oregon	16 562	N
	Pennsylvania	108 996	N
	Rhode Island	2 015	N
	Tennessee	18 509	N
	Texas	32 607	N
	Utah	4 184	N
	Virginia	17 986	N
	Washington	19 836	N
	Wisconsin	26 346	N

See footnotes at end of table.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992—Con.

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
323119E	ENGRAVING (PRINTING)		
	United States	257 962	289 715
	California	22 472	58 782
	Florida	7 216	4 950
	Illinois	60 065	50 189
	Indiana	4 416	7 465
	Maryland	2 161	2 784
	Massachusetts	34 549	20 860
	Michigan	4 645	4 430
	Minnesota	2 369	4 899
	Missouri	2 336	2 093
	New Jersey	12 810	15 049
	New York	12 965	33 137
	North Carolina	6 185	4 102
	Ohio	4 560	6 972
	Tennessee	6 507	6 583
	Texas	4 135	6 224

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323119	OTHER COMMERCIAL PRINTING				
32212203	Newsprint	X	40 564	X	N
32212009	Uncoated paper in sheets	X	44 814	X	N
32212011	Uncoated paper in rolls	X	69 746	X	N
32200011	Coated paper in sheets	X	16 753	X	N
32200013	Coated paper in rolls	X	23 218	X	N
32222200	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.	X	103 026	X	N
31320001	Cloth and nonwoven fabrics for hardbound book covers	X	D	X	N
32552003	Glues and adhesives	X	979	X	N
32591003	Printing ink	X	14 546	X	N
32599203	Light sensitive films and papers	X	4 160	X	N
32599201	Unexposed photosensitive printing plates	X	2 782	X	N
32312201	Printing plates, prepared for printing	X	8 232	X	N
32312209	Engraved printing cylinders for gravure printing	X	D	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	7 340	X	N
32223200	Purchased envelopes	X	11 761	X	N
00970099	All other materials and components, parts, containers, and supplies	X	99 890	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	689 688	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

323119 OTHER COMMERCIAL PRINTING

This U.S. industry comprises establishments primarily engaged in commercial printing (except lithographic, gravure, screen, or flexographic printing) without publishing (except books, grey goods, and manifold business forms). Printing processes included in this industry are letterpress printing and engraving printing. This industry includes establishments engaged in commercial printing on purchased stock materials, such as stationery, invitations, labels, and similar items, on a job order basis.

The data published with NAICS code 323119 include the following SIC industries:

- 2759 Commercial printing, n.e.c. (pt)
- 2771 Greeting cards (pt)
- 3999 Manufacturing industries, n.e.c. (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsk) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3231101.....	27521.....	27521.....	3231113.....	27542.....	27542.....	3231131491 pt.....	3999985.....	3999999 pt.....
3231101111.....	2752112.....	2752112.....	3231113111.....	2754211.....	2754211.....	3231131YVW pt.....	2759800.....	2759800.....
3231101113.....	2752114.....	2752114.....	3231113116.....	2754213.....	2754213.....	3231131YVW pt.....	2771200 pt.....	2771200 pt.....
3231101121.....	2752117.....	2752117.....	3231113121.....	2754215.....	2754215.....	3231131YVW pt.....	3999900 pt.....	3999900 pt.....
3231101YVW.....	2752100.....	2752100.....	3231113126.....	2754217.....	2754217.....			
3231103.....	27522.....	27522.....	3231113231.....	2754232.....	2754232.....	3231133 pt.....	23964.....	23964.....
3231103111.....	2752211.....	2752211.....	3231113236.....	2754237.....	2754237.....	3231133 pt.....	23969.....	93000 pt.....
3231103116.....	2752213.....	2752213.....	3231113YVW.....	2754200.....	2754200.....	3231133111.....	2396435.....	2396434 pt.....
3231103121.....	2752217.....	2752217.....				3231133116.....	2396436.....	2396434 pt.....
3231103126.....	2752220.....	2752220.....	3231115.....	27543.....	27543.....	3231133121.....	2396437.....	2396437.....
3231103131.....	2752234.....	2752234.....	3231115100.....	2754300.....	2754300.....	3231133YVW pt.....	2396400.....	2396400.....
3231103136.....	2752243.....	2752243.....				3231133YVW pt.....	2396900.....	9300000 pt.....
3231103YVW.....	2752200.....	2752200.....	3231117.....	27545.....	27545.....			
3231105.....	27523.....	27523.....	3231117111.....	2754511.....	2754511.....	323113W pt.....	23960 pt.....	23960 pt.....
3231105111.....	2752312.....	2752312.....	3231117116.....	2754545.....	2754545.....	323113W pt.....	27590 pt.....	27590 pt.....
3231105113.....	2752314.....	2752314.....	3231117121.....	2754548.....	2754548.....			
3231105121.....	2752318.....	2752318.....	3231117YVW.....	2754500.....	2754500.....			
3231105126.....	2752324.....	2752324.....	3231119 pt.....	27546.....	27546.....			
3231105128.....	2752326.....	2752326.....	3231119 pt.....	27712 pt.....	27712 pt.....	323113W pt.....	27710 pt.....	27710 pt.....
3231105128.....	2752326.....	2752326.....				323113W pt.....	27710 pt.....	27710 pt.....
3231105YVW.....	2752300.....	2752300.....	3231119 pt.....	39999 pt.....	39999 pt.....	323113WYVW pt.....	2396000 pt.....	2396000 pt.....
3231107.....	27524.....	27524.....	3231119111.....	2754651.....	2754651.....	323113WYVW pt.....	2759000 pt.....	2759000 pt.....
3231107111.....	2752412.....	2752412.....	3231119191 pt.....	2754695.....	2754695.....	323113WYVW pt.....	2771000 pt.....	2771000 pt.....
3231107113.....	2752414.....	2752414.....	3231119191 pt.....	2771203.....	2771203 pt.....	323113WYVW pt.....	3999000 pt.....	3999000 pt.....
3231107121.....	2752416.....	2752416.....	3231119191 pt.....	3999983.....	3999999 pt.....	323113WYVW pt.....	2396002 pt.....	2396002 pt.....
3231107123.....	2752418.....	2752418.....	3231119YVW pt.....	2754600.....	2754600.....	323113WYVW pt.....	2759002 pt.....	2759002 pt.....
3231107131.....	2752421.....	2752421.....	3231119YVW pt.....	2771200 pt.....	2771200 pt.....	323113WYVW pt.....	2771002 pt.....	2771002 pt.....
3231107133.....	2752422.....	2752422.....	3231119YVW pt.....	3999900 pt.....	3999900 pt.....	323113WYVW pt.....	3999002 pt.....	3999002 pt.....
3231107141.....	2752424.....	2752424.....	323111W pt.....	27540.....	27540.....			
3231107143.....	2752426.....	2752426.....	323111W pt.....	27710 pt.....	27710 pt.....	3231140 pt.....	27526 pt.....	27526 pt.....
3231107151.....	2752427.....	2752427.....				3231140 pt.....	27590 pt.....	27590 pt.....
3231107YVW.....	2752400.....	2752400.....	323111W pt.....	39990 pt.....	39990 pt.....			
3231109.....	27525.....	27525.....	323111WYVW pt.....	2754000.....	2754000.....	3231140 pt.....	27590 pt.....	27590 pt.....
3231109111.....	2752512.....	2752512.....	323111WYVW pt.....	2771000 pt.....	2771000 pt.....	3231140100 pt.....	2759A pt.....	2759A pt.....
3231109113.....	2752514.....	2752514.....	323111WYVW pt.....	3999000 pt.....	3999000 pt.....	3231140100 pt.....	2752696.....	2752696.....
3231109221.....	2752523.....	2752523.....	323111WYVW pt.....	2754002.....	2754002.....	3231140100 pt.....	2759A12.....	2759A00 pt.....
3231109226.....	2752526.....	2752526.....	323111WYVW pt.....	2771002 pt.....	2771002 pt.....	3231140YVW pt.....	2752000 pt.....	2752000 pt.....
3231109228.....	2752528.....	2752528.....	323111WYVW pt.....	3999002 pt.....	3999002 pt.....	3231140YVW pt.....	2752600 pt.....	2752600 pt.....
3231109236.....	2752532.....	2752532.....				3231140YVW pt.....	2759000 pt.....	2759000 pt.....
3231109241.....	2752533.....	2752533.....	3231121.....	2759B.....	2759B.....	3231140YVW pt.....	2759A00 pt.....	2759A00 pt.....
3231109246.....	2752541.....	2752541.....	3231121111.....	2759B14.....	2759B14.....	3231140YVW pt.....	2752002 pt.....	2752002 pt.....
3231109251.....	2752545.....	2752545.....	3231121216.....	2759B16.....	2759B16.....	3231140YVW pt.....	2759002 pt.....	2759002 pt.....
3231109256.....	2752552.....	2752552.....	3231121321.....	2759B18.....	2759B18.....			
3231109258.....	2752554.....	2752554.....	3231121426.....	2759B20.....	2759B20.....	3231150 pt.....	27590 pt.....	27590 pt.....
3231109YVW.....	2752500.....	2752500.....	3231121531.....	2759B22.....	2759B22.....	3231150 pt.....	2759A pt.....	2759A pt.....
323110B pt.....	27526 pt.....	27526 pt.....	3231121636.....	2759B26.....	2759B26.....	3231150100.....	2759A14.....	2759A00 pt.....
323110B pt.....	27712 pt.....	27712 pt.....	3231121741.....	2759B28.....	2759B28.....	3231150YVW pt.....	2759000 pt.....	2759000 pt.....
			3231121846.....	2759B30.....	2759B30.....	3231150YVW pt.....	2759A00 pt.....	2759A00 pt.....
			3231121YVW.....	2759B00.....	2759B00.....	3231150YVW.....	2759002 pt.....	2759002 pt.....
323110B pt.....	39999 pt.....	39999 pt.....	3231123 pt.....	2759C.....	2759C.....			
323110B111.....	2752611.....	2752611.....	3231123 pt.....	27712 pt.....	27712 pt.....	3231161.....	27612.....	27612.....
323110B116 pt.....	2752617 pt.....	2752616.....				3231161111.....	2761211.....	2761211.....
323110B116 pt.....	2752617 pt.....	2752618.....	3231123 pt.....	39999 pt.....	39999 pt.....	3231161121.....	2761213.....	2761213.....
323110B121.....	2752621.....	2752621.....	3231123111.....	2759C29.....	2759C29.....	3231161126.....	2761215.....	2761215.....
323110B126.....	2752636.....	2752636.....	3231123116.....	2759C31.....	2759C31.....	3231161231.....	2761253.....	2761253.....
323110B128.....	2752638.....	2752638.....	3231123221.....	2759C32.....	2759C32.....	3231161336.....	2761255.....	2761255.....
323110B136.....	2752644.....	2752644.....	3231123226.....	2759C33.....	2759C33.....	3231161441.....	2761261.....	2761261.....
323110B141.....	2752647.....	2752647.....	3231123231.....	2759C35.....	2759C34 pt.....	3231161YVW.....	2761200.....	2761200.....
323110B146.....	2752651.....	2752651.....	3231123236.....	2759C36.....	2759C36.....			
323110B151.....	2752677.....	2752677.....	3231123291 pt.....	2759C38.....	2759C38.....	3231163.....	27613.....	27613.....
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						323122WYWW pt...	2791002.....	2791002.....
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1997

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-di-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323121	Tradebinding & related work . . .	1 260	1 284	31 334	759 380	25 907	50 458	538 562	1 501 879	453 541	1 958 246	89 292
278900	Bookbinding & related work, . . .	N	1 284	31 334	759 380	25 907	50 458	538 562	1 501 879	453 541	1 958 246	89 292

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-di-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323121, TRADEBINDING & RELATED WORK												
United States	2	1 284	401	31 334	759 380	25 907	50 458	538 562	1 501 879	453 541	1 958 246	89 292
Arizona	3	20	6	380	8 994	316	626	6 272	15 573	3 853	19 447	1 115
California	3	177	50	3 853	80 950	3 308	6 089	61 378	155 981	33 855	189 707	9 805
Colorado	2	29	4	247	4 884	207	304	3 650	10 227	1 849	12 103	407
Connecticut	1	14	5	230	6 338	205	395	4 737	11 952	1 634	13 551	475
Florida	4	43	6	489	11 337	416	757	8 444	20 405	3 591	24 190	1 628
Georgia	1	59	23	1 426	27 499	1 181	2 170	19 956	49 713	16 943	66 651	1 728
Illinois	1	76	35	3 989	91 233	3 106	6 188	58 131	200 532	79 636	280 414	7 478
Indiana	1	34	18	1 775	38 836	1 439	2 613	27 098	71 521	36 483	111 767	6 899
Iowa	-	10	5	216	4 789	186	348	3 484	9 466	1 890	11 327	1 968
Kansas	7	11	5	474	10 353	390	759	7 085	32 897	20 095	50 579	888
Kentucky	-	7	2	146	2 505	132	171	1 949	4 053	936	4 919	308
Maryland	-	33	13	1 229	42 871	991	2 069	29 371	96 211	44 575	140 388	11 198
Massachusetts	1	43	13	1 027	28 015	831	1 636	21 421	52 528	15 499	67 970	4 406
Michigan	-	27	6	504	11 630	424	830	8 704	22 973	5 515	28 251	2 477
Minnesota	-	47	9	696	19 033	600	1 157	13 763	33 818	7 184	41 285	1 185
Missouri	1	34	10	707	16 838	611	1 149	11 496	31 331	5 967	37 197	2 229
Nebraska	4	10	2	176	3 722	144	252	2 229	5 069	1 193	6 185	147
New Hampshire	7	9	4	212	5 592	176	404	4 416	9 790	2 124	11 913	510
New Jersey	2	69	33	2 433	64 320	2 024	4 325	46 736	119 584	26 002	146 922	4 962
New York	3	109	39	2 489	63 557	2 095	3 921	44 288	122 878	25 078	147 450	7 420
North Carolina	2	40	14	769	14 289	632	1 120	9 941	26 972	5 619	32 657	2 192
Ohio	2	41	8	786	16 986	695	1 295	12 864	33 026	5 666	38 580	2 405
Oregon	-	28	6	380	11 416	313	650	8 452	18 597	5 714	24 652	804
Pennsylvania	-	48	15	1 384	40 482	1 073	2 341	26 201	73 281	26 590	100 510	4 446
Tennessee	5	27	7	1 055	30 484	913	1 997	24 791	49 537	28 604	77 995	3 271
Texas	2	72	28	1 848	42 048	1 532	3 103	30 554	70 909	16 154	87 092	3 089
Utah	-	17	3	329	7 018	279	558	5 098	13 946	2 936	16 806	933
Virginia	2	19	5	359	7 892	278	546	4 824	14 425	2 982	17 437	910
Washington	-	28	7	366	9 702	294	548	6 374	17 439	2 640	20 056	704
Wisconsin	1	29	12	696	18 802	571	1 126	13 380	35 252	9 873	45 430	1 327

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
323121, TRADEBINDING & RELATED WORK		323121, TRADEBINDING & RELATED WORK— Con.	
Companies ¹	number.. 1 260	Value added	\$1,000.. 1 501 879
All establishments	number.. 1 284	Total inventories, beginning of year	\$1,000.. 167 417
Establishments with 1 to 19 employees	number.. 883	Finished goods inventories, beginning of year	\$1,000.. 59 996
Establishments with 20 to 99 employees	number.. 350	Work-in-process inventories, beginning of year	\$1,000.. 43 571
Establishments with 100 employees or more	number.. 51	Materials and supplies inventories, beginning of year	\$1,000.. 63 850
All employees	number.. 31 334	Total inventories, end of year	\$1,000.. 163 690
Total compensation ²	\$1,000.. 892 291	Finished goods inventories, end of year	\$1,000.. 60 144
Annual payroll	\$1,000.. 759 380	Work-in-process inventories, end of year	\$1,000.. 40 597
Total fringe benefits	\$1,000.. 132 911	Materials and supplies inventories, end of year	\$1,000.. 62 949
Production workers, average for year	number.. 25 907	Gross book value of total assets at beginning of year	\$1,000.. 862 586
Production workers on March 12	number.. 25 862	Total capital expenditures (new and used)	\$1,000.. 89 292
Production workers on May 12	number.. 25 747	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 6 594
Production workers on August 12	number.. 26 170	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 82 698
Production workers on November 12	number.. 25 849	Total retirements ²	\$1,000.. 36 656
Production-worker hours	1,000.. 50 458	Gross book value of total assets at end of year	\$1,000.. 915 222
Production-worker wages	\$1,000.. 538 562	Total depreciation during year ²	\$1,000.. 78 964
Total cost of materials	\$1,000.. 453 541	Total rental payments ²	\$1,000.. 65 776
Cost of materials, parts, containers, etc., consumed	\$1,000.. 363 066	Buildings and other structures rental payments ²	\$1,000.. 33 179
Cost of resales	\$1,000.. 22 078	Machinery and equipment rental payments ²	\$1,000.. 32 597
Cost of fuels	\$1,000.. 6 423	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 2 721
Cost of purchased electricity	\$1,000.. 20 446	Response coverage ratio ⁴	percent.. 75
Cost of contract work	\$1,000.. 41 528	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 18 657
Quantity of electricity purchased for heat and power	1,000 kWh.. 392 900	Response coverage ratio ⁴	percent.. 75
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 5 204
Total value of shipments	\$1,000.. 1 958 246	Response coverage ratio ⁴	percent.. 75
Primary products value of shipments	\$1,000.. 1 800 161	Cost of purchased legal services ³	\$1,000.. 2 005
Secondary products value of shipments	\$1,000.. 113 468	Response coverage ratio ⁴	percent.. 75
Total miscellaneous receipts	\$1,000.. 44 617	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 7 296
Value of resales	\$1,000.. 29 533	Response coverage ratio ⁴	percent.. 75
Contract receipts	\$1,000.. —	Cost of purchased advertising services ³	\$1,000.. 1 681
Other miscellaneous receipts	\$1,000.. 15 084	Response coverage ratio ⁴	percent.. 75
Primary products specialization ratio	percent.. 94	Cost of purchased software and other data processing services ³	\$1,000.. 889
Value of primary products shipments made in all industries	\$1,000.. 1 930 700	Response coverage ratio ⁴	percent.. 75
Value of primary products shipments made in this industry	\$1,000.. 1 800 161	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 1 315
Value of primary products shipments made in other industries	\$1,000.. 130 539	Response coverage ratio ⁴	percent.. 75
Coverage ratio	percent.. 93		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323121, TRADEBINDING & RELATED WORK												
All establishments	2	1 284	401	31 334	759 380	25 907	50 458	538 562	1 501 879	453 541	1 958 246	89 292
Establishments with 1 to 4 employees	8	410	—	885	18 561	741	1 295	14 252	34 751	7 724	42 525	2 094
Establishments with 5 to 9 employees	4	246	—	1 654	38 403	1 335	2 375	27 807	70 574	16 039	86 772	4 193
Establishments with 10 to 19 employees	2	227	—	3 111	77 004	2 543	4 804	55 795	143 350	29 896	173 188	8 888
Establishments with 20 to 49 employees	2	224	224	6 878	168 838	5 753	10 986	118 425	314 053	62 083	377 907	20 851
Establishments with 50 to 99 employees	1	126	126	8 825	227 310	7 478	15 079	163 143	470 477	124 243	594 041	24 782
Establishments with 100 to 249 employees	2	39	39	5 525	126 445	4 558	9 365	89 128	243 321	84 534	331 469	14 360
Establishments with 250 to 499 employees	1	12	12	4 456	102 819	3 499	6 554	70 012	225 353	129 022	352 344	14 124
Establishments with 500 to 999 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	484	—	1 928	33 899	1 610	2 464	26 712	61 492	13 712	75 330	2 783

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323121	Tradebinding & related work	1 284	31 334	759 380	25 907	50 458	538 562	1 501 879	453 541	1 958 246	89 292
3231211	Edition, library, and other hardcover bookbinding	87	4 447	96 947	3 627	6 969	63 304	227 868	99 328	325 891	10 309
3231213	Other book and pamphlet binding, and related binding and post-press work, nec	498	19 017	497 042	15 719	32 022	347 146	972 316	286 947	1 262 835	62 880

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323121	Tradebinding and related work	N	X	X	1 930 700	N	X	X	1 311 656
3231211	Edition, library, and other hardcover bookbinding	N	X	X	270 081	N	X	X	249 628
32312111	Hardbound edition binding of elementary, high school, and college textbooks, and technical, scientific, business, and professional books (all grades)	N	X	X	83 646	N	X	X	N
3231211116	Hardbound edition binding of general consumer and trade books (including adult and juvenile trade books, book club, and direct mail books)	17	X	X	11 038	25	X	X	26 001
3231211121	Hardbound edition binding of all other books, nec, including religious and reference books	28	X	X	44 959	33	X	X	49 938
32312112	Library binding, hard cover binding of periodicals and records, and other hard cover binding (except edition)	26	X	X	27 649	29	X	X	35 891
3231212	Library binding, hard cover binding of periodicals and records, and other hard cover binding (except edition)	N	X	X	181 577	N	X	X	N
323121226	Library binding, hard cover binding of periodicals and records, and other hard cover binding (except edition)	44	X	X	181 577	52	X	X	136 058
3231211Y	Edition, library, and other hardcover bookbinding, nsk	N	X	X	4 858	N	X	X	N
3231211YVW	Edition, library, and other hardcover bookbinding, nsk	N	X	X	4 858	N	X	X	1 740
3231213	Other book and pamphlet binding, and related binding and post-press work, nec	N	X	X	1 229 938	N	X	X	750 042
32312131	Soft cover adhesive binding of books (49 pages or more, exclusive of the covers)	N	X	X	98 142	N	X	X	N
3231213111	Soft cover adhesive binding of books (49 pages or more, exclusive of the covers)	106	X	X	98 142	97	X	X	86 623
32312132	Soft cover mechanical binding of books (49 pages or more, exclusive of the covers)	N	X	X	99 915	N	X	X	N
3231213216	Soft cover mechanical binding of books (49 pages or more, exclusive of the covers)	108	X	X	99 915	114	X	X	75 952
32312133	Pamphlet and other soft cover binding	N	X	X	157 318	N	X	X	N
3231213321	Pamphlet and other soft cover adhesive binding	61	X	X	40 291	58	X	X	34 346
3231213326	Pamphlet and other soft cover mechanical binding	166	X	X	117 027	174	X	X	112 565
32312134	Sample books, swatches, and cards (color, carpet, upholstery, drapery, etc.)	N	X	X	230 134	N	X	X	N
3231213431	Sample books, swatches, and cards (color, carpet, upholstery, drapery, etc.)	83	X	X	230 134	83	X	X	222 957
32312135	Receipts for miscellaneous binding and postpress work, including collating, perforating, folding, glueing, die-cutting, gold or foil stamping, etc.	N	X	X	550 123	N	X	X	N
3231213536	Receipts for miscellaneous binding and postpress work, including collating, perforating, folding, glueing, die-cutting, gold or foil stamping, etc.	404	X	X	550 123	175	X	X	145 496
3231213Y	Other book and pamphlet binding, and related binding and post-press work, nsk	N	X	X	94 306	N	X	X	N
3231213YVW	Other book and pamphlet binding, and related binding and post-press work, nsk	N	X	X	94 306	N	X	X	72 103
323121W	Tradebinding and related work, nsk, total	N	X	X	430 681	N	X	X	311 986
323121WY	Tradebinding and related work, nsk, total	N	X	X	430 681	N	X	X	N
323121WYVW	Tradebinding and related work, nsk, for nonadministrative-record establishments	N	X	X	356 149	N	X	X	266 280
323121WYVW	Tradebinding and related work, nsk, for administrative-record establishments	N	X	X	74 532	N	X	X	45 706

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231211	EDITION, LIBRARY, AND OTHER HARDCOVER BOOKBINDING		
	United States	270 081	249 628
	California	7 009	5 595
	Illinois	111 965	N
	Indiana	17 462	N
	Massachusetts	15 222	12 507
	Minnesota	9 056	5 171
	New Jersey	21 018	41 629
	New York	10 745	9 016
	Pennsylvania	8 119	5 317
	Tennessee	2 954	N
	Texas	2 354	5 575
	Utah	6 428	4 556
3231213	OTHER BOOK AND PAMPHLET BINDING, AND RELATED BINDING AND POST-PRESS WORK, NEC		
	United States	1 229 938	750 042
	Arizona	7 162	4 625
	California	131 397	87 087
	Colorado	8 229	3 975
	Connecticut	9 872	7 380
	Florida	15 385	8 362
	Georgia	54 263	44 018
	Illinois	93 197	67 244
	Indiana	73 888	49 772
	Iowa	10 162	N
	Kansas	11 740	2 100
	Kentucky	5 690	N
	Maryland	128 768	49 473
	Massachusetts	44 420	22 768
	Michigan	18 478	9 903
	Minnesota	34 653	12 158
	Missouri	31 443	13 308
	Nebraska	2 144	N
	New Hampshire	3 436	10 898
	New Jersey	91 134	66 816
	New York	89 575	80 454
	North Carolina	20 062	14 456
	Ohio	32 991	14 607
	Oklahoma	3 370	N
	Oregon	17 184	13 154
	Pennsylvania	74 107	29 457
	Tennessee	33 284	30 482
	Texas	55 702	42 101
	Utah	8 765	5 161
	Virginia	10 501	N
	Washington	15 081	10 343
	Wisconsin	38 571	23 924

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323121	TRADEBINDING & RELATED WORK				
32200015	Coated paper	X	10 201	X	15 356
32212011	Uncoated paper in rolls	X	6 011	X	N
32212009	Uncoated paper in sheets	X	10 939	X	N
32213001	Paperboard (including news, chip, pasted, tablet, check, binders' board), except for shipping	X	19 017	X	13 124
32221001	Paperboard containers, boxes, and corrugated paperboard	X	29 602	X	10 781
31332005	Coated or impregnated woven and nonwoven fabrics, except rubberized	X	13 378	X	10 493
32311000	Metal and plastic looseleaf components, including ring type	X	3 791	X	5 255
32610001	Plastics film and sheet	X	5 157	X	5 344
001900D4	All other plastics consumed, except looseleaf devices and components	X	2 045	X	1 890
33120095	Steel, strip and wire	X	4 253	X	3 648
32212021	Carbonless paper	X	584	X	N
32591003	Printing ink	X	4 037	X	N
00970099	All other materials and components, parts, containers, and supplies	X	134 607	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	119 444	X	78 080

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

323121 TRADEBINDING AND RELATED WORK

This U.S. industry comprises establishments primarily engaged in one or more of the following: (1) tradebinding; (2) sample mounting; and (3) postpress services (e.g., book or paper bronzing, die-cutting, edging, embossing, folding, gilding, gluing, indexing).

The data published with NAICS code 323121 include the following SIC industry:

2789 Bookbinding and related work

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3231101.....	27521.....	27521.....	3231113.....	27542.....	27542.....	3231131491 pt.....	3999985.....	3999999 pt.....
3231101111.....	2752112.....	2752112.....	3231113111.....	2754211.....	2754211.....	3231131YVW pt.....	2759800.....	2759800.....
3231101113.....	2752114.....	2752114.....	3231113116.....	2754213.....	2754213.....	3231131YVW pt.....	2771200 pt.....	2771200 pt.....
3231101121.....	2752117.....	2752117.....	3231113121.....	2754215.....	2754215.....	3231131YVW pt.....	3999900 pt.....	3999900 pt.....
3231101YVW.....	2752100.....	2752100.....	3231113126.....	2754217.....	2754217.....			
3231103.....	27522.....	27522.....	3231113231.....	2754232.....	2754232.....	3231133 pt.....	23964.....	23964.....
3231103111.....	2752211.....	2752211.....	3231113236.....	2754237.....	2754237.....	3231133 pt.....	23969.....	93000 pt.....
3231103116.....	2752213.....	2752213.....	3231113YVW.....	2754200.....	2754200.....	3231133111.....	2396435.....	2396434 pt.....
3231103121.....	2752217.....	2752217.....				3231133116.....	2396436.....	2396434 pt.....
3231103126.....	2752220.....	2752220.....	3231115.....	27543.....	27543.....	3231133121.....	2396437.....	2396437.....
3231103131.....	2752234.....	2752234.....	3231115100.....	2754300.....	2754300.....	3231133YVW pt.....	2396400.....	2396400.....
3231103136.....	2752243.....	2752243.....				3231133YVW pt.....	2396900.....	9300000 pt.....
3231103YVW.....	2752200.....	2752200.....	3231117.....	27545.....	27545.....			
3231105.....	27523.....	27523.....	3231117111.....	2754511.....	2754511.....	323113W pt.....	23960 pt.....	23960 pt.....
3231105111.....	2752312.....	2752312.....	3231117116.....	2754545.....	2754545.....	323113W pt.....	27590 pt.....	27590 pt.....
3231105113.....	2752314.....	2752314.....	3231117121.....	2754548.....	2754548.....			
3231105121.....	2752318.....	2752318.....	3231117YVW.....	2754500.....	2754500.....			
3231105126.....	2752324.....	2752324.....	3231119 pt.....	27546.....	27546.....			
3231105128.....	2752326.....	2752326.....	3231119 pt.....	27712 pt.....	27712 pt.....	323113W pt.....	27710 pt.....	27710 pt.....
3231105128.....	2752326.....	2752326.....				323113W pt.....	27710 pt.....	27710 pt.....
3231105YVW.....	2752300.....	2752300.....	3231119 pt.....	39999 pt.....	39999 pt.....	323113WYVW pt.....	2396000 pt.....	2396000 pt.....
3231107.....	27524.....	27524.....	3231119111.....	2754651.....	2754651.....	323113WYVW pt.....	2759000 pt.....	2759000 pt.....
3231107111.....	2752412.....	2752412.....	3231119191 pt.....	2754695.....	2754695.....	323113WYVW pt.....	2771000 pt.....	2771000 pt.....
3231107113.....	2752414.....	2752414.....	3231119191 pt.....	2771203.....	2771203 pt.....	323113WYVW pt.....	3999000 pt.....	3999000 pt.....
3231107121.....	2752416.....	2752416.....	3231119191 pt.....	3999983.....	3999999 pt.....	323113WYVW pt.....	2396002 pt.....	2396002 pt.....
3231107123.....	2752418.....	2752418.....	3231119YVW pt.....	2754600.....	2754600.....	323113WYVW pt.....	2759002 pt.....	2759002 pt.....
3231107131.....	2752421.....	2752421.....	3231119YVW pt.....	2771200 pt.....	2771200 pt.....	323113WYVW pt.....	2771002 pt.....	2771002 pt.....
3231107133.....	2752422.....	2752422.....	3231119YVW pt.....	3999900 pt.....	3999900 pt.....	323113WYVW pt.....	3999002 pt.....	3999002 pt.....
3231107141.....	2752424.....	2752424.....	323111W pt.....	27540.....	27540.....			
3231107143.....	2752426.....	2752426.....	323111W pt.....	27710 pt.....	27710 pt.....	3231140 pt.....	27526 pt.....	27526 pt.....
3231107151.....	2752427.....	2752427.....				3231140 pt.....	27590 pt.....	27590 pt.....
3231107YVW.....	2752400.....	2752400.....	323111W pt.....	39990 pt.....	39990 pt.....			
3231109.....	27525.....	27525.....	323111WYVW pt.....	2754000.....	2754000.....	3231140 pt.....	27590 pt.....	27590 pt.....
3231109111.....	2752512.....	2752512.....	323111WYVW pt.....	2771000 pt.....	2771000 pt.....	3231140100 pt.....	2759A pt.....	2759A pt.....
3231109113.....	2752514.....	2752514.....	323111WYVW pt.....	3999000 pt.....	3999000 pt.....	3231140100 pt.....	2752696.....	2752696.....
3231109221.....	2752523.....	2752523.....	323111WYVW pt.....	2754002.....	2754002.....	3231140100 pt.....	2759A12.....	2759A00 pt.....
3231109226.....	2752526.....	2752526.....	323111WYVW pt.....	2771002 pt.....	2771002 pt.....	3231140YVW pt.....	2752000 pt.....	2752000 pt.....
3231109228.....	2752528.....	2752528.....	323111WYVW pt.....	3999002 pt.....	3999002 pt.....	3231140YVW pt.....	2752600 pt.....	2752600 pt.....
3231109236.....	2752532.....	2752532.....				3231140YVW pt.....	2759000 pt.....	2759000 pt.....
3231109241.....	2752533.....	2752533.....	3231121.....	2759B.....	2759B.....	3231140YVW pt.....	2759A00 pt.....	2759A00 pt.....
3231109246.....	2752541.....	2752541.....	3231121111.....	2759B14.....	2759B14.....	3231140YVW pt.....	2752002 pt.....	2752002 pt.....
3231109251.....	2752545.....	2752545.....	3231121216.....	2759B16.....	2759B16.....	3231140YVW pt.....	2759002 pt.....	2759002 pt.....
3231109256.....	2752552.....	2752552.....	3231121321.....	2759B18.....	2759B18.....			
3231109258.....	2752554.....	2752554.....	3231121426.....	2759B20.....	2759B20.....	3231150 pt.....	27590 pt.....	27590 pt.....
3231109YVW.....	2752500.....	2752500.....	3231121531.....	2759B22.....	2759B22.....	3231150 pt.....	2759A pt.....	2759A pt.....
323110B pt.....	27526 pt.....	27526 pt.....	3231121636.....	2759B26.....	2759B26.....	3231150100.....	2759A14.....	2759A00 pt.....
323110B pt.....	27712 pt.....	27712 pt.....	3231121741.....	2759B28.....	2759B28.....	3231150YVW pt.....	2759000 pt.....	2759000 pt.....
			3231121846.....	2759B30.....	2759B30.....	3231150YVW pt.....	2759A00 pt.....	2759A00 pt.....
			3231121YVW.....	2759B00.....	2759B00.....	3231150YVW.....	2759002 pt.....	2759002 pt.....
323110B pt.....	39999 pt.....	39999 pt.....	3231123 pt.....	2759C.....	2759C.....			
323110B111.....	2752611.....	2752611.....	3231123 pt.....	27712 pt.....	27712 pt.....	3231161.....	27612.....	27612.....
323110B116 pt.....	2752617 pt.....	2752616.....				3231161111.....	2761211.....	2761211.....
323110B116 pt.....	2752617 pt.....	2752618.....	3231123 pt.....	39999 pt.....	39999 pt.....	3231161121.....	2761213.....	2761213.....
323110B121.....	2752621.....	2752621.....	3231123111.....	2759C29.....	2759C29.....	3231161126.....	2761215.....	2761215.....
323110B126.....	2752636.....	2752636.....	3231123116.....	2759C31.....	2759C31.....	3231161231.....	2761253.....	2761253.....
323110B128.....	2752638.....	2752638.....	3231123221.....	2759C32.....	2759C32.....	3231161336.....	2761255.....	2761255.....
323110B136.....	2752644.....	2752644.....	3231123226.....	2759C33.....	2759C33.....	3231161441.....	2761261.....	2761261.....
323110B141.....	2752647.....	2752647.....	3231123231.....	2759C35.....	2759C34 pt.....	3231161YVW.....	2761200.....	2761200.....
323110B146.....	2752651.....	2752651.....	3231123236.....	2759C36.....	2759C36.....			
323110B151.....	2752677.....	2752677.....	3231123291 pt.....	2759C38.....	2759C38.....	3231163.....	27613.....	27613.....
			3231123291 pt.....	2771207.....	2771200 pt.....	3231163111.....	2761311.....	2761311.....
323110B156.....	2752683.....	2752683.....	3231123291 pt.....	3999982.....	3999999 pt.....	3231163116.....	2761313.....	2761313.....
323110B161.....	2752684.....	2752684.....	3231123YVW pt.....	2759C00.....	2759C00.....	3231163YVW.....	2761300.....	2761300.....
323110B166.....	2752692.....	2752692.....	3231123YVW pt.....	2771200 pt.....	2771200 pt.....			
323110B168.....	2752694.....	2752694.....	3231123YVW pt.....	3999900 pt.....	3999900 pt.....			
323110B176.....	2752695.....	2752695.....				3231165.....	27615.....	27615.....
323110B181 pt.....	2771200 pt.....	2771200 pt.....	323112W pt.....	27590 pt.....	27590 pt.....	3231165111.....	2761531.....	2761531.....
323110B181 pt.....	2771201.....	2771200 pt.....	323112W pt.....	27710 pt.....	27710 pt.....	3231165116.....	2761535.....	2761535.....
323110B191 pt.....	2752697 pt.....	2752671 pt.....				3231165121.....	2761541.....	2761541.....
323110B191 pt.....	2752697 pt.....	2752697.....	323112W pt.....	39990 pt.....	39990 pt.....	3231165126.....	2761543.....	2761543.....
323110B191 pt.....	3999984.....	3999999 pt.....	323112WYVW pt.....	2759000 pt.....	2759000 pt.....	3231165131.....	2761545.....	2761545.....
			323112WYVW pt.....	2771000 pt.....	2771000 pt.....	3231165236.....	2761555.....	2761555.....
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1997 Economic Census

Manufacturing

Industry Series



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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division	301-457-4673
Service Sector Statistics Division	301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323122	Prepress services	3 199	3 345	52 696	2 028 246	37 560	73 059	1 274 831	4 011 156	996 297	5 008 554	261 184
279100	Typesetting	N	2 069	27 754	985 408	20 470	39 668	636 494	1 903 881	437 996	2 345 574	121 186
279600	Platemaking services	N	1 276	24 942	1 042 838	17 090	33 391	638 337	2 107 275	558 301	2 662 980	139 998

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323122, PREPRESS SERVICES												
United States	2	3 345	670	52 696	2 028 246	37 560	73 059	1 274 831	4 011 156	996 297	5 008 554	261 184
Arizona	1	47	7	720	22 995	516	979	16 048	45 049	6 490	51 697	1 851
Arkansas	-	13	2	223	6 840	162	266	4 343	16 242	4 359	20 573	1 215
California	3	429	72	6 054	240 639	3 946	7 641	143 295	457 827	126 720	585 821	35 476
Colorado	2	70	4	398	12 948	271	467	7 934	25 163	5 649	30 944	1 365
Connecticut	4	63	21	1 232	54 124	854	1 756	35 129	113 011	27 567	140 366	9 575
Florida	3	167	25	1 559	49 024	1 177	2 122	32 696	101 434	27 870	129 086	6 729
Georgia	1	83	20	1 436	53 034	949	1 769	30 179	117 094	27 201	144 467	6 983
Illinois	3	236	56	4 465	198 055	3 263	6 385	126 431	408 216	114 577	522 413	27 822
Indiana	2	57	14	808	27 511	576	1 083	16 174	54 350	13 449	67 843	3 129
Iowa	4	35	8	681	16 380	527	879	10 603	30 590	8 020	38 575	2 459
Kansas	-	27	5	318	11 742	223	394	7 605	21 326	5 037	26 484	1 412
Kentucky	-	28	10	624	22 764	443	850	15 284	44 968	8 821	53 805	3 557
Louisiana	5	22	1	127	3 689	96	146	2 295	6 703	2 268	8 962	1 182
Maryland	4	76	16	1 011	38 665	732	1 418	22 328	71 199	19 680	91 111	5 249
Massachusetts	1	108	20	1 199	47 181	876	1 765	31 640	80 938	28 368	111 694	9 115
Michigan	1	140	24	1 662	66 129	1 183	2 303	39 770	141 089	33 630	174 747	8 614
Minnesota	-	73	21	2 566	106 789	1 624	3 527	60 217	242 061	46 820	289 531	16 455
Missouri	1	93	26	1 808	66 313	1 330	2 599	42 435	131 161	31 272	162 353	6 812
Nebraska	-	14	5	251	7 495	219	360	5 373	20 549	3 775	24 334	1 161
Nevada	7	18	2	123	4 404	101	200	3 228	7 570	1 913	9 470	465
New Hampshire	2	23	5	461	16 296	304	539	9 913	27 532	6 332	33 601	2 469
New Jersey	4	173	37	3 322	140 264	2 361	4 756	90 519	271 806	67 886	338 234	11 388
New York	3	319	49	4 426	182 983	3 185	6 580	119 914	347 842	86 257	434 112	14 770
North Carolina	2	75	20	1 172	42 654	856	1 763	28 120	88 513	18 460	107 493	4 454
Ohio	1	147	42	2 382	87 654	1 658	3 297	54 869	167 965	43 321	211 338	10 980
Oklahoma	3	24	2	184	5 735	131	215	3 518	11 259	2 795	14 048	449
Oregon	-	44	8	576	22 802	436	819	15 788	42 908	9 476	52 694	3 480
Pennsylvania	1	146	32	4 112	137 851	3 177	6 043	91 328	261 413	65 088	326 038	13 958
Rhode Island	1	12	3	126	4 440	93	175	3 142	8 896	2 796	11 555	458
South Carolina	-	15	4	306	8 815	230	445	5 628	17 594	6 791	24 422	2 108
Tennessee	2	72	19	1 135	47 472	786	1 571	27 078	89 538	18 135	107 485	5 152
Texas	2	167	32	2 753	103 951	1 974	3 546	62 126	196 688	45 088	241 407	17 479
Utah	1	23	2	230	6 717	191	256	3 930	18 755	2 500	21 218	1 083
Virginia	2	56	7	435	13 002	334	687	9 018	24 670	4 772	29 508	1 575
Washington	-	49	8	825	36 752	567	1 152	22 352	78 094	12 985	90 699	2 603
Wisconsin	1	90	31	2 096	82 914	1 505	3 025	52 836	154 930	46 476	200 836	14 514

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
323122, PREPRESS SERVICES		323122, PREPRESS SERVICES—Con.	
Companies ¹	number.. 3 199	Value added	\$1,000.. 4 011 156
All establishments	number.. 3 345	Total inventories, beginning of year	\$1,000.. 211 306
Establishments with 1 to 19 employees	number.. 2 675	Finished goods inventories, beginning of year	\$1,000.. 20 492
Establishments with 20 to 99 employees	number.. 586	Work-in-process inventories, beginning of year	\$1,000.. 122 934
Establishments with 100 employees or more	number.. 84	Materials and supplies inventories, beginning of year	\$1,000.. 67 880
All employees	number.. 52 696	Total inventories, end of year	\$1,000.. 207 477
Total compensation ²	\$1,000.. 2 396 504	Finished goods inventories, end of year	\$1,000.. 16 133
Annual payroll	\$1,000.. 2 028 246	Work-in-process inventories, end of year	\$1,000.. 126 192
Total fringe benefits	\$1,000.. 368 258	Materials and supplies inventories, end of year	\$1,000.. 65 152
Production workers, average for year	number.. 37 560	Gross book value of total assets at beginning of year	\$1,000.. 2 134 998
Production workers on March 12	number.. 37 649	Total capital expenditures (new and used)	\$1,000.. 261 184
Production workers on May 12	number.. 37 522	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 20 867
Production workers on August 12	number.. 37 494	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 240 317
Production workers on November 12	number.. 37 575	Total retirements ²	\$1,000.. 68 873
Production-worker hours	1,000.. 73 059	Gross book value of total assets at end of year	\$1,000.. 2 327 309
Production-worker wages	\$1,000.. 1 274 831	Total depreciation during year ²	\$1,000.. 225 839
Total cost of materials	\$1,000.. 996 297	Total rental payments ²	\$1,000.. 167 696
Cost of materials, parts, containers, etc., consumed	\$1,000.. 715 200	Buildings and other structures rental payments ²	\$1,000.. 82 376
Cost of resales	\$1,000.. 102 368	Machinery and equipment rental payments ²	\$1,000.. 85 320
Cost of fuels	\$1,000.. 9 022	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 11 950
Cost of purchased electricity	\$1,000.. 38 665	Response coverage ratio ⁴	percent.. 77
Cost of contract work	\$1,000.. 131 042	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 41 541
Quantity of electricity purchased for heat and power	1,000 kWh.. 552 804	Response coverage ratio ⁴	percent.. 77
Quantity of electricity generated less sold for heat and power	1,000 kWh.. -	Cost of purchased communications services ³	\$1,000.. 24 092
Total value of shipments	\$1,000.. 5 008 554	Response coverage ratio ⁴	percent.. 77
Primary products value of shipments	\$1,000.. 4 662 428	Cost of purchased legal services ³	\$1,000.. 8 739
Secondary products value of shipments	\$1,000.. 165 389	Response coverage ratio ⁴	percent.. 77
Total miscellaneous receipts	\$1,000.. 180 737	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 10 663
Value of resales	\$1,000.. 121 269	Response coverage ratio ⁴	percent.. 77
Contract receipts	\$1,000.. -	Cost of purchased advertising services ³	\$1,000.. 13 212
Other miscellaneous receipts	\$1,000.. 59 468	Response coverage ratio ⁴	percent.. 77
Primary products specialization ratio	percent.. 96	Cost of purchased software and other data processing services ³	\$1,000.. 9 680
Value of primary products shipments made in all industries	\$1,000.. 5 203 557	Response coverage ratio ⁴	percent.. 77
Value of primary products shipments made in this industry	\$1,000.. 4 662 428	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 4 961
Value of primary products shipments made in other industries	\$1,000.. 541 129	Response coverage ratio ⁴	percent.. 77
Coverage ratio	percent.. 89		

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323122, PREPRESS SERVICES												
All establishments	2	3 345	670	52 696	2 028 246	37 560	73 059	1 274 831	4 011 156	996 297	5 008 554	261 184
Establishments with 1 to 4 employees	7	1 604	—	3 216	81 986	2 737	3 983	58 130	166 140	41 802	207 951	9 872
Establishments with 5 to 9 employees	3	616	—	4 118	124 529	3 098	5 226	86 203	260 932	68 501	329 291	17 370
Establishments with 10 to 19 employees	2	455	—	6 255	216 904	4 538	8 428	143 905	425 988	111 811	537 010	26 342
Establishments with 20 to 49 employees	1	429	429	13 261	534 167	9 000	17 950	323 954	1 024 486	270 320	1 294 420	71 337
Establishments with 50 to 99 employees	2	157	157	10 959	473 625	7 775	15 912	290 451	919 596	225 098	1 146 180	61 941
Establishments with 100 to 249 employees	3	73	73	10 049	427 532	6 742	13 993	260 189	883 309	215 738	1 098 671	57 850
Establishments with 250 to 499 employees	2	9	9	D	D	D	D	D	D	D	D	D
Establishments with 500 to 999 employees	—	2	2	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	1 568	—	4 076	90 624	3 292	4 334	63 818	179 263	43 239	222 250	10 685

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
323122	Prepress services	3 345	52 696	2 028 246	37 560	73 059	1 274 831	4 011 156	996 297	5 008 554	261 184
3231221	Prepress services, except platemaking	1 126	32 945	1 332 843	23 204	46 901	830 257	2 628 766	593 319	3 222 647	178 395
3231223	Printing plates, prepared for printing, excluding blank plates	240	6 651	257 360	4 598	9 164	158 148	501 351	155 309	657 356	30 049

Table 6a. Products Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
323122	Prepress services	N	X	X	5 203 557	N	X	X	N
3231221	Prepress services, except platemaking (including film, assembled flats, color separations, typesetting, imagesetting, etc.)	N	X	X	3 437 926	N	X	X	N
32312211	Prepress services, except platemaking (including film, assembled flats, color separations, typesetting, imagesetting, etc.)	N	X	X	3 437 926	N	X	X	N
3231221100	Prepress services, except platemaking (including film, assembled flats, color separations, typesetting, imagesetting, etc.)	1 813	X	X	3 437 926	N	X	X	N
3231223	Printing plates, prepared for printing, excluding blank plates	N	X	X	650 780	N	X	X	N
32312231	Printing plates, prepared for printing, excluding blank plates	N	X	X	612 577	N	X	X	N
3231223106	Lithographic plates, prepared for printing, excluding blank plates	183	X	X	211 714	N	X	X	N
3231223111	Letterpress plates, prepared for printing, excluding blank plates	33	X	X	13 481	N	X	X	N
3231223116	Flexographic plates, natural and synthetic rubber, prepared for printing, excluding blank plates	69	X	X	86 169	80	X	X	76 377
3231223121	Flexographic plates, photopolymer, prepared for printing, excluding blank plates	117	X	X	176 913	120	X	X	133 069
3231223126	Gravure plates, prepared for printing, excluding blank plates	20	X	X	72 209	25	X	X	S
3231223191	Other printing plates prepared for printing, nec, excluding blank plates	45	X	X	52 091	N	X	X	N
3231223Y	Printing plates, prepared for printing, excluding blank plates, nsk	N	X	X	38 203	N	X	X	N
3231223YVV	Printing plates, prepared for printing, excluding blank plates, nsk	N	X	X	38 203	N	X	X	N
323122W	Prepress services, nsk, total	N	X	X	1 114 851	N	X	X	N
323122WY	Prepress services, nsk, total	N	X	X	1 114 851	N	X	X	N
323122WYWW	Prepress services, nsk, for nonadministrative-record establishments	N	X	X	898 597	N	X	X	N
323122WYWY	Prepress services, nsk, for administrative-record establishments	N	X	X	216 254	N	X	X	N

Additional information is available for this item; see Appendix F.
 @ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.
 \$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231221	PREPRESS SERVICES, EXCEPT PLATEMAKING (INCLUDING FILM, ASSEMBLED FLATS, COLOR SEPARATIONS, TYPESETTING, IMAGESETTING, ETC.)		
	United States	3 437 926	N
	Alabama	8 796	N
	Alaska	2 896	N
	Arizona	52 846	N
	Arkansas	14 318	N
	California	378 741	N
	Colorado	20 667	N
	Connecticut	74 857	N
	Delaware	2 178	N
	District of Columb	26 287	N
	Florida	101 907	N
	Georgia	97 724	N
	Hawaii	6 072	N
	Idaho	2 560	N
	Illinois	421 912	N
	Indiana	31 374	N

See footnotes at end of table.

Table 6b. **Product Class Shipments for Selected States: 1997 and 1992—Con.**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3231221	PREPRESS SERVICES, EXCEPT PLATEMAKING (INCLUDING FILM, ASSEMBLED FLATS, COLOR SEPARATIONS, TYPESETTING, IMAGESETTING, ETC.)—Con.		
	Iowa	21 149	N
	Kansas	26 805	N
	Kentucky	45 045	N
	Louisiana	2 612	N
	Maine	4 487	N
	Maryland	61 374	N
	Massachusetts	70 176	N
	Michigan	123 368	N
	Minnesota	208 319	N
	Missouri	106 129	N
	Nebraska	21 190	N
	Nevada	4 333	N
	New Hampshire	27 187	N
	New Jersey	201 203	N
	New Mexico	2 119	N
	New York	279 760	N
	North Carolina	57 618	N
	Ohio	126 765	N
	Oklahoma	10 479	N
	Oregon	32 376	N
	Pennsylvania	296 955	N
	Rhode Island	5 613	N
	South Carolina	5 912	N
	Tennessee	72 600	N
	Texas	153 943	N
	Utah	13 257	N
	Vermont	5 960	N
	Virginia	29 541	N
	Washington	37 897	N
	Wisconsin	131 719	N
3231223	PRINTING PLATES, PREPARED FOR PRINTING, EXCLUDING BLANK PLATES		
	United States	650 780	N
	Arizona	4 122	N
	California	44 357	N
	Connecticut	25 195	N
	Florida	14 649	N
	Georgia	13 435	N
	Illinois	36 840	N
	Indiana	23 266	N
	Iowa	2 035	N
	Maryland	9 938	N
	Massachusetts	24 176	N
	Michigan	27 892	N
	Minnesota	23 623	N
	Missouri	27 647	N
	New Jersey	27 932	N
	New York	44 220	N
	North Carolina	34 224	N
	Ohio	47 079	N
	Oregon	9 395	N
	Pennsylvania	21 912	N
	South Carolina	18 395	N
	Tennessee	13 476	N
	Texas	14 007	N
	Utah	4 807	N
	Virginia	9 588	N
	Wisconsin	54 492	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
323122	PREPRESS SERVICES				
33100005	Metal for printing plates	X	13 648	X	N
32599201	Unexposed photosensitive printing plates	X	40 813	X	N
32599211	Light sensitive films	X	95 093	X	N
32599213	Light sensitive papers (including photographic paper and diffusion transfer paper)	X	8 446	X	N
33331500	Color proofing materials	X	76 217	X	N
32212001	Paper, all types except light sensitive (including newsprint, book, bond, cover, and coated)	X	35 298	X	N
00970099	All other materials and components, parts, containers, and supplies	X	141 355	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	304 330	X	N

Additional information is available for this item; see Appendix F.

Note: For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity—The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive

stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production Workers

This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It

includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

PRODUCTION-WORKER HOURS

This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used expenditures for (1) permanent additions and major alterations to manufacturing establishments and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1a through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

323122 PREPRESS SERVICES

This U.S. industry comprises (1) establishments primarily engaged in prepress services, such as imagesetting or typesetting, for printers and (2) establishments primarily engaged in preparing film or plates for printing purposes.

The data published with NAICS code 323122 include the following SIC industries:

- 2791 Typesetting
- 2796 Platemaking services

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these

establishments but were included in the product and material “not specified by kind” (nsc) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM).

Approximately 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1997, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3231101.....	27521.....	27521.....	3231113.....	27542.....	27542.....	3231131491 pt.....	3999985.....	3999999 pt.....
3231101111.....	2752112.....	2752112.....	3231113111.....	2754211.....	2754211.....	3231131YVW pt.....	2759800.....	2759800.....
3231101113.....	2752114.....	2752114.....	3231113116.....	2754213.....	2754213.....	3231131YVW pt.....	2771200 pt.....	2771200 pt.....
3231101121.....	2752117.....	2752117.....	3231113121.....	2754215.....	2754215.....	3231131YVW pt.....	3999900 pt.....	3999900 pt.....
3231101YVW.....	2752100.....	2752100.....	3231113126.....	2754217.....	2754217.....			
3231103.....	27522.....	27522.....	3231113231.....	2754232.....	2754232.....	3231133 pt.....	23964.....	23964.....
3231103111.....	2752211.....	2752211.....	3231113236.....	2754237.....	2754237.....	3231133 pt.....	23969.....	93000 pt.....
3231103116.....	2752213.....	2752213.....	3231113YVW.....	2754200.....	2754200.....	3231133111.....	2396435.....	2396434 pt.....
3231103121.....	2752217.....	2752217.....				3231133116.....	2396436.....	2396434 pt.....
3231103126.....	2752220.....	2752220.....	3231115.....	27543.....	27543.....	3231133121.....	2396437.....	2396437.....
3231103131.....	2752234.....	2752234.....	3231115100.....	2754300.....	2754300.....	3231133YVW pt.....	2396400.....	2396400.....
3231103136.....	2752243.....	2752243.....				3231133YVW pt.....	2396900.....	9300000 pt.....
3231103YVW.....	2752200.....	2752200.....	3231117.....	27545.....	27545.....			
3231105.....	27523.....	27523.....	3231117111.....	2754511.....	2754511.....	323113W pt.....	23960 pt.....	23960 pt.....
3231105111.....	2752312.....	2752312.....	3231117116.....	2754545.....	2754545.....	323113W pt.....	27590 pt.....	27590 pt.....
3231105113.....	2752314.....	2752314.....	3231117121.....	2754548.....	2754548.....			
3231105121.....	2752318.....	2752318.....	3231117YVW.....	2754500.....	2754500.....			
3231105126.....	2752324.....	2752324.....	3231119 pt.....	27546.....	27546.....			
3231105128.....	2752326.....	2752326.....	3231119 pt.....	27712 pt.....	27712 pt.....	323113W pt.....	27710 pt.....	27710 pt.....
3231105128.....	2752326.....	2752326.....				323113W pt.....	27710 pt.....	27710 pt.....
3231105YVW.....	2752300.....	2752300.....	3231119 pt.....	39999 pt.....	39999 pt.....	323113WYVW pt.....	2396000 pt.....	2396000 pt.....
3231107.....	27524.....	27524.....	3231119111.....	2754651.....	2754651.....	323113WYVW pt.....	2759000 pt.....	2759000 pt.....
3231107111.....	2752412.....	2752412.....	3231119191 pt.....	2754695.....	2754695.....	323113WYVW pt.....	2771000 pt.....	2771000 pt.....
3231107113.....	2752414.....	2752414.....	3231119191 pt.....	2771203.....	2771203 pt.....	323113WYVW pt.....	3999000 pt.....	3999000 pt.....
3231107121.....	2752416.....	2752416.....	3231119191 pt.....	3999983.....	3999999 pt.....	323113WYVW pt.....	2396002 pt.....	2396002 pt.....
3231107123.....	2752418.....	2752418.....	3231119YVW pt.....	2754600.....	2754600.....	323113WYVW pt.....	2759002 pt.....	2759002 pt.....
3231107131.....	2752421.....	2752421.....	3231119YVW pt.....	2771200 pt.....	2771200 pt.....	323113WYVW pt.....	2771002 pt.....	2771002 pt.....
3231107133.....	2752422.....	2752422.....	3231119YVW pt.....	3999900 pt.....	3999900 pt.....	323113WYVW pt.....	3999002 pt.....	3999002 pt.....
3231107141.....	2752424.....	2752424.....	323111W pt.....	27540.....	27540.....			
3231107143.....	2752426.....	2752426.....	323111W pt.....	27710 pt.....	27710 pt.....	3231140 pt.....	27526 pt.....	27526 pt.....
3231107151.....	2752427.....	2752427.....				3231140 pt.....	27526 pt.....	27526 pt.....
3231107YVW.....	2752400.....	2752400.....	323111W pt.....	39990 pt.....	39990 pt.....	3231140 pt.....	27590 pt.....	27590 pt.....
3231109.....	27525.....	27525.....	323111WYVW pt.....	2754000.....	2754000.....	3231140100 pt.....	2759A pt.....	2759A pt.....
3231109111.....	2752512.....	2752512.....	323111WYVW pt.....	2771000 pt.....	2771000 pt.....	3231140100 pt.....	2752696.....	2752696.....
3231109113.....	2752514.....	2752514.....	323111WYVW pt.....	3999000 pt.....	3999000 pt.....	3231140100 pt.....	2759A12.....	2759A00 pt.....
3231109221.....	2752523.....	2752523.....	323111WYVW pt.....	2754002.....	2754002.....	3231140YVW pt.....	2752000 pt.....	2752000 pt.....
3231109226.....	2752526.....	2752526.....	323111WYVW pt.....	2771002 pt.....	2771002 pt.....	3231140YVW pt.....	2752600 pt.....	2752600 pt.....
3231109228.....	2752528.....	2752528.....	323111WYVW pt.....	3999002 pt.....	3999002 pt.....	3231140YVW pt.....	2759000 pt.....	2759000 pt.....
3231109236.....	2752532.....	2752532.....				3231140YVW pt.....	2759A00 pt.....	2759A00 pt.....
3231109241.....	2752533.....	2752533.....	3231121.....	2759B.....	2759B.....	3231140YVW pt.....	2752002 pt.....	2752002 pt.....
3231109246.....	2752541.....	2752541.....	3231121111.....	2759B14.....	2759B14.....	3231140YVW pt.....	2759002 pt.....	2759002 pt.....
3231109251.....	2752545.....	2752545.....	3231121216.....	2759B16.....	2759B16.....			
3231109256.....	2752552.....	2752552.....	3231121321.....	2759B18.....	2759B18.....			
3231109258.....	2752554.....	2752554.....	3231121426.....	2759B20.....	2759B20.....	3231150 pt.....	27590 pt.....	27590 pt.....
3231109YVW.....	2752500.....	2752500.....	3231121531.....	2759B22.....	2759B22.....	3231150 pt.....	2759A pt.....	2759A pt.....
323110B pt.....	27526 pt.....	27526 pt.....	3231121636.....	2759B26.....	2759B26.....	3231150100.....	2759A14.....	2759A00 pt.....
323110B pt.....	27712 pt.....	27712 pt.....	3231121741.....	2759B28.....	2759B28.....	3231150YVW pt.....	2759000 pt.....	2759000 pt.....
			3231121846.....	2759B30.....	2759B30.....	3231150YVW pt.....	2759A00 pt.....	2759A00 pt.....
			3231121YVW.....	2759B00.....	2759B00.....	3231150YVW.....	2759002 pt.....	2759002 pt.....
323110B pt.....	39999 pt.....	39999 pt.....	3231123 pt.....	2759C.....	2759C.....			
323110B111.....	2752611.....	2752611.....	3231123 pt.....	27712 pt.....	27712 pt.....	3231161.....	27612.....	27612.....
323110B116 pt.....	2752617 pt.....	2752616.....				3231161111.....	2761211.....	2761211.....
323110B116 pt.....	2752617 pt.....	2752618.....	3231123 pt.....	39999 pt.....	39999 pt.....	3231161121.....	2761213.....	2761213.....
323110B121.....	2752621.....	2752621.....	3231123111.....	2759C29.....	2759C29.....	3231161126.....	2761215.....	2761215.....
323110B126.....	2752636.....	2752636.....	3231123116.....	2759C31.....	2759C31.....	3231161231.....	2761253.....	2761253.....
323110B128.....	2752638.....	2752638.....	3231123221.....	2759C32.....	2759C32.....	3231161336.....	2761255.....	2761255.....
323110B136.....	2752644.....	2752644.....	3231123226.....	2759C33.....	2759C33.....	3231161441.....	2761261.....	2761261.....
323110B141.....	2752647.....	2752647.....	3231123231.....	2759C35.....	2759C34 pt.....	3231161YVW.....	2761200.....	2761200.....
323110B146.....	2752651.....	2752651.....	3231123236.....	2759C36.....	2759C36.....			
323110B151.....	2752677.....	2752677.....	3231123291 pt.....	2759C38.....	2759C38.....	3231163.....	27613.....	27613.....
			3231123291 pt.....	2771207.....	2771200 pt.....	3231163111.....	2761311.....	2761311.....
323110B156.....	2752683.....	2752683.....	3231123291 pt.....	3999982.....	3999999 pt.....	3231163116.....	2761313.....	2761313.....
323110B161.....	2752684.....	2752684.....	3231123YVW pt.....	2759C00.....	2759C00.....	3231163YVW.....	2761300.....	2761300.....
323110B166.....	2752692.....	2752692.....	3231123YVW pt.....	2771200 pt.....	2771200 pt.....			
323110B168.....	2752694.....	2752694.....	3231123YVW pt.....	3999900 pt.....	3999900 pt.....			
323110B176.....	2752695.....	2752695.....				3231165.....	27615.....	27615.....
323110B181 pt.....	2771200 pt.....	2771200 pt.....	323112W pt.....	27590 pt.....	27590 pt.....	3231165111.....	2761531.....	2761531.....
323110B181 pt.....	2771201.....	2771200 pt.....	323112W pt.....	27710 pt.....	27710 pt.....	3231165116.....	2761535.....	2761535.....
323110B191 pt.....	2752697 pt.....	2752671 pt.....				3231165121.....	2761541.....	2761541.....
323110B191 pt.....	2752697 pt.....	2752697 pt.....	323112W pt.....	39990 pt.....	39990 pt.....	3231165126.....	2761543.....	2761543.....
323110B191 pt.....	3999984.....	3999999 pt.....	323112WYVW pt.....	2759000 pt.....	2759000 pt.....	3231165131.....	2761545.....	2761545.....
			323112WYVW pt.....	2771000 pt.....	2771000 pt.....	3231165236.....	2761555.....	2761555.....
323110B193 pt.....	2752699 pt.....	2752671 pt.....	323112WYVW pt.....	3999000 pt.....	3999000 pt.....	3231165241.....	2761561.....	2761561.....
323110B193 pt.....	2752699 pt.....	2752699 pt.....	323112WYVW pt.....	2759002 pt.....	2759002 pt.....	3231165346.....	2761563.....	2761563.....
323110BYVW pt.....	2752600 pt.....	2752600 pt.....	323112WYVW pt.....	2771002 pt.....	2771002 pt.....	3231165451.....	2761565.....	2761565.....
323110BYVW pt.....	2771200 pt.....	2771200 pt.....	323112WYVW pt.....	3999002 pt.....	3999002 pt.....	3231165YVW.....	2761500.....	2761500.....
323110BYVW pt.....	3999900 pt.....	3999900 pt.....						
323110W pt.....	27520 pt.....	27520 pt.....	3231131 pt.....	27598.....	27598.....	3231167.....	27617.....	27617.....
323110W pt.....	27710 pt.....	27710 pt.....	3231131 pt.....	27712 pt.....	27712 pt.....	3231167111.....	2761761.....	2761761.....
						3231167116.....	2761763.....	2761763.....
323110WYVW pt.....	39990 pt.....	39990 pt.....	3231131 pt.....	39999 pt.....	39999 pt.....	3231167121.....	2761765.....	2761765.....
323110WYVW pt.....	2752000 pt.....	2752000 pt.....	3231131111.....	2759811.....	2759811.....	3231167126.....	2761773.....	2761773.....
323110WYVW pt.....	2771000 pt.....	2771000 pt.....	3231131116.....	2759813.....	2759813.....	3231167131.....	2761775.....	2761775.....
323110WYVW pt.....	3999000 pt.....	3999000 pt.....	3231131121.....	2759815.....	2759815.....	3231167YVW.....	2761700.....	2761700.....
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1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
323116W pt.....	27820 pt.....	27820 pt.....	3231191.....	27591.....	27591.....	323119W pt.....	39999 pt.....	39999 pt.....
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3231183YVV.....	2782500.....	2782500.....	323119W pt.....	39990 pt.....	39990 pt.....	323122WYVV.....	2796002.....	2796002.....
323118W.....	27820 pt.....	27820 pt.....						
323118WYVV.....	2782000 pt.....	2782000 pt.....						
323118WYVV.....	2782002 pt.....	2782002 pt.....						

