

Automobile Manufacturing

1997

Issued October 1999

EC97M-3361A

1997 Economic Census

Manufacturing

Industry Series



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

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U.S. Department of Commerce
Economics and Statistics Administration
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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336111 371110	Automobile mfg Motor vehicles & car bodies (pt)	174 N	194 194	114 060 114 060	6 411 952 6 411 952	97 979 97 979	197 578 197 578	5 197 210 5 197 210	28 954 639 28 954 639	66 546 225 66 546 225	95 385 563 95 385 563	3 355 800 3 355 800

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)				
336111, AUTOMOBILE MFG												
United States	-	194	72	114 060	6 411 952	97 979	197 578	5 197 210	28 954 639	66 546 225	95 385 563	3 355 800
Arkansas.....	8	6	2	189	3 941	158	310	3 172	8 147	14 927	21 650	467
Illinois	-	12	5	10 179	565 508	9 228	16 563	491 741	2 945 421	6 485 642	9 448 185	207 464

* 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
336111, AUTOMOBILE MFG		336111, AUTOMOBILE MFG—Con.	
Companies ¹	number.. 174	Value added	\$.1,000.. 28 954 639
All establishments	number.. 194	Total inventories, beginning of year	\$.1,000.. 2 186 046
Establishments with 1 to 19 employees	number.. 122	Finished goods inventories, beginning of year	\$.1,000.. 133 552
Establishments with 20 to 99 employees	number.. 31	Work-in-process inventories, beginning of year	\$.1,000.. 509 564
Establishments with 100 employees or more	number.. 41	Materials and supplies inventories, beginning of year	\$.1,000.. 1 542 930
All employees	number.. 114 060	Total inventories, end of year	\$.1,000.. 2 194 169
Total compensation ²	\$.1,000.. 8 991 393	Finished goods inventories, end of year	\$.1,000.. 203 528
Annual payroll	\$.1,000.. 6 411 952	Work-in-process inventories, end of year	\$.1,000.. 554 889
Total fringe benefits	\$.1,000.. 2 579 441	Materials and supplies inventories, end of year	\$.1,000.. 1 435 752
Production workers, average for year	number.. 97 979	Gross book value of total assets at beginning of year	\$.1,000.. 22 016 543
Production workers on March 12	number.. 96 734	Total capital expenditures (new and used)	\$.1,000.. 3 355 800
Production workers on May 12	number.. 99 000	Capital expenditures for buildings and other structures (new and used)	\$.1,000.. 266 940
Production workers on August 12	number.. 97 568	Capital expenditures for machinery and equipment (new and used)	\$.1,000.. 3 088 860
Production workers on November 12	number.. 98 614	Total retirements ²	\$.1,000.. 1 191 224
Production-worker hours	1,000.. 197 578	Gross book value of total assets at end of year	\$.1,000.. 24 181 119
Production-worker wages	\$.1,000.. 5 197 210	Total depreciation during year ²	\$.1,000.. 1 496 521
Total cost of materials	\$.1,000.. 66 546 225	Total rental payments ²	\$.1,000.. 137 750
Cost of materials, parts, containers, etc., consumed	\$.1,000.. 65 504 082	Buildings and other structures rental payments ²	\$.1,000.. 59 519
Cost of resales	\$.1,000.. 600 336	Machinery and equipment rental payments ²	\$.1,000.. 78 231
Cost of fuels	\$.1,000.. 119 930	Cost of purchased services for the repair of buildings and other structures ³	\$.1,000.. 33 803
Cost of purchased electricity	\$.1,000.. 219 480	Response coverage ratio ⁴	percent.. 90
Cost of contract work	\$.1,000.. 102 397	Cost of purchased services for the repair of machinery and equipment ³	\$.1,000.. 234 136
Quantity of electricity purchased for heat and power	1,000 kWh.. 5 198 911	Response coverage ratio ⁴	percent.. 90
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$.1,000.. 43 583
Total value of shipments	\$.1,000.. 95 385 563	Response coverage ratio ⁴	percent.. 90
Primary products value of shipments	\$.1,000.. 89 610 989	Cost of purchased legal services ³	\$.1,000.. 10 649
Secondary products value of shipments	\$.1,000.. 5 074 894	Response coverage ratio ⁴	percent.. 90
Total miscellaneous receipts	\$.1,000.. 699 680	Cost of purchased accounting and bookkeeping services ³	\$.1,000.. 611
Value of resales	\$.1,000.. 659 295	Response coverage ratio ⁴	percent.. 90
Contract receipts	\$.1,000.. D	Cost of purchased advertising services ³	\$.1,000.. 155 497
Other miscellaneous receipts	\$.1,000.. D	Response coverage ratio ⁴	percent.. 90
Primary products specialization ratio	percent.. 94	Cost of purchased software and other data processing services ³	\$.1,000.. 167 197
Value of primary products shipments made in all industries	\$.1,000.. 94 261 862	Response coverage ratio ⁴	percent.. 90
Value of primary products shipments made in this industry	\$.1,000.. 89 610 989	Cost of purchased refuse removal (including hazardous waste) services ³	\$.1,000.. 37 864
Value of primary products shipments made in other industries	\$.1,000.. 4 650 873	Response coverage ratio ⁴	percent.. 90
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)				
336111, AUTOMOBILE MFG												
All establishments	—	194	72	114 060	6 411 952	97 979	197 578	5 197 210	28 954 639	66 546 225	95 385 563	3 355 800
Establishments with 1 to 4 employees	9	92	—	145	3 738	134	181	3 136	14 060	29 031	43 217	957
Establishments with 5 to 9 employees	9	19	—	132	3 944	113	160	3 340	11 928	25 083	37 127	731
Establishments with 10 to 19 employees	8	11	—	152	4 541	124	210	3 395	12 659	24 208	36 952	895
Establishments with 20 to 49 employees	8	19	19	598	18 811	457	776	13 455	61 683	90 140	152 766	3 836
Establishments with 50 to 99 employees	6	12	12	799	26 263	667	1 249	18 595	81 606	111 705	190 155	3 081
Establishments with 100 to 249 employees	4	13	13	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	—	1	1	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	5	5	9 611	520 543	8 144	17 574	420 628	2 469 800	5 507 769	7 967 667	380 620
Establishments with 2,500 employees or more	—	21	21	99 506	5 724 000	86 012	172 491	4 659 283	26 003 892	60 219 872	86 129 408	2 953 651
Administrative records ²	9	69	—	188	5 180	170	226	4 356	19 205	40 212	59 606	1 250

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)				
336111	Automobile mfg	194	114 060	6 411 952	97 979	197 578	5 197 210	28 954 639	66 546 225	95 385 563	3 355 800

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)
336111	Automobiles	N	X	X	94 261 862	N	X	X	N
3361110	Complete passenger vehicles, knockdown or assembled, passenger car chassis, and nonarmored military automobiles	N	X	X	94 261 862	N	X	X	N
33611101	Complete passenger vehicles, knockdown or assembled, passenger car chassis, and nonarmored military automobiles	N	X	X	93 833 362	N	X	X	N
3361110100	Complete passenger vehicles, knockdown or assembled, passenger car chassis, and nonarmored military automobiles	48	X	X	93 833 362	N	X	X	N
3361110Y	Automobile manufacturing, nsk, total	N	X	X	428 500	N	X	X	N
3361110YWW	Automobile manufacturing, nsk, for nonadministrative-record establishments	N	X	X	365 285	N	X	X	N
3361110YWY	Automobile manufacturing, nsk, for administrative-record establishments	N	X	X	63 215	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

[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)
336111	AUTOMOBILE MFG				
33631200	Gasoline engines and parts specially designed for gasoline engines	X	10 536 759	X	N
33361803	Diesel engines and parts specially designed for diesel engines	X	D	X	N
33635007	Drive train components and parts	X	7 620 624	X	N
33621101	Car bodies	X	D	X	N
001900A6	Refrigeration compressors, compressor units, condensing units, and other heat transfer equipment	X	2 026 003	X	N
33633000	Shocks, struts, and other suspension equipment and parts	X	2 341 895	X	N
33639901	Exhaust systems and parts	X	1 130 261	X	N
33351501	Machine tool accessories, including cutting tools	X	D	X	N
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	266 241	X	N
33291207	Fluid power valves (hydraulic and pneumatic)	X	D	X	N
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic)	X	D	X	N
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic)	X	186 439	X	N
33399901	Fluid power filters (hydraulic and pneumatic)	X	D	X	N
00190089	Other fluid power products (hydraulic and pneumatic)	X	335 400	X	N
33637000	Automotive stampings (including body parts, hubcaps, fenders, etc.)	X	7 117 895	X	N
33261100	Steel springs, except wire	X	170 801	X	N
33251011	Motor vehicle metal hardware (lock units, door and window handles, hinges, etc.), except forgings	X	1 060 386	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	574 259	X	N
33200049	Other fabricated metal products, except forgings	X	1 084 143	X	N
33210001	Forgings	X	D	X	N
33100035	Castings (rough and semifinished)	X	64 250	X	N
33100033	Metal shapes and forms, except castings, forgings, and fabricated metal products	X	D	X	N
33299101	Ball and roller bearings (mounted or unmounted)	X	65 814	X	N
32621003	Pneumatic tires and inner tubes	X	1 284 894	X	N
32622001	Rubber and plastics hose and belting	X	136 216	X	N
32600017	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	X	396 373	X	N
33999103	Gaskets (all types), and packing and sealing devices	X	D	X	N
32610033	Fabricated plastics products, including components, housings, accessories, etc. (except gaskets, hose and belting)	X	681 006	X	N
32720005	Glass and glass products including windows and mirrors	X	1 055 294	X	N
33636003	Seats (purchased separately) for automobiles, trucks, and buses	X	2 536 052	X	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)
336111	AUTOMOBILE MFG—Con.				
33636007	Seat covers, seat belts, and shoulder harnesses	X	399 926	X	N
33639911	Automotive air bag assemblies and parts thereof	X	1 097 884	X	N
33636001	Automotive trimmings, textile (panels, headliners, etc.)	X	1 949 771	X	N
31411003	Carpeting	X	258 784	X	N
32700035	Ceramic and ceramic composite parts, components, and accessories	X	D	X	N
32552003	Glues and adhesives	X	240 620	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	605 840	X	N
33632200	Engine electrical equipment, including spark plugs, magnetos, generators, starters, etc.	X	1 217 588	X	N
33632100	Motor vehicle lighting fixtures (including headlights, taillights, running lights, and dome fixtures; except auto lamps)	X	976 009	X	N
33511003	Automotive lamps (bulbs and sealed beams)	X	483 231	X	N
33591103	Storage batteries, automotive	X	164 809	X	N
33431001	Automotive radios and loudspeakers	X	1 294 441	X	N
33451400	Motor vehicle clusters, meters, and gauges, except electrical (including speedometers, fuel level)	X	766 210	X	N
001900C1	Semiconductors and related devices and electronic control modules	X	963 257	X	N
33411103	Purchased computers for incorporation into motor vehicles, trucks, or buses	X	D	X	N
00970099	All other materials and components, parts, containers, and supplies	X	11 853 929	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	612 919	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

336111 AUTOMOBILE MANUFACTURING

This U.S. industry comprises establishments primarily engaged in (1) manufacturing complete automobiles (i.e., body and chassis or unibody) or (2) manufacturing automobile chassis only.

The data published with NAICS code 336111 include the following SIC industry:

3711 Motor vehicles and car bodies (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
3361110 pt.....	37110 pt.....	37110 pt	336211W pt.....	37110 pt.....	37110 pt	3363121.....	37142 pt.....	37142 pt
3361110 pt.....	37111 pt.....	37111 pt	336211W pt.....	37130.....	37130	3363121101.....	3714201.....	3714201
3361110 pt.....	37114 pt.....	37114 pt	336211W pt.....	37140 pt.....	37140 pt	3363121224.....	3714218.....	3714218
3361110100 pt.....	3711100 pt.....	3711100 pt	336211WYWW pt.....	3711000 pt.....	3711000 pt	3363121351.....	3714231.....	3714231
3361110100 pt.....	3711111.....	3711111 pt	336211WYWW pt.....	3713000.....	3713000	3363121354.....	3714232.....	3714232
3361110100 pt.....	3711151.....	3711151	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121457.....	3714234.....	3714234
3361110100 pt.....	3711400 pt.....	3711400 pt	336211WYWW pt.....	3711002 pt.....	3711002 pt	3363121467.....	3714237.....	3714237
3361110100 pt.....	3711403.....	3711400 pt	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121504.....	3714206.....	3714206
3361110YWW.....	3711000 pt.....	3711000 pt	336211WYWW pt.....	3713002.....	3713002	3363121507.....	3714207.....	3714207
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3714002 pt.....	3714002 pt	3363121511.....	3714208.....	3714208
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3715000.....	3715000	3363121514.....	3714209.....	3714209
3361120 pt.....	37110 pt.....	37110 pt	3362121.....	37151.....	37151	3363121517.....	3714215.....	3714215
3361120 pt.....	37114 pt.....	37114 pt	3362121000.....	3715100.....	3715100	3363121521.....	3714216.....	3714216
3361120 pt.....	37116.....	37116	336212123.....	37152.....	37152	3363121527.....	3714217.....	3714217
3361120100 pt.....	3711405.....	3711400 pt	33621213100.....	3715200.....	3715200	3363121531.....	3714222.....	3714222
3361120100 pt.....	3711400 pt.....	3711400 pt	33621213.....	37152.....	37152	3363121534.....	3714224.....	3714224
3361120100 pt.....	3711600.....	3711600	33621212W.....	37150.....	37150	3363121537.....	3714225.....	3714225
3361120YWW.....	3711000 pt.....	3711000 pt	33621212WYWW.....	3715000.....	3715000	3363121541.....	3714226.....	3714226
3361120YWW.....	3711002 pt.....	3711002 pt	33621212WYWW.....	3715002.....	3715002	3363121544.....	3714227.....	3714227
3361201 pt.....	37114 pt.....	37114 pt	336212130.....	37160.....	37160	3363121571.....	3714241.....	3714241
3361201 pt.....	37115 pt.....	37117	3362130101.....	3716001.....	3716001	3363121574.....	3714249.....	3714249
3361201100 pt.....	37115 pt.....	37118	3362130104.....	3716005.....	3716005	3363121YVV.....	3714200 pt.....	3714200 pt
3361201100 pt.....	3711407.....	3711400 pt	3362130107.....	3716007.....	3716007	3363123.....	37144 pt.....	37144 pt
3361201100 pt.....	3711400 pt.....	3711400 pt	3362130111.....	3716021.....	3716021	3363123101.....	3714A02.....	3714A02
3361201100 pt.....	3711500 pt.....	3711700	3362130YWW.....	3716000.....	3716000	3363123104.....	3714A03.....	3714A03
3361201100 pt.....	3711500 pt.....	3711800	3362130YWW.....	3716002.....	3716002	3363123107.....	3714A23.....	3714A23
3361202 pt.....	37114 pt.....	37114 pt	3362141.....	37921.....	37921	3363123111.....	3714A25.....	3714A25
3361202 pt.....	37119.....	37119	3362141101.....	3792112.....	3792112	3363123121.....	3714A43.....	3714A41 pt
3361202100 pt.....	3711409.....	3711400 pt	3362141104.....	3792114.....	3792114	3363123YVV.....	3714A00 pt.....	3714A00 pt
3361202100 pt.....	3711400 pt.....	3711400 pt	3362141207.....	3792116.....	3792116	336312W.....	37140 pt.....	37140 pt
3361202100 pt.....	3711900.....	3711900	3362141311.....	3792118.....	3792118	336312WYWW.....	3714000 pt.....	3714000 pt
3361203.....	37113.....	37113	3362141311.....	3792118.....	3792118	336312WYWW.....	3714002 pt.....	3714002 pt
3361203101.....	3711304.....	3711304	3362141413.....	3792125.....	3792125	3363210.....	36470.....	36470
3361203104.....	3711303.....	3711303	3362141516.....	3792128.....	3792128	3363210100.....	3647000 pt.....	3647000 pt
3361203YVV.....	3711300.....	3711300	3362141YVV.....	3792100.....	3792100	3363210YWW.....	3647000 pt.....	3647000 pt
336120W.....	37110 pt.....	37110 pt	3362143.....	37996.....	37996	3363210YWW.....	3647002.....	3647002
336120WYWW.....	3711000 pt.....	3711000 pt	3362143101.....	3799611.....	3799601 pt	3363221.....	36941.....	36941
336120WYWW.....	3711002 pt.....	3711002 pt	3362143105.....	3799613.....	3799602 pt	3363221101.....	3694101.....	3694101
3362111 pt.....	37111 pt.....	37111 pt	3362143108.....	3799615.....	3799604 pt	3363221104.....	3694102.....	3694102
3362111 pt.....	37131.....	37131	3362143111.....	3799617.....	3799607 pt	3363221201.....	3694103.....	3694103
3362111 pt.....	37149 pt.....	37149 pt	3362143114.....	3799619.....	3799609 pt	3363221204.....	3694104.....	3694104
3362111101.....	3713101.....	3713101	3362143117.....	3799651 pt.....	3799601 pt	3363221YVV.....	3694100.....	3694100
3362111204.....	3713102.....	3713102	3362143117 pt.....	3799651 pt.....	3799602 pt	3363223.....	36942.....	36942
3362111307.....	3713112.....	3713112	3362143117 pt.....	3799651 pt.....	3799604 pt	3363223101.....	3694201.....	3694201
3362111411.....	3713115.....	3713115	3362143117 pt.....	3799651 pt.....	3799607 pt	3363223104.....	3694202.....	3694202
3362111413.....	3713116.....	3713116	3362143117 pt.....	3799651 pt.....	3799609 pt	3363223201.....	3694203.....	3694203
3362111416.....	3713117.....	3713117	3362143117 pt.....	3799651 pt.....	3799609 pt	3363223204.....	3694204.....	3694204
3362111519.....	3713121.....	3713121	3362143YVV.....	3799600.....	3799600	3363223YVV.....	3694200.....	3694200
3362111522.....	3713131.....	3713131	3362145.....	37922.....	37922	3363225.....	36943.....	36943
3362111525.....	3713132.....	3713132	3362145101.....	3792242.....	3792242	3363225101.....	3694301.....	3694301
3362111528.....	3713135.....	3713135	3362145204.....	3792244.....	3792244	3363225104.....	3694302.....	3694302
3362111531.....	3713139.....	3713139	3362145207.....	3792247.....	3792247	3363225201.....	3694303.....	3694303
3362111534.....	3713143.....	3713143	3362145311 pt.....	3792268 pt.....	3792261	3363225YVV.....	3694300.....	3694300
3362111537.....	3713153.....	3713153	3362145311 pt.....	3792268 pt.....	3792263	3363227.....	36944.....	36944
3362111541.....	3713155.....	3713155	3362145311 pt.....	3792268 pt.....	3792269	3363227100.....	3694400.....	3694400
3362111543.....	3713161.....	3713161	3362145YVV.....	3792200.....	3792200	3363229.....	36947.....	36947
3362111546.....	3713162.....	3713162	336214W pt.....	37920.....	37920	3363229101.....	3694701.....	3694701
3362111549.....	3713163.....	3713163	336214WYVV.....	3792000.....	3792000	3363229201.....	3694711.....	3694711
3362111552.....	3711171.....	3711171	336214WYWW pt.....	3792000 pt.....	3792000 pt	3363229301.....	3694702.....	3694702
3362111555.....	3711181.....	3711181 pt	336214WYWW pt.....	3792002.....	3792002	3363229304.....	3694704.....	3694704
3362111558.....	3714925.....	3714925	336214WYWW pt.....	3799002 pt.....	3799002 pt	3363229307.....	3694705.....	3694705
3362111571 pt.....	3713171.....	3713171	3363111.....	35921.....	35921	3363229309.....	3694719.....	3694719
3362111YVV pt.....	3714924.....	3714941 pt	3363111101.....	3592101.....	3592101	3363229YVV.....	3694700.....	3694700
3362111YVV pt.....	3711100 pt.....	3711100 pt	3363111103.....	3592102.....	3592102	336322A.....	36949.....	36949
3362111YVV pt.....	3713100.....	3713100	3363111105.....	3592103.....	3592103	336322A101.....	3694901.....	3694901
3362111YVV pt.....	3714900 pt.....	3714900 pt	3363111207.....	3592105.....	3592105	336322A204.....	3694907.....	3694907
3362113 pt.....	37114 pt.....	37114 pt	3363111YVV.....	3592100.....	3592100	336322A307.....	3694911.....	3694911
3362113 pt.....	37132.....	37132	3363113.....	35922.....	35922	336322A409.....	3694912.....	3694912
3362113101.....	3713201.....	3713201	3363113101.....	3592201.....	3592201	336322A512.....	3694913.....	3694913
3362113219.....	3713225.....	3713225	3363113103.....	3592202.....	3592202	336322A615.....	3694919.....	3694919
3362113304.....	3713211.....	3713211	3363113105.....	3592203.....	3592203	336322AYVV.....	3694900.....	3694900
3362113307.....	3713213.....	3713213	3363113205.....	3592204.....	3592204	336322C pt.....	36799 pt.....	36799 pt
3362113311.....	3713215.....	3713215	3363113207.....	3592204.....	3592204	336322C pt.....	37149 pt.....	37149 pt
3362113313.....	3713217.....	3713217	3363113209.....	3592205.....	3592205	336322C pt.....	3714A pt.....	3714A pt
3362113316.....	3713218.....	3713218	3363113211.....	3592206.....	3592206	336322C102.....	3714913.....	3714913
3362113322.....	3713226.....	3713226	3363113313.....	3592209.....	3592209	336322C104.....	3714914.....	3714914
3362113325.....	3713227.....	3713227	3363113YVV.....	3592200.....	3592200	336322C107.....	3714915.....	3714915
3362113328.....	3713241.....	3713239 pt	3363115.....	35923.....	35923	336322C111 pt.....	3714921.....	3714917
3362113331 pt.....	3711411.....	3711400 pt	3363115101.....	3592301.....	3592301	336322C111 pt.....	3714921 pt.....	3714941 pt
3362113331 pt.....	3713243.....	3713239 pt	3363115103.....	3592302.....	3592302	336322C114.....	3714942.....	3714904 pt
3362113YVV pt.....	3711400 pt.....	3711400 pt	3363115YVV.....	3592300.....	3592300	336322C117.....	3714944.....	3714904 pt
3362113YVV pt.....	3713200.....	3713200	336311W.....	35920.....	35920	336322C119.....	3679926.....	3679920 pt
			336311WYVV.....	3592000.....	3592000	336322C121.....	3714945.....	3714941 pt
			336311WYVV.....	3592002.....	3592002	336322C122.....	3714946.....	3714941 pt
						336322C124.....	3714A05.....	3714A41 pt
						336322C127.....	3714A40.....	3714A41 pt

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127307	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	3364127YVW	3724400	3724400
3363301YVW pt	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412W	37240	37240
3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	336391B000	3585B00	3585400 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131111	3728261	3728261
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585000 pt	3585000 pt	3364131YVW	3728200	3728200
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364133	37283	37283
3363401 pt	32922	32922	336391WYVW	3585000 pt	3585000 pt	3364133101	3728313	3728313
3363401 pt	37148	37148	336391WYVW	3585002 pt	3585002 pt	3364133104	3728315	3728315
3363401 pt	37149 pt	37149 pt	3363991	37144	37144	3364133YVW	3728300	3728300
3363401101	3714801	3714801	3363991101	3714401	3714401	3364135	37285	37285
3363401104	3714802	3714802	3363991104	3714402	3714402	3364135101	3728513	3728513
3363401211	3714807	3714807	3363991107	3714404	3714404	3364135104	3728515	3728515
3363401313	3714809	3714809	3363991111	3714405	3714405	3364135207	3728594	3728594
3363401416	3714811	3714811	3363991113	3714407	3714407	3364135211	3728595	3728595
3363401519	3714813	3714813	3363991116	3714408	3714408	3364135313	3728598	3728598
3363401625	3714817	3714817	3363991119	3714409	3714409	3364135416	3728599	3728599
3363401707	3714803	3714803	3363991YVW	3714400	3714400	3364135YVW	3728500	3728500
3363401722	3714815	3714815	3363993	37145	37145	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363993101	3714501	3714501	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363993104	3714502	3714502	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363993107	3714503	3714503	3364141	37611	37611
3363401745	3714912	3714912	3363993YVW	3714500	3714500	3364141100	3761100	3761100
3363401747 pt	3292200 pt	3292200 pt	3363995	37147	37147	3364143	37613	37613
3363401747 pt	3292200 pt	3292211 pt	3363995101	3714701	3714701	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292215 pt	3363995104	3714705	3714705	3364145	37616	37616
3363401747 pt	3292200 pt	3292221 pt	3363995107	3714707	3714707	3364145100	3761600	3761600
3363401747 pt	3292200 pt	3292258 pt	3363995111	3714714	3714714	3364147	37612	37612
3363401747 pt	3714827	3714827	3363995YVW	3714700	3714700	3364147101	3761201	3761201
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	35199 pt	35199 pt	3364147204	3761202	3761202
3363401YVW pt	3714800	3714800	3363997 pt	37142 pt	37142 pt	3364147YVW	3761200	3761200
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A101	3761702	3761702
3363403114	3714A35	3714A35	3363997101	3714901	3714901	336414A104	3761703	3761703
3363403117	3714A37	3714A37	3363997204	3714902	3714902	336414AYVW	3761700	3761700
3363403114	3714A37	3714A37	3363997307	3714903	3714903	336414W	37610	37610
3363403121	3714A44	3714A41 pt	3363997401	3714235	3714235	336414WYVW	3761000	3761000
3363403YVW	3714A00 pt	3714A00 pt	3363997405	3714236	3714236	336414WYVW	3761002	3761002
336340W pt	32920 pt	32920 pt	3363997409	3519987	3519987	3364151	37645	37645
336340W pt	37140 pt	37140 pt	3363997514	3714909	3714909	3364151101	3764511	3764511
336340WYVW pt	3292000 pt	3292000 pt	3363997524	3714916	3714916	3364151204	3764513	3764513
336340WYVW pt	3714000 pt	3714000 pt	3363997527	3714922	3714922	3364151307	3764515	3764515
336340WYVW pt	3292002 pt	3292002 pt	3363997531	3714923	3714923	3364151YVW	3764500	3764500
336340WYVW pt	3714002 pt	3714002 pt	3363997534	3714931	3714931	3364153	37646	37646
3363501	37146	37146	3363997551	3714951	3714941 pt	3364153101	3764611	3764611
3363501101	3714603	3714603	3363997554	3714A52	3714A41 pt	3364153104	3764613	3764613
3363501104	3714605	3714605	3363997YVW pt	3519900 pt	3519900 pt	3364153107	3764615	3764615
3363501207	3714613	3714613	3363997YVW pt	3714200 pt	3714200 pt	3364153YVW	3764600	3764600
3363501211	3714615	3714615	3363997YVW pt	3714900 pt	3714900 pt	3364155	37647	37647
3363501313	3714623	3714623	3363997YVW pt	3714A00 pt	3714A00 pt	3364155101	3764711	3764711
3363501316	3714625	3714625	336399W pt	35190 pt	35190 pt	3364155104	3764713	3764713
3363501434	3714641	3714641	336399W pt	37140 pt	37140 pt	3364155107	3764715	3764715
3363501519	3714628	3714628	336399WYVW pt	3519002 pt	3519002 pt	3364155YVW	3764700	3764700
3363501522	3714631	3714631	336399WYVW pt	3714002 pt	3714002 pt	3364157	37648	37648
3363501525	3714633	3714633	3364111	37211	37211	3364157101	3764811	3764811
3363501528	3714635	3714635	3364111100	3721100	3721100	3364157104	3764813	3764813
3363501531	3714637	3714637	3364113	37215	37215	3364157107	3764815	3764815
3363501537	3714643	3714643	3364113000	3721500	3721500	3364157YVW	3764800	3764800
3363501541	3714649	3714649	3364115	37217	37217	336415W	37640	37640
3363501YVW	3714600	3714600	3364115101	3721711	3721711	336415WYVW	3764000	3764000
3363503	3714A pt	3714A pt	3364115104	3721751	3721751	336415W		

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3364191	37692	37692	3366115	37313	37313	3366127119	3732719	3732719
336419101	3769211	3769211	3366115101	3731315	3731315	3366127YVW	3732700	3732700
336419104	3769213	3769213	3366115107	3731335	3731335	336612W	37320 pt	37320 pt
3364191207	3769219	3769219	3366115111	3731343	3731343	336612WYVW	3732000 pt	3732000 pt
3364191311	3769225	3769225	3366115113	3731348	3731348	336612WYVWY	3732002 pt	3732002 pt
3364191413	3769235	3769235	3366115116	3731357	3731357	3369911 pt	37511	37511
3364191YVW	3769200	3769200	3366115119	3731321	3731321	3369911 pt	39443 pt	39443 pt
			3366115121	3731332	3731332	3369911101 pt	3751148 pt	3751139
3364193	37694	37694	3366115123	3731333	3731333	3369911101 pt	3751148 pt	3751141
3364193101	3769414	3769414	3366115124 pt	3731361 pt	3731324	3369911101 pt	3751148 pt	3751143
3364193104	3769419	3769419	3366115124 pt	3731361 pt	3731326	3369911101 pt	3751148 pt	3751145
3364193107	3769425	3769425	3366115124 pt	3731361 pt	3731328	3369911101 pt	3751148 pt	3751147
3364193111	3769435	3769435	3366115YVW	3731300	3731300	3369911101 pt	3751148 pt	3751149
3364193YVW	3769400	3769400				3369911101 pt	3751148 pt	3751155
			3366117	37314	37314	3369911104 pt	3751109	3751109
336419W	37690	37690	3366117101	3731441	3731441	3369911104 pt	3944336	3944346 pt
336419WYVW	3769000	3769000	3366117104	3731449	3731449	3369911109	3751110	3751110
336419WYVWY	3769002	3769002	3366117YVW	3731400	3731400	3369911113	3751112	3751112
						3369911116	3751115	3751115
3365101	37431 pt	37431 pt	3366119	37316	37316	3369911119	3751116	3751116
3365101101	3743102	3743101 pt	3366119101	3731601	3731601	3369911122 pt	3751124 pt	3751113
3365101104	3743104	3743101 pt	3366119104	3731602	3731602	3369911122 pt	3751124 pt	3751114
3365101107	3743105	3743101 pt	3366119YVW	3731600	3731600	3369911122 pt	3751124 pt	3751123
3365101111	3743113	3743103 pt				3369911YVW pt	3751100	3751100
3365101YVW	3743100 pt	3743100 pt	336611W	37310	37310	3369911YVWY pt	3944300 pt	3944300 pt
			336611WYVW	3731000	3731000	3369913	37512	37512
3365103	37432	37432	336611WYVWY	3731002	3731002	3369913100 pt	3751200 pt	3751200
3365103100	3743200 pt	3743200				3369913100 pt	3751200 pt	3751201
3365103100 pt	3743200 pt	3743211	3366121	37322	37322	3369913100 pt	3751200 pt	3751209
3365103100 pt	3743200 pt	3743215	3366121101	3732201	3732201	3369919W pt	37510	37510
3365103100 pt	3743200 pt	3743235	3366121104	3732211	3732211	3369919W pt	39440 pt	39440 pt
3365103100 pt	3743200 pt	3743241	3366121107	3732211	3732211	3369919WYVW pt	3751000	3751000
3365103100 pt	3743200 pt	3743265	3366121111	3732207	3732207	3369919WYVWY pt	3751002	3751002
			3366121113	3732209	3732219 pt	3369919WYVWY pt	3944002 pt	3944002 pt
3365105 pt	3531X pt	3531M pt	3366121116	3732210	3732219 pt	3369920 pt	37110 pt	37110 pt
			3366121119	3732220	3732219 pt	3369920 pt	37114 pt	37114 pt
3365105 pt	3531X pt	3531P pt	3366121225	3732221	3732221	3369920111	37950	37950
			3366121225	3732223	3732223	3369920111	3795001	3795001
			3366121228	3732225	3732225	3369920214	3795051	3795051
						3369920216	3711401	3711400 pt
3365105 pt	37433	37433	3366121231	3732227	3732227	3369920217	3795098	3795098
3365105301	3743301	3743301	3366121234	3732226	3732229 pt	3369920219	3711000 pt	3711000 pt
3365105304	3743305	3743305	3366121239	3732222	3732229 pt	3369920YVW pt	3711400 pt	3711400 pt
3365105405	3531X21	3531P21	3366121243	3732224	3732229 pt	3369920YVWY pt	3795000	3795000
3365105407	3743304	3743304	3366121246	3732231	3732229 pt	3369920YVWY pt	3711002 pt	3711002 pt
3365105411	3743311	3743311	3366121248	3732228	3732228	3369920YVWY pt	3795002	3795002
3365105413	3743312	3743312	3366121337	3732228	3732228	3369991	37993	37993
3365105416	3743314	3743314	3366121YVW	3732200	3732200	3369991101	3799382	3799382
3365105419 pt	3531X80	3531M21 pt				3369991104	3799384	3799384
3365105419 pt	3743319	3743319	3366123	37323	37323	3369991YVW	3799300	3799300
3365105YVW pt	3531X00 pt	3531M00 pt	3366123104	3732311	3732311	3369993	37999 pt	37999 pt
3365105YVWY pt	3531X00 pt	3531P00 pt	3366123107	3732316	3732316	3369993101	3799903	3799903
3365105YVWY pt	3743300	3743300	3366123201	3732304	3732304	3369993204	3799904	3799904
			3366123211	3732321	3732321	3369993307	3799905	3799905
			3366123YVW	3732300	3732300	3369993414	3799916	3799923 pt
336510W pt	35310 pt	35310 pt				3369993417	3799915	3799923 pt
			3366125	37324	37324	3369993421	3799920	3799923 pt
336510W pt	37430 pt	37430 pt	3366125107	3732405	3732405	3369993513	3799925	3799925
336510WYVW pt	3531000 pt	3531000 pt	3366125201	3732401	3732401	3369993YVW	3799900 pt	3799900 pt
336510WYVWY pt	3743000 pt	3743000 pt	3366125204	3732403	3732403	3369999W	37990 pt	37990 pt
336510WYVWY pt	3531002 pt	3531002 pt	3366125211	3732406	3732409 pt	3369999WYVW	3799000 pt	3799000 pt
336510WYVWY pt	3743002 pt	3743002 pt	3366125213 pt	3732408 pt	3732407	3369999WYVWY	3799002 pt	3799002 pt
			3366125213 pt	3732408 pt	3732409 pt			
			3366125YVW	3732400	3732400			
3366111	37311	37311						
3366111101	3731111	3731111	3366127	37327	37327			
3366111104	3731107	3731107	3366127101	3732702	3732702			
3366111107	3731119	3731119	3366127104	3732704	3732704			
3366111YVW	3731100	3731100	3366127107	3732706	3732706			
			3366127111	3732708	3732708			
			3366127113	3732712	3732712			
3366113	37312	37312	3366127116	3732717	3732717			
3366113100	3731200	3731200						

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1997 Economic Census

Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336112	Light truck & utility vehicle mfg	85	112	94 033	5 361 980	86 451	180 313	4 739 558	39 539 827	70 927 268	110 400 169	1 769 649
371120	Motor vehicles & car bodies (pt)	N	112	94 033	5 361 980	86 451	180 313	4 739 558	39 539 827	70 927 268	110 400 169	1 769 649

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)				
336112, LIGHT TRUCK & UTILITY VEHICLE MFG												
United States	-	112	40	94 033	5 361 980	86 451	180 313	4 739 558	39 539 827	70 927 268	110 400 169	1 769 649
Michigan	-	9	6	19 961	1 165 146	18 522	35 813	1 038 985	7 226 491	13 996 599	21 218 617	406 747

* 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
336112, LIGHT TRUCK & UTILITY VEHICLE MFG		336112, LIGHT TRUCK & UTILITY VEHICLE MFG— Con.	
Companies ¹	85	Value added	\$1,000.. 39 539 827
All establishments	112	Total inventories, beginning of year	\$1,000.. 1 413 737
Establishments with 1 to 19 employees	72	Finished goods inventories, beginning of year	\$1,000.. 113 544
Establishments with 20 to 99 employees	5	Work-in-process inventories, beginning of year	\$1,000.. 765 216
Establishments with 100 employees or more	35	Materials and supplies inventories, beginning of year	\$1,000.. 534 977
All employees	94 033	Total inventories, end of year	\$1,000.. 1 617 154
Total compensation ²	7 626 695	Finished goods inventories, end of year	\$1,000.. 134 554
Annual payroll	5 361 980	Work-in-process inventories, end of year	\$1,000.. 811 132
Total fringe benefits	2 264 715	Materials and supplies inventories, end of year	\$1,000.. 671 468
Production workers, average for year	86 451	Gross book value of total assets at beginning of year	\$1,000.. 14 449 398
Production workers on March 12	85 611	Total capital expenditures (new and used)	\$1,000.. 1 769 649
Production workers on May 12	85 415	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 230 265
Production workers on August 12	86 524	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 1 539 384
Production workers on November 12	88 254	Total retirements ²	\$1,000.. 910 507
Production-worker hours	180 313	Gross book value of total assets at end of year	\$1,000.. 15 308 540
Production-worker wages	4 739 558	Total depreciation during year ²	\$1,000.. 917 139
Total cost of materials	\$1,000.. 70 927 268	Total rental payments ²	\$1,000.. 28 969
Cost of materials, parts, containers, etc., consumed	\$1,000.. 70 512 604	Buildings and other structures rental payments ²	\$1,000.. 8 126
Cost of resales	\$1,000.. D	Machinery and equipment rental payments ²	\$1,000.. 20 843
Cost of fuels	\$1,000.. 134 026	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. S
Cost of purchased electricity	\$1,000.. 195 978	Response coverage ratio ⁴	percent.. S
Cost of contract work	\$1,000.. D	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. S
Quantity of electricity purchased for heat and power	1,000 kWh.. 4 080 165	Response coverage ratio ⁴	percent.. S
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. S
Total value of shipments	\$1,000.. 110 400 169	Response coverage ratio ⁴	percent.. S
Primary products value of shipments	\$1,000.. D	Cost of purchased legal services ³	\$1,000.. S
Secondary products value of shipments	\$1,000.. D	Response coverage ratio ⁴	percent.. S
Total miscellaneous receipts	\$1,000.. D	Cost of purchased accounting and bookkeeping services ³	\$1,000.. S
Value of resales	\$1,000.. D	Response coverage ratio ⁴	percent.. S
Contract receipts	\$1,000.. -	Cost of purchased advertising services ³	\$1,000.. S
Other miscellaneous receipts	\$1,000.. D	Response coverage ratio ⁴	percent.. S
Primary products specialization ratio	percent.. D	Cost of purchased software and other data processing services ³	\$1,000.. S
Value of primary products shipments made in all industries	\$1,000.. 106 354 200	Response coverage ratio ⁴	percent.. S
Value of primary products shipments made in this industry	\$1,000.. D	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. S
Value of primary products shipments made in other industries	\$1,000.. D	Response coverage ratio ⁴	percent.. S
Coverage ratio	percent.. D		

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)
336112, LIGHT TRUCK & UTILITY VEHICLE MFG												
All establishments	-	112	40	94 033	5 361 980	86 451	180 313	4 739 558	39 539 827	70 927 268	110 400 169	1 769 649
Establishments with 1 to 4 employees	9	48	-	83	2 218	79	111	1 866	8 343	17 667	26 092	547
Establishments with 5 to 9 employees	9	16	-	109	3 073	93	150	2 588	11 659	24 476	36 153	759
Establishments with 10 to 19 employees	9	8	-	95	3 117	72	120	2 214	13 313	21 300	31 715	666
Establishments with 20 to 49 employees	3	3	3	96	2 440	82	113	1 947	10 290	14 943	25 641	471
Establishments with 50 to 99 employees	-	2	2	D	D	D	D	D	D	D	D	D
Establishments with 100 to 249 employees	-	2	2	D	D	D	D	D	D	D	D	D
Establishments with 250 to 499 employees	-	4	4	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	-	8	8	16 230	907 277	14 694	31 810	786 734	6 103 552	10 200 804	16 246 714	D
Establishments with 2,500 employees or more	-	19	19	73 774	4 293 115	68 592	143 203	3 838 938	32 736 634	59 258 372	92 009 260	1 400 596
Administrative records ²	9	33	-	126	3 142	110	184	2 646	11 831	25 025	36 964	775

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)				
336112	Light truck & utility vehicle mfg	112	94 033	5 361 980	86 451	180 313	4 739 558	39 539 827	70 927 268	110 400 169	1 769 649

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)
336112	Light trucks and utility vehicles	N	X	X	106 354 200	N	X	X	N
3361120	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 14,000 lb or less, including minivans and sport utility vehicles	N	X	X	106 354 200	N	X	X	N
33611201	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 14,000 lb or less, including minivans and sport utility vehicles	N	X	X	106 249 956	N	X	X	N
3361120100	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 14,000 lb or less, including minivans and sport utility vehicles	19	X	X	106 249 956	N	X	X	N
3361120Y	Light truck and utility vehicle manufacturing, nsk, total	N	X	X	104 244	N	X	X	N
3361120YWW	Light truck and utility vehicle manufacturing, nsk, for nonadministrative-record establishments	N	X	X	68 212	N	X	X	N
3361120YWY	Light truck and utility vehicle manufacturing, nsk, for administrative-record establishments	N	X	X	36 032	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)
336112	LIGHT TRUCK & UTILITY VEHICLE MFG				
33631200	Gasoline engines and parts specially designed for gasoline engines	X	10 867 605	X	N
33361803	Diesel engines and parts specially designed for diesel engines	X	D	X	N
33635007	Drive train components and parts	X	13 051 022	X	N
33621101	Car bodies	X	D	X	N
001900A6	Refrigeration compressors, compressor units, condensing units, and other heat transfer equipment	X	1 811 803	X	N
33633000	Shocks, struts, and other suspension equipment and parts	X	3 601 787	X	N
33639901	Exhaust systems and parts	X	1 291 015	X	N
33351501	Machine tool accessories, including cutting tools	X	D	X	N
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	156 967	X	N
33291207	Fluid power valves (hydraulic and pneumatic)	X	D	X	N
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic)	X	D	X	N
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic)	X	D	X	N
33399901	Fluid power filters (hydraulic and pneumatic)	X	D	X	N
00190089	Other fluid power products (hydraulic and pneumatic)	X	D	X	N
33637000	Automotive stampings (including body parts, hubcaps, fenders, etc.)	X	9 707 741	X	N
33261100	Steel springs, except wire	X	732 197	X	N
33251011	Motor vehicle metal hardware (lock units, door and window handles, hinges, etc.), except forgings	X	D	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	1 179 160	X	N
33200049	Other fabricated metal products, except forgings	X	1 278 150	X	N
33210001	Forgings	X	D	X	N
33100035	Castings (rough and semifinished)	X	-	X	N
33100033	Metal shapes and forms, except castings, forgings, and fabricated metal products	X	D	X	N
33299101	Ball and roller bearings (mounted or unmounted)	X	15 593	X	N
32621003	Pneumatic tires and inner tubes	X	2 139 371	X	N
32622001	Rubber and plastics hose and belting	X	D	X	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)
336112	LIGHT TRUCK & UTILITY VEHICLE MFG—Con.				
32600017	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	X	D	X	N
33999103	Gaskets (all types), and packing and sealing devices	X	D	X	N
32610033	Fabricated plastics products, including components, housings, accessories, etc. (except gaskets, hose and belting)	X	308 198	X	N
32720005	Glass and glass products including windows and mirrors	X	1 323 694	X	N
33636003	Seats (purchased separately) for automobiles, trucks, and buses	X	2 955 253	X	N
33636007	Seat covers, seat belts, and shoulder harnesses	X	545 257	X	N
33639911	Automotive air bag assemblies and parts thereof	X	1 045 713	X	N
33636001	Automotive trimmings, textile (panels, headliners, etc.)	X	2 414 163	X	N
31411003	Carpeting	X	363 298	X	N
32700035	Ceramic and ceramic composite parts, components, and accessories	X	—	X	N
32552003	Glues and adhesives	X	310 254	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	969 805	X	N
33632200	Engine electrical equipment, including spark plugs, magnetos, generators, starters, etc.	X	740 224	X	N
33632100	Motor vehicle lighting fixtures (including headlights, taillights, running lights, and dome fixtures; except auto lamps)	X	D	X	N
33511003	Automotive lamps (bulbs and sealed beams)	X	492 774	X	N
33591103	Storage batteries, automotive	X	162 297	X	N
33431001	Automotive radios and loudspeakers	X	1 516 452	X	N
33451400	Motor vehicle clusters, meters, and gauges, except electrical (including speedometers, fuel level)	X	D	X	N
33411103	Purchased computers for incorporation into motor vehicles, trucks, or buses	X	D	X	N
001900C1	Semiconductors and related devices and electronic control modules	X	D	X	N
00970099	All other materials and components, parts, containers, and supplies	X	2 610 796	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	2 139 811	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

336112 LIGHT TRUCK AND UTILITY VEHICLE MANUFACTURING

This U.S. industry comprises establishments primarily engaged in (1) manufacturing complete light trucks and utility vehicles (i.e., body and chassis) or (2) manufacturing light truck and utility vehicle chassis only. Vehicles made include light duty vans, pick-up trucks, minivans, and sport utility vehicles.

The data published with NAICS code 336112 include the following SIC industry:

3711 Motor vehicles and car bodies (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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121547	3714227	3714227
3361201 pt.	37114 pt.	37114 pt.	33621213100	3715200	3715200	3363121571	3714241	3714241
3361201 pt.	37115 pt.	37117	33621213100	3715200	3715200	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37118	33621213100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201100 pt.	3711407	3711400 pt.	3362130	37160	37160	3363123	37144 pt.	37144 pt.
3361201100 pt.	3711400 pt.	3711400 pt.	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711400 pt.	3711400 pt.	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711700	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361201100 pt.	3711500 pt.	3711800	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361202 pt.	37114 pt.	37114 pt.	3362130YWW	3716002	3716002	3363123YWW	3714A00 pt.	3714A00 pt.
3361202 pt.	37119	37119	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711409	3711400 pt.	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361202100 pt.	3711900	3711900	3362141207	3792116	3792116	3363210	36470	36470
3361203	37113	37113	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203101	3711304	3711304	3362141311	3792118	3792118	3363210YWW	3647000 pt.	3647000 pt.
3361203104	3711303	3711303	3362141413	3792125	3792125	3363210YWW	3647002	3647002
3361203YWW	3711300	3711300	3362141516	3792128	3792128	3363221	36941	36941
336120W	37110 pt.	37110 pt.	3362141YWW	3792100	3792100	3363221101	3694101	3694101
336120WYWW	3711000 pt.	3711000 pt.	3362143	37996	37996	3363221104	3694102	3694102
336120WYWW	3711002 pt.	3711002 pt.	3362143101	3799611	3799601 pt.	3363221201	3694103	3694103
3362111 pt.	37111 pt.	37111 pt.	3362143108	3799615	3799604 pt.	3363221204	3694104	3694104
3362111 pt.	37131	37131	3362143111	3799617	3799607 pt.	3363221YWW	3694100	3694100
3362111 pt.	37149 pt.	37149 pt.	3362143114	3799619	3799609 pt.	3363223	36942	36942
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363223101	3694201	3694201
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799604 pt.	3363223104	3694202	3694202
3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223201	3694203	3694203
3362111411	3713115	3713115	3362143117 pt.	3799651 pt.	3799609 pt.	3363223204	3694204	3694204
3362111413	3713116	3713116	3362143YWW	3799600	3799600	3363223YWW	3694200	3694200
3362111416	3713117	3713117	3362145	37922	37922	3363225	36943	36943
3362111519	3713121	3713121	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111522	3713131	3713131	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111525	3713132	3713132	3362145207	3792247	3792247	3363225201	3694303	3694303
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792261	3363225YWW	3694300	3694300
3362111531	3713139	3713139	3362145311 pt.	3792268 pt.	3792263	3363227	36944	36944
3362111534	3713143	3713143	3362145311 pt.	3792268 pt.	3792269	3363227100	3694400	3694400
3362111537	3713153	3713153	3362145YWW	3792200	3792200	3363229	36947	36947
3362111541	3713155	3713155	336214W pt.	37920	37920	3363229101	3694701	3694701
3362111543	3713161	3713161	336214W pt.	37990	37990	3363229201	3694711	3694711
3362111546	3713162	3713162	336214WYWW pt.	3792000	3792000	3363229301	3694702	3694702
3362111549	3713163	3713163	336214WYWW pt.	3792000 pt.	3792000 pt.	3363229304	3694704	3694704
3362111552	3711171	3711171	336214WYWW pt.	3792002	3792002	3363229307	3694705	3694705
3362111555	3711181	3711181 pt.	336214WYWW pt.	3799002 pt.	3799002 pt.	3363229309	3694719	3694719
3362111558	3714925	3714925	3363111	35921	35921	3363229YWW	3694700	3694700
3362111571 pt.	3713171	3713171	3363111101	3592101	3592101	336322A	36949	36949
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111103	3592102	3592102	336322A101	3694901	3694901
3362111YWW pt.	3713100	3713100	3363111105	3592103	3592103	336322A204	3694907	3694907
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111207	3592105	3592105	336322A307	3694911	3694911
3362113 pt.	37114 pt.	37114 pt.	3363111YWW	3592100	3592100	336322A409	3694912	3694912
3362113 pt.	37132	37132	3363113	35922	35922	336322A512	3694913	3694913
3362113101	3713201	3713201	3363113101	3592201	3592201	336322A615	3694919	3694919
3362113219	3713225	3713225	3363113103	3592202	3592202	336322AYWW	3694900	3694900
3362113304	3713211	3713211	3363113205	3592203	3592203	336322C pt.	36799 pt.	36799 pt.
3362113307	3713213	3713213	3363113207	3592204	3592204	336322C pt.	37149 pt.	37149 pt.
3362113311	3713215	3713215	3363113209	3592205	3592205	336322C pt.	37144 pt.	37144 pt.
3362113313	3713217	3713217	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113316	3713218	3713218	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113322	3713226	3713226	3363113YWW	3592200	3592200	336322C107	3714915	3714915
3362113325	3713227	3713227	3363115	35923	35923	336322C111 pt.	3714921	3714921
3362113328	3713241	3713239 pt.	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714921 pt.
3362113331 pt.	3711411	3711400 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113331 pt.	3713243	3713239 pt.	3363115YWW	3592300	3592300	336322C117	3714944	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	336311W	35920	35920	336322C119	3679926	3679920 pt.
3362113YWW pt.	3713200	3713200	336311WYWW	3592000	3592000	336322C121	3714945	3714941 pt.
			336311WYWW	3592002	3592002	336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

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336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	3363505W	3714000 pt	3714000 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	3363506WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
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336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
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336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
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336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
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3363301 pt	37142 pt	37142 pt	3363606W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	3363606W pt	25310 pt	25310 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	3363606WYVW pt	2396000 pt	2396000 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	3363606WYVW pt	2399000 pt	2399000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	3363606WYVW pt	2531000 pt	2531000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	3363606WYVW pt	2396002 pt	2396002 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	3363606WYVW pt	2399002 pt	2399002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	3363606WYVW pt	2531002 pt	2531002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	3363700	34650	34650	3364127104	3724402	3724402
3363301524	3714919	3714941 pt	3363700100	3465000 pt	3465000 pt	3364127204	3724402	3724402
3363301526	3714228	3714228	3363700YVW	3465000 pt	3465000 pt	3364127307	3724405	3724405
3363301528	3714911	3714911	3363700YVW	3465002	3465002	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363917	35857	35851 pt	3364127YVW	3724400	3724400
3363301YVW pt	3714200 pt	3714200 pt	3363917010	3585705	3585100 pt	336412W	37240	37240
3363301YVW pt	3714900 pt	3714900 pt	3363917020	3585707	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917030	3585719	3585100 pt	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917YVW	3585700	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	336391B	3585B	35854 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B000	3585B00	3585400 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	336391W	35850 pt	35850 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	336391WYVW	3585000 pt	3585000 pt	3364131111	3728261	3728261
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364131YVW	3728200	3728200
336330WYVW	3714002 pt	3714002 pt	3363991	37144	37144	3364133	37283	37283
3363401 pt	32922	32922	3363991101	3714401	3714401	3364133101	3728313	3728313
3363401 pt	37148	37148	3363991104	3714402	3714402	3364133104	3728315	3728315
3363401 pt	37149 pt	37149 pt	3363991107	3714404	3714404	3364133YVW	3728300	3728300
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3363401104	3714802	3714802	3363991113	3714407	3714407	3364135101	3728513	3728513
3363401211	3714807	3714807	3363991116	3714408	3714408	3364135104	3728515	3728515
3363401313	3714809	3714809	3363991119	3714409	3714409	3364135207	3728594	3728594
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3363401519	3714813	3714813	3363993101	3714501	3714501	3364135313	3728598	3728598
3363401625	3714817	3714817	3363993104	3714502	3714502	3364135416	3728599	3728599
3363401707	3714803	3714803	3363993107	3714503	3714503	3364135YVW	3728500	3728500
3363401722	3714815	3714815	3363993YVW	3714500	3714500	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363995	37147	37147	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363995101	3714701	3714701	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363995104	3714705	3714705	3364141	37611	37611
3363401745	3714912	3714912	3363995107	3714707	3714707	3364141100	3761100	3761100
3363401747 pt	3292200 pt	3292200 pt	3363995111	3714714	3714714	3364143	37613	37613
3363401747 pt	3292200 pt	3292211 pt	3363995YVW	3714700	3714700	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292215 pt	3363997 pt	35199 pt	35199 pt	3364145	37616	37616
3363401747 pt	3292200 pt	3292221 pt	3363997 pt	37142 pt	37142 pt	3364145100	3761600	3761600
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3363401747 pt	3292200 pt	3292258 pt	3363997 pt	37149 pt	37149 pt	3364147101	3761201	3761201
3363401747 pt	3714827	3714827	3363997 pt	37149 pt	37149 pt	3364147204	3761202	3761202
3363401747 pt	3292200 pt	3292200 pt	3363997 pt	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363401YVW pt	3714800	3714800	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	336414A101	3761702	3761702
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A104	3761703	3761703
3363403114	3714A35	3714A35	3363997 pt	37149 pt	37149 pt	336414AYVW	3761700	3761700
3363403117	3714A37	3714A37	3363997 pt	37149 pt	37149 pt	336414W	37610	37610
3363403121	3714A44	3714A41 pt	3363997 pt	37149 pt	37149 pt	336414WYVW	3761000	3761000
3363403YVW	3714A00 pt	3714A00 pt	3363997 pt	37149 pt	37149 pt	336414WYVW	3761002	3761002
336340W pt	32920 pt	32920 pt	3363997 pt	37149 pt	37149 pt	3364151	37645	37645
336340W pt	37140 pt	37140 pt	3363997 pt	37149 pt	37149 pt	3364151101	3764511	3764511
336340WYVW pt	3292000 pt	3292000 pt	3363997 pt	37149 pt	37149 pt	3364151204	3764513	3764513
336340WYVW pt	3714000 pt	3714000 pt	3363997 pt	37149 pt	37149 pt	3364151307	3764515	3764515
336340WYVW pt	3292002 pt	3292002 pt	3363997 pt	37149 pt	37149 pt	3364151YVW	3764500	3764500
336340WYVW pt	3714002 pt	3714002 pt	3363997 pt	37149 pt	37149 pt	3364153	37646	37646
3363501	37146	37146	3363997 pt	37149 pt	37149 pt	3364153101	3764611	3764611
3363501101	3714603	3714603	3363997 pt	37149 pt	37149 pt	3364153104	3764613	3764613
3363501104	3714605	3714605	3363997 pt	37149 pt	37149 pt	3364153107	3764615	3764615
3363501207	3714613	3714613	3363997 pt	37149 pt	37149 pt	3364153YVW	3764600	3764600
3363501211	3714615	3714615	3363997 pt	37149 pt	37149 pt	3364155	37647	37647
3363501313	3714623	3714623	3363997 pt	37149 pt	37149 pt	3364155101	3764711	3764711
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3363501434	3714641	3714641	3363997 pt	37149 pt	37149 pt	3364155107	3764715	3764715
3363501519	3714628	3714628	3363997 pt	37149 pt	37149 pt	3364155YVW	3764700	3764700
3363501522	3714631	3714631	3363997 pt	37149 pt	37149 pt	3364157	37648	37648
3363501525	3714633	3714633	3363997 pt	37149 pt	37149 pt	3364157101	3764811	3764811
3363501528	3714635	3714635	3363997 pt	37149 pt	37149 pt	3364157104	3764813	3764813
3363501531	3714637	3714637	3363997 pt	37149 pt	37149 pt	3364157107	3764815	3764815
3363501537	3714643	3714643	3363997 pt	37149 pt	37149 pt	3364157YVW	3764800	3764800
3363501541	3714649	3714649	3363997 pt	37149 pt	37149 pt	336415W	37640	37640
3363501YVW	3714600	3714600	3363997 pt	37149 pt	37149 pt	336415WYVW	3764000	3764000
3363503	3714A pt	3714A pt	3363997 pt					

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336419101	3769211	3769211	3366115101	3731315	3731315	3366127YVW	3732700	3732700
336419104	3769213	3769213	3366115107	3731335	3731335	336612W	37320 pt	37320 pt
3364191207	3769219	3769219	3366115111	3731343	3731343	336612WYVW	3732000 pt	3732000 pt
3364191311	3769225	3769225	3366115113	3731348	3731348	336612WYVWY	3732002 pt	3732002 pt
3364191413	3769235	3769235	3366115116	3731357	3731357	3369911 pt	37511	37511
3364191YVW	3769200	3769200	3366115119	3731321	3731321	3369911 pt	39443 pt	39443 pt
			3366115121	3731332	3731332	3369911101 pt	3751148 pt	3751139
3364193	37694	37694	3366115123	3731333	3731333	3369911101 pt	3751148 pt	3751141
3364193101	3769414	3769414	3366115124 pt	3731361 pt	3731324	3369911101 pt	3751148 pt	3751143
3364193104	3769419	3769419	3366115124 pt	3731361 pt	3731326	3369911101 pt	3751148 pt	3751145
3364193107	3769425	3769425	3366115124 pt	3731361 pt	3731328	3369911101 pt	3751148 pt	3751147
3364193111	3769435	3769435	3366115YVW	3731300	3731300	3369911101 pt	3751148 pt	3751149
3364193YVW	3769400	3769400				3369911101 pt	3751148 pt	3751155
			3366117	37314	37314	3369911104 pt	3751109	3751109
336419W	37690	37690	3366117101	3731441	3731441	3369911104 pt	3944336	3944346 pt
336419WYVW	3769000	3769000	3366117104	3731449	3731449	3369911109	3751110	3751110
336419WYVWY	3769002	3769002	3366117YVW	3731400	3731400	3369911113	3751112	3751112
						3369911116	3751115	3751115
3365101	37431 pt	37431 pt	3366119	37316	37316	3369911119	3751116	3751116
3365101101	3743102	3743101 pt	3366119101	3731601	3731601	3369911122 pt	3751124 pt	3751113
3365101104	3743104	3743101 pt	3366119104	3731602	3731602	3369911122 pt	3751124 pt	3751114
3365101107	3743105	3743101 pt	3366119YVW	3731600	3731600	3369911122 pt	3751124 pt	3751123
3365101111	3743113	3743103 pt	336611W	37310	37310	3369911YVW pt	3751100	3751100
3365101YVW	3743100 pt	3743100 pt	336611WYVW	3731000	3731000	3369911YVWY pt	3944300 pt	3944300 pt
			336611WYVWY	3731002	3731002	3369913	37512	37512
3365103	37432	37432	3366121	37322	37322	3369913100 pt	3751200 pt	3751200
3365103100	3743200 pt	3743200	3366121101	3732201	3732201	3369913100 pt	3751200 pt	3751201
3365103100 pt	3743200 pt	3743211	3366121104	3732202	3732202	3369913100 pt	3751200 pt	3751209
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3365103100 pt	3743200 pt	3743235	3366121111	3732207	3732207	3369919 pt	39440 pt	39440 pt
3365103100 pt	3743200 pt	3743241	3366121113	3732209	3732219 pt	3369919YVW pt	3751000	3751000
3365103100 pt	3743200 pt	3743265	3366121116	3732210	3732219 pt	3369919YVWY pt	3944000 pt	3944000 pt
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3365105 pt	3531X pt	3531M pt	3366121225	3732221	3732221	3369919YVWY pt	3944002 pt	3944002 pt
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3365105416	3743314	3743314	3366121YVW	3732200	3732200	3369920YVWY pt	3795002	3795002
3365105419 pt	3531X80	3531M21 pt	3366123	37323	37323	3369991	37993	37993
3365105419 pt	3743319	3743319	3366123104	3732311	3732311	3369991101	3799382	3799382
3365105YVW pt	3531X00 pt	3531M00 pt	3366123107	3732316	3732316	3369991104	3799384	3799384
3365105YVW pt	3531X00 pt	3531P00 pt	3366123201	3732304	3732304	3369991YVW	3799300	3799300
3365105YVW pt	3743300	3743300	3366123211	3732321	3732321	3369993	37999 pt	37999 pt
			3366123YVW	3732300	3732300	3369993101	3799903	3799903
336510W pt	35310 pt	35310 pt	3366125	37324	37324	3369993204	3799904	3799904
			3366125107	3732405	3732405	3369993307	3799905	3799905
336510WYVW pt	3531000 pt	3531000 pt	3366125201	3732401	3732401	3369993414	3799916	3799923 pt
336510WYVW pt	3743000 pt	3743000 pt	3366125204	3732403	3732403	3369993417	3799915	3799923 pt
336510WYVWY pt	3531002 pt	3531002 pt	3366125211	3732406	3732409 pt	3369993421	3799920	3799923 pt
336510WYVWY pt	3743002 pt	3743002 pt	3366125213 pt	3732408 pt	3732407	3369993513	3799925	3799925
			3366125213 pt	3732408 pt	3732409 pt	3369993YVW	3799900 pt	3799900 pt
3366111	37311	37311	3366125YVW	3732400	3732400	3369999W	37990 pt	37990 pt
3366111101	3731111	3731111				3369999YVW	3799000 pt	3799000 pt
3366111104	3731107	3731107	3366127	37327	37327	3369999YVWY	3799002 pt	3799002 pt
3366111107	3731119	3731119	3366127101	3732702	3732702			
3366111YVW	3731100	3731100	3366127104	3732704	3732704			
			3366127107	3732706	3732706			
			3366127111	3732708	3732708			
3366113	37312	37312	3366127113	3732712	3732712			
3366113100	3731200	3731200	3366127116	3732717	3732717			

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1997 Economic Census

Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336120	Heavy duty truck mfg	75	84	28 214	1 190 164	22 925	45 604	935 193	4 205 792	10 306 435	14 490 344	120 735
371130	Motor vehicles & car bodies (pt)	N	84	28 214	1 190 164	22 925	45 604	935 193	4 205 792	10 306 435	14 490 344	120 735

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)
336120, HEAVY DUTY TRUCK MFG												
United States	-	84	41	28 214	1 190 164	22 925	45 604	935 193	4 205 792	10 306 435	14 490 344	120 735
Michigan	1	4	1	121	4 004	77	174	2 316	12 237	33 184	44 375	156

* 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
336120, HEAVY DUTY TRUCK MFG		336120, HEAVY DUTY TRUCK MFG—Con.	
Companies ¹	number.. 75	Value added	\$.1,000.. 4 205 792
All establishments	number.. 84	Total inventories, beginning of year	\$.1,000.. 664 285
Establishments with 1 to 19 employees	number.. 43	Finished goods inventories, beginning of year	\$.1,000.. 99 924
Establishments with 20 to 99 employees	number.. 13	Work-in-process inventories, beginning of year	\$.1,000.. 197 574
Establishments with 100 employees or more	number.. 28	Materials and supplies inventories, beginning of year	\$.1,000.. 366 787
All employees	number.. 28 214	Total inventories, end of year	\$.1,000.. 761 975
Total compensation ²	\$.1,000.. 1 624 764	Finished goods inventories, end of year	\$.1,000.. 126 366
Annual payroll	\$.1,000.. 1 190 164	Work-in-process inventories, end of year	\$.1,000.. 193 015
Total fringe benefits	\$.1,000.. 434 600	Materials and supplies inventories, end of year	\$.1,000.. 442 594
Production workers, average for year	number.. 22 925	Gross book value of total assets at beginning of year	\$.1,000.. 1 808 792
Production workers on March 12	number.. 21 979	Total capital expenditures (new and used)	\$.1,000.. 120 735
Production workers on May 12	number.. 22 392	Capital expenditures for buildings and other structures (new and used)	\$.1,000.. 20 869
Production workers on August 12	number.. 23 597	Capital expenditures for machinery and equipment (new and used)	\$.1,000.. 99 866
Production workers on November 12	number.. 23 732	Total retirements ²	\$.1,000.. 27 502
Production-worker hours	1,000.. 45 604	Gross book value of total assets at end of year	\$.1,000.. 1 902 025
Production-worker wages	\$.1,000.. 935 193	Total depreciation during year ²	\$.1,000.. 130 551
Total cost of materials	\$.1,000.. 10 306 435	Total rental payments ²	\$.1,000.. 36 203
Cost of materials, parts, containers, etc., consumed	\$.1,000.. 10 130 962	Buildings and other structures rental payments ²	\$.1,000.. 11 928
Cost of resales	\$.1,000.. 112 147	Machinery and equipment rental payments ²	\$.1,000.. 24 275
Cost of fuels	\$.1,000.. 12 369	Cost of purchased services for the repair of buildings and other structures ³	\$.1,000.. 7 520
Cost of purchased electricity	\$.1,000.. 26 358	Response coverage ratio ⁴	percent.. 78
Cost of contract work	\$.1,000.. 24 599	Cost of purchased services for the repair of machinery and equipment ³	\$.1,000.. 26 625
Quantity of electricity purchased for heat and power	1,000 kWh.. 499 687	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.. 3 165
Total value of shipments	\$.1,000.. 14 490 344	Response coverage ratio ⁴	percent.. 78
Primary products value of shipments	\$.1,000.. 14 097 091	Cost of purchased legal services ³	\$.1,000.. 3 425
Secondary products value of shipments	\$.1,000.. 241 614	Response coverage ratio ⁴	percent.. 78
Total miscellaneous receipts	\$.1,000.. 151 639	Cost of purchased accounting and bookkeeping services ³	\$.1,000.. 1 453
Value of resales	\$.1,000.. 145 349	Response coverage ratio ⁴	percent.. 78
Contract receipts	\$.1,000.. -	Cost of purchased advertising services ³	\$.1,000.. 3 609
Other miscellaneous receipts	\$.1,000.. 6 290	Response coverage ratio ⁴	percent.. 78
Primary products specialization ratio	percent.. 98	Cost of purchased software and other data processing services ³	\$.1,000.. 8 122
Value of primary products shipments made in all industries	\$.1,000.. 16 824 522	Response coverage ratio ⁴	percent.. 78
Value of primary products shipments made in this industry	\$.1,000.. 14 097 091	Cost of purchased refuse removal (including hazardous waste) services ³	\$.1,000.. 5 328
Value of primary products shipments made in other industries	\$.1,000.. 2 727 431	Response coverage ratio ⁴	percent.. 78
Coverage ratio	percent.. 83		

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)
336120, HEAVY DUTY TRUCK MFG												
All establishments	-	84	41	28 214	1 190 164	22 925	45 604	935 193	4 205 792	10 306 435	14 490 344	120 735
Establishments with 1 to 4 employees	8	24	-	56	1 670	48	66	1 408	6 831	14 286	21 105	445
Establishments with 5 to 9 employees	9	9	-	57	1 749	48	66	1 447	6 642	13 579	20 329	427
Establishments with 10 to 19 employees	9	10	-	140	3 806	122	149	3 206	13 481	28 505	42 104	886
Establishments with 20 to 49 employees	-	8	8	278	8 199	219	369	5 410	15 554	31 986	50 428	481
Establishments with 50 to 99 employees	4	5	5	396	10 435	345	640	8 449	31 524	99 432	130 520	1 584
Establishments with 100 to 249 employees	4	6	6	838	25 896	641	1 163	18 428	68 531	155 029	219 448	3 027
Establishments with 250 to 499 employees	2	5	5	1 592	52 580	1 191	2 282	33 698	98 248	201 886	291 984	2 844
Establishments with 500 to 999 employees	2	6	6	4 384	177 157	3 704	7 649	143 531	859 544	1 609 101	2 464 200	44 696
Establishments with 1,000 to 2,499 employees	-	10	10	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	9	32	-	173	5 272	149	207	4 441	19 858	41 990	62 024	1 304

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)				
336120	Heavy duty truck mfg	84	28 214	1 190 164	22 925	45 604	935 193	4 205 792	10 306 435	14 490 344	120 735
3361201	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 14,001 to 33,000 lb	6	D	D	D	D	D	D	D	D	D
3361202	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 33,001 lb or more	17	16 427	702 836	13 474	26 797	567 909	2 765 301	7 126 208	9 884 396	85 561
3361203	Buses, including military and firefighting vehicles (chassis of own manufacture)	19	D	D	D	D	D	D	D	D	D

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)
336120	Heavy duty trucks and buses	N	X	X	16 824 522	N	X	X	N
3361201	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 14,001 to 33,000 lb	N	X	X	4 152 281	N	X	X	N
33612011	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 14,001 to 33,000 lb	N	X	X	4 152 281	N	X	X	N
3361201100	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 14,001 to 33,000 lb	14	X	X	4 152 281	N	X	X	N
3361202	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 33,001 lb or more	N	X	X	11 171 520	N	X	X	N
33612021	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 33,001 lb or more	N	X	X	11 171 520	N	X	X	N
3361202100	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 33,001 lb or more	16	X	X	11 171 520	N	X	X	N
3361203	Buses, including military and firefighting vehicles (chassis of own manufacture)	N	X	X	1 425 986	N	X	X	1 177 229
33612031	Buses, including military and firefighting vehicles (chassis of own manufacture)	N	X	X	1 425 986	N	X	X	N
3361203101	Buses, including military (except trolley buses) (chassis of own manufacture)	14	X	X	1 266 690	11	X	X	920 181
3361203104	Firefighting vehicles (chassis of own manufacture)	13	X	X	159 296	11	X	X	115 403
3361203Y	Buses, including military and firefighting vehicles (chassis of own manufacture), nsk	N	X	X	-	N	X	X	N
3361203YWW	Buses, including military and firefighting vehicles (chassis of own manufacture), nsk	N	X	X	-	N	X	X	141 645
336120W	Heavy-duty trucks, nsk, total	N	X	X	74 735	N	X	X	N
336120WY	Heavy duty truck manufacturing, nsk, total	N	X	X	74 735	N	X	X	N
336120WYWW	Heavy duty truck manufacturing, nsk, for nonadministrative-record establishments	N	X	X	14 279	N	X	X	N
336120WYWY	Heavy duty truck manufacturing, nsk, for administrative-record establishments	N	X	X	60 456	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
3361201	TRUCKS, TRUCK TRACTORS, AND BUS CHASSIS (CHASSIS OF OWN MANUFACTURE) 14,001 TO 33,000 LB		
	United States	4 152 281	N
3361202	TRUCKS, TRUCK TRACTORS, AND BUS CHASSIS (CHASSIS OF OWN MANUFACTURE) 33,001 LB OR MORE		
	United States	11 171 520	N
3361203	BUSES, INCLUDING MILITARY AND FIREFIGHTING VEHICLES (CHASSIS OF OWN MANUFACTURE)		
	United States	1 425 986	1 177 229
	Ohio	61 961	223 102

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)
336120	HEAVY DUTY TRUCK MFG				
33631200	Gasoline engines and parts specially designed for gasoline engines	X	D	X	N
33361803	Diesel engines and parts specially designed for diesel engines	X	1 179 562	X	N
33635007	Drive train components and parts	X	724 290	X	N
33621101	Car bodies	X	D	X	N
001900A6	Refrigeration compressors, compressor units, condensing units, and other heat transfer equipment	X	55 155	X	N
33633000	Shocks, struts, and other suspension equipment and parts	X	60 031	X	N
33639901	Exhaust systems and parts	X	13 728	X	N
33351501	Machine tool accessories, including cutting tools	X	82	X	N
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	16 435	X	N
33291207	Fluid power valves (hydraulic and pneumatic)	X	1 299	X	N
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic)	X	1 424	X	N
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic)	X	4 451	X	N
33399901	Fluid power filters (hydraulic and pneumatic)	X	1 542	X	N
00190089	Other fluid power products (hydraulic and pneumatic)	X	D	X	N
33637000	Automotive stampings (including body parts, hubcaps, fenders, etc.)	X	108 060	X	N
33261100	Steel springs, except wire	X	D	X	N
33251011	Motor vehicle metal hardware (lock units, door and window handles, hinges, etc.), except forgings	X	26 541	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	38 803	X	N
33200049	Other fabricated metal products, except forgings	X	38 085	X	N
33210001	Forgings	X	D	X	N
33100035	Castings (rough and semifinished)	X	D	X	N
33100033	Metal shapes and forms, except castings, forgings, and fabricated metal products	X	15 674	X	N
33299101	Ball and roller bearings (mounted or unmounted)	X	D	X	N
32621003	Pneumatic tires and inner tubes	X	68 458	X	N
32622001	Rubber and plastics hose and belting	X	4 964	X	N
32600017	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	X	D	X	N
33999103	Gaskets (all types), and packing and sealing devices	X	D	X	N
32610033	Fabricated plastics products, including components, housings, accessories, etc. (except gaskets, hose and belting)	X	8 844	X	N
32720005	Glass and glass products including windows and mirrors	X	15 660	X	N
33636003	Seats (purchased separately) for automobiles, trucks, and buses	X	46 582	X	N
33636007	Seat covers, seat belts, and shoulder harnesses	X	D	X	N
33639911	Automotive air bag assemblies and parts thereof	X	D	X	N
33636001	Automotive trimmings, textile (panels, headliners, etc.)	X	32 360	X	N
31411003	Carpeting	X	D	X	N
32700035	Ceramic and ceramic composite parts, components, and accessories	X	-	X	N
32552003	Glues and adhesives	X	D	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	31 429	X	N
33632200	Engine electrical equipment, including spark plugs, magnetos, generators, starters, etc.	X	32 383	X	N
33632100	Motor vehicle lighting fixtures (including headlights, taillights, running lights, and dome fixtures; except auto lamps)	X	8 886	X	N
33511003	Automotive lamps (bulbs and sealed beams)	X	2 193	X	N
33591103	Storage batteries, automotive	X	13 438	X	N
33431001	Automotive radios and loudspeakers	X	10 910	X	N
33451400	Motor vehicle clusters, meters, and gauges, except electrical (including speedometers, fuel level)	X	28 183	X	N
001900C1	Semiconductors and related devices and electronic control modules	X	11 723	X	N
33411103	Purchased computers for incorporation into motor vehicles, trucks, or buses	X	D	X	N
00970099	All other materials and components, parts, containers, and supplies	X	2 069 006	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	5 199 036	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

336120 HEAVY DUTY TRUCK MANUFACTURING

This U.S. industry comprises establishments primarily engaged in (1) manufacturing heavy duty truck chassis and assembling complete heavy duty trucks, buses, heavy duty motor homes, and other special purpose heavy duty

motor vehicles for highway use or (2) manufacturing heavy duty truck chassis only.

The data published with NAICS code 336120 include the following SIC industry:

3711 Motor vehicles and car bodies (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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121507	3714207	3714207
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3715000	3715000	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121547	3714241	3714241
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121574	3714249	3714249
3361201 pt.	37114 pt.	37114 pt.	33621213100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201 pt.	37115 pt.	37117	3362130	37160	37160	3363123	37144 pt.	37144 pt.
3361201 pt.	37115 pt.	37118	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711407	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711400 pt.	3711400 pt.	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711400 pt.	3711400 pt.	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361201100 pt.	3711500 pt.	3711700	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361201100 pt.	3711500 pt.	3711800	3362130YWW	3716002	3716002	3363123YWW	3714A00 pt.	3714A00 pt.
3361202 pt.	37114 pt.	37114 pt.	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202 pt.	37119	37119	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361202100 pt.	3711409	3711400 pt.	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141207	3792116	3792116	3363210	36470	36470
3361202100 pt.	3711900	3711900	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203	37113	37113	3362141311	3792118	3792118	3363210YWW	3647000 pt.	3647000 pt.
3361203101	3711304	3711304	3362141413	3792125	3792125	3363210YWW	3647002	3647002
3361203104	3711303	3711303	3362141516	3792128	3792128	3363221	36941	36941
3361203YWW	3711300	3711300	3362141YWW	3792100	3792100	3363221101	3694101	3694101
336120W	37110 pt.	37110 pt.	3362143	37996	37996	3363221104	3694102	3694102
336120WYWW	3711000 pt.	3711000 pt.	3362143101	3799611	3799601 pt.	3363221201	3694103	3694103
336120WYWW	3711002 pt.	3711002 pt.	3362143108	3799615	3799604 pt.	3363221204	3694104	3694104
3362111 pt.	37111 pt.	37111 pt.	3362143111	3799617	3799607 pt.	3363221YWW	3694100	3694100
3362111 pt.	37131	37131	3362143114	3799619	3799609 pt.	3363223	36942	36942
3362111 pt.	37149 pt.	37149 pt.	3362143117 pt.	3799651 pt.	3799601 pt.	3363223101	3694201	3694201
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363223104	3694202	3694202
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799604 pt.	3363223201	3694203	3694203
3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223204	3694204	3694204
3362111411	3713115	3713115	3362143YWW	3799600	3799609 pt.	3363223YWW	3694200	3694200
3362111413	3713116	3713116	3362145	37922	37922	3363225	36943	36943
3362111416	3713117	3713117	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111519	3713121	3713121	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111522	3713131	3713131	3362145207	3792247	3792247	3363225201	3694303	3694303
3362111525	3713132	3713132	3362145311 pt.	3792268 pt.	3792261	3363225YWW	3694300	3694300
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792263	3363227	36944	36944
3362111531	3713139	3713139	3362145YWW	3792200	3792200	3363227100	3694400	3694400
3362111534	3713143	3713143	336214W pt.	37920	37920	3363229	36947	36947
3362111537	3713153	3713153	336214W pt.	37990 pt.	37990 pt.	3363229101	3694701	3694701
3362111541	3713155	3713155	336214WYWW pt.	3792000	3792000	3363229201	3694711	3694711
3362111543	3713161	3713161	336214WYWW pt.	3792000	3792000	3363229301	3694702	3694702
3362111546	3713162	3713162	336214WYWW pt.	3792002	3792002	3363229304	3694704	3694704
3362111549	3713163	3713163	336214WYWW pt.	3792002	3792002	3363229307	3694705	3694705
3362111552	3711171	3711171	336214WYWW pt.	3799002 pt.	3799002 pt.	3363229309	3694719	3694719
3362111555	3711181	3711181 pt.	3363111	35921	35921	3363229YWW	3694700	3694700
3362111558	3714925	3714925	3363111101	3592101	3592101	336322A	36949	36949
3362111571 pt.	3713171	3713171	3363111103	3592102	3592102	336322A101	3694901	3694901
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111105	3592103	3592103	336322A204	3694907	3694907
3362111YWW pt.	3713100	3713100	3363111207	3592105	3592105	336322A307	3694911	3694911
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111YWW	3592100	3592100	336322A409	3694912	3694912
3362113 pt.	37114 pt.	37114 pt.	3363113	35922	35922	336322A512	3694913	3694913
3362113101	37132	37132	3363113101	3592201	3592201	336322A615	3694919	3694919
3362113219	3713225	3713225	3363113103	3592202	3592202	336322AYWW	3694900	3694900
3362113304	3713211	3713211	3363113205	3592203	3592203	336322C pt.	36799 pt.	36799 pt.
3362113307	3713213	3713213	3363113207	3592204	3592204	336322C pt.	37149 pt.	37149 pt.
3362113311	3713215	3713215	3363113209	3592205	3592205	336322C pt.	37144 pt.	37144 pt.
3362113313	3713217	3713217	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113316	3713218	3713218	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113322	3713226	3713226	3363113YWW	3592200	3592200	336322C107	3714915	3714915
3362113325	3713227	3713227	3363115	35923	35923	336322C111 pt.	3714921	3714917
3362113328	3713241	3713239 pt.	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714917
3362113331 pt.	3711411	3711400 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113331 pt.	3713243	3713239 pt.	3363115YWW	3592300	3592300	336322C117	3714944	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	336311W	35920	35920	336322C119	3679926	3679920 pt.
3362113YWW pt.	3713200	3713200	336311WYWW	3592000	3592000	336322C121	3714945	3714941 pt.
			336311WYWW	3592002	3592002	336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127307	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	3364127YVW	3724400	3724400
3363301YVW pt	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412W	37240	37240
3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	336391B000	3585B00	3585400 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131111	3728261	3728261
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585000 pt	3585000 pt	3364131YVW	3728200	3728200
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364133	37283	37283
3363401 pt	32922	32922	3363991	37144	37144	3364133101	3728313	3728313
3363401 pt	37148	37148	3363991101	3714401	3714401	3364133104	3728315	3728315
3363401 pt	37149 pt	37149 pt	3363991104	3714402	3714402	3364133YVW	3728300	3728300
3363401101	3714801	3714801	3363991107	3714403	3714403	3364135	37285	37285
3363401104	3714802	3714802	3363991111	3714405	3714405	3364135101	3728513	3728513
3363401211	3714807	3714807	3363991113	3714407	3714407	3364135104	3728515	3728515
3363401313	3714809	3714809	3363991116	3714408	3714408	3364135207	3728594	3728594
3363401416	3714811	3714811	3363991119	3714409	3714409	3364135211	3728595	3728595
3363401519	3714813	3714813	3363991YVW	3714400	3714400	3364135313	3728598	3728598
3363401625	3714817	3714817	3363993	37145	37145	3364135416	3728599	3728599
3363401707	3714803	3714803	3363993101	3714501	3714501	3364135YVW	3728500	3728500
3363401722	3714815	3714815	3363993104	3714502	3714502	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363993107	3714503	3714503	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363993YVW	3714500	3714500	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363995	37147	37147	3364141	37611	37611
3363401745	3714912	3714912	3363995101	3714701	3714701	3364141100	3761100	3761100
3363401747 pt	3292200 pt	3292200 pt	3363995104	3714705	3714705	3364143	37613	37613
3363401747 pt	3292200 pt	3292211 pt	3363995107	3714707	3714707	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292211 pt	3363995111	3714714	3714714	3364145	37616	37616
3363401747 pt	3292200 pt	3292258 pt	3363995YVW	3714700	3714700	3364145100	3761600	3761600
3363401747 pt	3714827	3714827	3363997 pt	35199 pt	35199 pt	3364147	37612	37612
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	37142 pt	37142 pt	3364147101	3761201	3761201
3363401YVW pt	3714800	3714800	3363997 pt	37149 pt	37149 pt	3364147204	3761202	3761202
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403114	3714A35	3714A35	3363997101	3714901	3714901	336414A101	3761702	3761702
3363403117	3714A37	3714A37	3363997204	3714902	3714902	336414A104	3761703	3761703
3363403121	3714A44	3714A41 pt	3363997307	3714903	3714903	336414AYVW	3761700	3761700
3363403YVW	3714A00 pt	3714A00 pt	3363997401	3714235	3714235	336414W	37610	37610
336340W pt	32920 pt	32920 pt	3363997405	3714236	3714236	336414WYVW	3761000	3761000
336340W pt	37140 pt	37140 pt	3363997409	3519987	3519987	336414WYVW	3761002	3761002
336340WYVW pt	3292000 pt	3292000 pt	3363997514	3714909	3714909	3364151	37645	37645
336340WYVW pt	3714000 pt	3714000 pt	3363997524	3714916	3714916	3364151101	3764511	3764511
336340WYVW pt	3292002 pt	3292002 pt	3363997527	3714922	3714922	3364151204	3764513	3764513
336340WYVW pt	3714002 pt	3714002 pt	3363997531	3714923	3714923	3364151307	3764515	3764515
3363501	37146	37146	3363997534	3714931	3714931	3364151YVW	3764500	3764500
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Motor Vehicle Body Manufacturing

1997

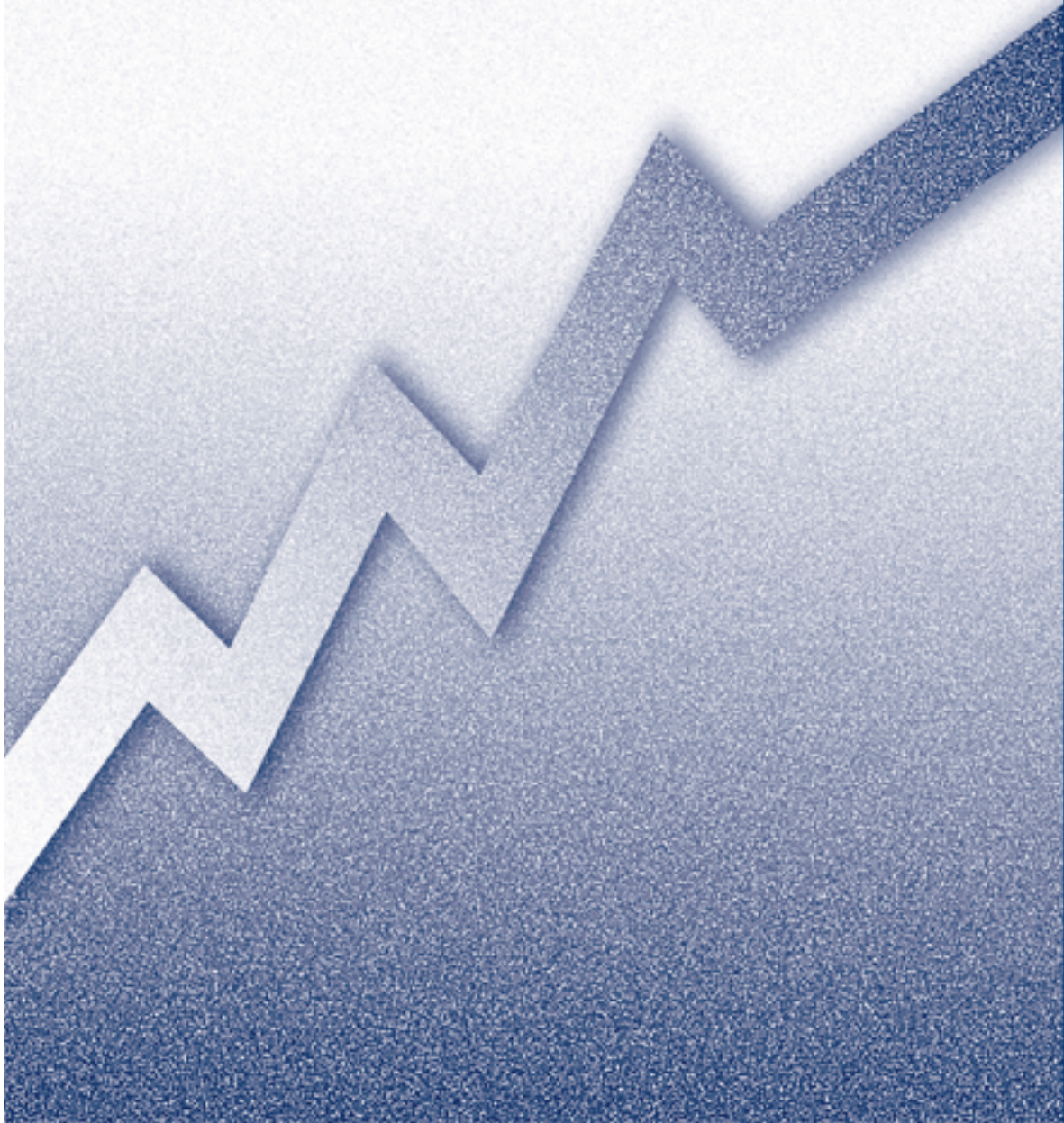
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1997 Economic Census

Manufacturing

Industry Series



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Industry Series



U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336211 371140	Motor vehicle body mfg Motor vehicles & car bodies (pt)	749	808	42 674	1 227 480	32 517	65 252	837 327	2 962 835	5 968 543	8 934 842	229 111
371300	Truck & bus bodies	N	78	521	13 442	432	590	10 663	32 157	60 735	93 446	1 707
371410	Motor vehicle parts & accessories (pt)	N	707	40 952	1 173 480	31 318	63 168	806 227	2 813 310	5 768 219	8 575 844	221 025
		N	23	1 201	40 558	767	1 494	20 437	117 368	139 589	265 552	6 379

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)				
336211, MOTOR VEHICLE BODY MFG												
United States	1	808	339	42 674	1 227 480	32 517	65 252	837 327	2 962 835	5 968 543	8 934 842	229 111
Alabama	-	19	7	1 205	35 977	933	1 918	23 017	112 793	143 273	243 866	8 612
California	-	99	41	3 083	89 546	2 446	4 684	60 785	628 492	1 949 812	2 582 319	40 333
Florida	1	36	13	2 885	74 027	2 134	4 414	47 527	204 589	211 752	406 305	6 458
Georgia	-	25	12	1 589	47 270	1 327	2 801	36 856	120 939	215 126	335 678	4 735
Indiana	2	46	29	4 422	129 371	3 565	7 555	100 425	252 477	384 001	641 996	11 556
Iowa	-	20	13	1 383	37 860	1 090	2 062	29 028	74 711	171 473	240 971	4 236
Kansas	1	16	9	1 396	38 478	1 103	2 220	25 633	91 920	157 677	252 331	3 100
Massachusetts	2	7	3	191	7 779	139	306	4 184	14 955	17 636	32 418	1 113
Michigan	-	31	9	1 464	47 823	874	1 672	25 598	74 468	113 374	187 211	6 907
Minnesota	-	18	6	431	11 975	310	597	7 606	24 612	33 597	57 748	1 200
Mississippi	4	12	7	806	20 358	644	1 292	14 461	40 175	61 901	103 291	3 055
Missouri	1	21	9	568	13 998	448	843	9 565	26 741	40 973	66 949	1 025
New York	-	34	10	818	21 194	557	1 025	13 617	73 872	106 642	185 904	2 848
North Carolina	-	40	18	3 694	112 579	2 818	5 943	84 202	145 987	506 164	639 330	24 098
Ohio	-	37	22	2 721	77 395	2 142	4 066	54 576	135 645	259 017	406 506	23 085
Oklahoma	2	18	6	360	8 338	286	531	5 643	20 218	33 590	53 346	1 168
Oregon	2	19	4	534	14 836	329	671	7 825	19 784	53 270	74 238	1 668
Pennsylvania	2	63	27	4 357	118 354	3 184	6 389	72 282	238 242	313 082	556 589	19 014
South Carolina	-	4	4	207	4 891	111	188	1 918	24 238	28 701	54 900	673
Tennessee	-	14	4	619	16 278	470	925	9 713	16 828	158 231	170 510	3 540
Virginia	-	12	7	491	12 532	381	747	8 163	21 137	38 228	59 293	2 717
Wisconsin	-	18	11	2 434	86 705	1 871	3 833	62 697	180 039	240 386	427 950	6 893

* 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
336211, MOTOR VEHICLE BODY MFG		336211, MOTOR VEHICLE BODY MFG—Con.	
Companies ¹ number..	749	Value added \$1,000..	2 962 835
All establishments number..	808	Total inventories, beginning of year \$1,000..	1 088 282
Establishments with 1 to 19 employees number..	469	Finished goods inventories, beginning of year \$1,000..	195 426
Establishments with 20 to 99 employees number..	239	Work-in-process inventories, beginning of year \$1,000..	370 907
Establishments with 100 employees or more number..	100	Materials and supplies inventories, beginning of year \$1,000..	521 949
All employees number..	42 674	Total inventories, end of year \$1,000..	1 044 444
Total compensation ² \$1,000..	1 496 066	Finished goods inventories, end of year \$1,000..	215 486
Annual payroll \$1,000..	1 227 480	Work-in-process inventories, end of year \$1,000..	347 383
Total fringe benefits \$1,000..	268 586	Materials and supplies inventories, end of year \$1,000..	481 575
Production workers, average for year number..	32 517	Gross book value of total assets at beginning of year \$1,000..	1 223 851
Production workers on March 12 number..	31 824	Total capital expenditures (new and used) \$1,000..	229 111
Production workers on May 12 number..	32 598	Capital expenditures for buildings and other structures (new and used) \$1,000..	63 738
Production workers on August 12 number..	33 078	Capital expenditures for machinery and equipment (new and used) \$1,000..	165 373
Production workers on November 12 number..	32 568	Total retirements ² \$1,000..	227 055
Production-worker hours 1,000..	65 252	Gross book value of total assets at end of year \$1,000..	1 225 907
Production-worker wages \$1,000..	837 327	Total depreciation during year ² \$1,000..	77 077
Total cost of materials \$1,000..	5 968 543	Total rental payments ² \$1,000..	38 357
Cost of materials, parts, containers, etc., consumed \$1,000..	5 502 957	Buildings and other structures rental payments ² \$1,000..	20 932
Cost of resales \$1,000..	368 053	Machinery and equipment rental payments ² \$1,000..	17 425
Cost of fuels \$1,000..	16 785	Cost of purchased services for the repair of buildings and other structures ³ \$1,000..	5 776
Cost of purchased electricity \$1,000..	38 130	Response coverage ratio ⁴ percent..	81
Cost of contract work \$1,000..	42 618	Cost of purchased services for the repair of machinery and equipment ³ \$1,000..	37 057
Quantity of electricity purchased for heat and power 1,000 kWh..	589 225	Response coverage ratio ⁴ percent..	81
Quantity of electricity generated less sold for heat and power 1,000 kWh..	S	Cost of purchased communications services ³ \$1,000..	10 895
Total value of shipments \$1,000..	8 934 842	Response coverage ratio ⁴ percent..	81
Primary products value of shipments \$1,000..	7 764 588	Cost of purchased legal services ³ \$1,000..	11 674
Secondary products value of shipments \$1,000..	568 029	Response coverage ratio ⁴ percent..	81
Total miscellaneous receipts \$1,000..	602 225	Cost of purchased accounting and bookkeeping services ³ \$1,000..	4 257
Value of resales \$1,000..	496 100	Response coverage ratio ⁴ percent..	81
Contract receipts \$1,000..	10 881	Cost of purchased advertising services ³ \$1,000..	14 280
Other miscellaneous receipts \$1,000..	95 244	Response coverage ratio ⁴ percent..	81
Primary products specialization ratio percent..	93	Cost of purchased software and other data processing services ³ \$1,000..	5 244
Value of primary products shipments made in all industries \$1,000..	8 127 331	Response coverage ratio ⁴ percent..	81
Value of primary products shipments made in this industry \$1,000..	7 764 588	Cost of purchased refuse removal (including hazardous waste) services ³ \$1,000..	4 749
Value of primary products shipments made in other industries \$1,000..	362 743	Response coverage ratio ⁴ percent..	81
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)				
336211, MOTOR VEHICLE BODY MFG												
All establishments	1	808	339	42 674	1 227 480	32 517	65 252	837 327	2 962 835	5 968 543	8 934 842	229 111
Establishments with 1 to 4 employees	9	196	—	392	9 928	324	541	7 295	21 838	40 249	62 537	2 125
Establishments with 5 to 9 employees	8	128	—	896	22 262	725	1 194	15 961	46 547	81 491	129 263	4 750
Establishments with 10 to 19 employees	4	145	—	2 077	55 441	1 567	2 811	35 625	101 127	166 693	271 696	6 928
Establishments with 20 to 49 employees	2	155	155	4 839	127 900	3 759	7 228	84 926	278 662	391 392	670 784	12 385
Establishments with 50 to 99 employees	1	84	84	5 984	162 229	4 646	9 645	106 572	347 277	591 479	942 371	24 908
Establishments with 100 to 249 employees	1	63	63	9 804	267 844	7 406	15 016	182 286	647 294	884 696	1 536 104	59 654
Establishments with 250 to 499 employees	—	28	28	9 769	319 469	7 226	14 639	210 721	1 040 374	2 787 809	3 825 972	94 458
Establishments with 500 to 999 employees	1	5	5	3 571	100 469	2 786	5 974	74 390	200 276	253 443	460 821	9 514
Establishments with 1,000 to 2,499 employees	—	4	4	5 342	161 938	4 078	8 204	119 551	279 440	771 291	1 035 294	14 389
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	311	—	1 680	38 093	1 371	2 081	27 487	78 966	141 573	222 548	8 224

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)				
336211	Motor vehicle body mfg . . .	808	42 674	1 227 480	32 517	65 252	837 327	2 962 835	5 968 543	8 934 842	229 111
3362111	Truck, bus, and other vehicle bodies including passenger car bodies and kit cars for sale separately	256	24 566	705 032	18 616	38 100	480 652	1 784 844	3 862 027	5 674 811	161 004
3362113	Complete vehicles produced on purchased chassis	118	13 422	400 021	10 161	20 508	268 596	941 693	1 722 357	2 637 098	47 320

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)
336211	MOTOR VEHICLES AND CAR BODIES	N	X	X	8 127 331	N	X	X	N
3362111	Truck, bus, and other vehicle bodies including passenger car bodies and kit cars for sale separately	N	X	X	5 043 843	N	X	X	N
336211111	Bus bodies for sale separately	N	X	X	364 036	N	X	X	N
3362111101	Bus bodies for sale separately	11	X	X	364 036	13	X	X	346 340
336211112	Truck cabs for sale separately	N	X	X	D	N	X	X	N
3362111204	Truck cabs for sale separately	20	X	X	D	21	X	X	523 651
336211113	Vans with unit body-cab for sale separately	N	X	X	D	N	X	X	N
3362111307	Vans with unit body-cab for sale separately	11	X	X	D	16	X	X	119 323
336211114	Van bodies with separate cab for sale separately	N	X	X	459 475	N	X	X	N
3362111411	Refrigerated (except food service) van bodies with separate cab for sale separately	8	X	X	44 423	7	X	X	24 891
3362111413	Food service van bodies with separate cab for sale separately	10	X	X	35 461	10	X	X	48 475
3362111416	Other van bodies with separate cab for sale separately	30	X	X	379 591	28	X	X	137 577
336211115	Other truck and vehicle bodies for sale separately, including dumptruck lifting mechanisms and kit cars	N	X	X	1 690 432	N	X	X	N
3362111519	Tank bodies for sale separately	14	X	X	51 235	15	X	X	18 113
3362111522	Front loading garbage and refuse truck bodies (packer-types) for sale separately	8	X	X	32 194	5	X	X	N
3362111525	Rear loading garbage and refuse truck bodies (packer-types) for sale separately	9	X	X	95 527	4	X	X	46 663
3362111528	Side loading garbage and refuse truck bodies (packer-types) for sale separately	7	X	X	33 429	4	X	X	27 212
3362111531	Other garbage and refuse truck bodies (packer-types) for sale separately	10	X	X	28 849	9	X	X	N
3362111534	Beverage truck bodies for sale separately	4	X	X	D	6	X	X	39 752
3362111537	Dump truck bodies for sale separately	58	X	X	234 331	52	X	X	112 192
3362111541	Stake and platform truck bodies for sale separately	43	X	X	65 425	42	X	X	43 235
3362111543	Utility line service truck bodies for sale separately	35	X	X	125 700	36	X	X	102 857
3362111546	Other mobile service type truck bodies for sale separately	11	X	X	23 551	15	X	X	18 159
3362111549	Wrecker truck bodies for sale separately	15	X	X	125 954	12	X	X	70 341
3362111552	Passenger car bodies	7	X	X	D	4	X	X	N
3362111555	Kit cars	5	X	X	9 299	N	X	X	N
3362111558	Motor vehicle fifth wheels, new	7	X	X	186 396	6	X	X	109 212
3362111571	Other truck and vehicle bodies, including dumptruck lifting mechanisms	83	X	X	517 610	N	X	X	N
3362111Y	Truck, bus, and other vehicle bodies (including passenger car bodies and kit cars) for sale separately, nsk	N	X	X	69 351	N	X	X	N
3362111YWV	Truck, bus, and other vehicle bodies (including passenger car bodies and kit cars) for sale separately, nsk	N	X	X	69 351	N	X	X	N
3362113	Complete vehicles produced on purchased chassis	N	X	X	2 520 335	N	X	X	N
33621131	Buses, complete, produced on purchased chassis	N	X	X	1 022 450	N	X	X	N
3362113101	Buses, complete, produced on purchased chassis	17	X	X	1 022 450	13	X	X	315 019
33621132	Firefighting vehicles, complete, produced on purchased chassis	N	X	X	442 458	N	X	X	N
3362113219	Firefighting vehicles, complete, produced on purchased chassis	27	X	X	442 458	28	X	X	330 954
33621133	Other trucks, produced on purchased chassis	N	X	X	934 076	N	X	X	N
3362113304	Ambulance and rescue vehicles complete, produced on purchased chassis	22	X	X	404 859	17	X	X	145 416
3362113307	Vans, complete, produced on purchased chassis	7	X	X	78 890	10	X	X	38 152
3362113311	Tank trucks, complete, produced on purchased chassis	10	X	X	47 405	11	X	X	50 934
3362113313	Beverage trucks, complete, produced on purchased chassis	2	X	X	D	3	X	X	D
3362113316	Dump trucks, complete, produced on purchased chassis	10	X	X	12 404	6	X	X	11 505

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)
336211	MOTOR VEHICLES AND CAR BODIES—Con.								
3362113	Complete vehicles produced on purchased chassis—Con.								
33621133	Other trucks, produced on purchased chassis—Con.								
3362113322	Utility line service trucks, complete, produced on purchased chassis	10	X	X	D	9	X	X	D
3362113325	Other mobile service type trucks, complete, produced on purchased chassis	15	X	X	258 007	14	X	X	73 805
3362113328	Other trucks, complete, produced on purchased chassis, designed primarily for transporting persons or goods, nec	15	X	X	59 775	N	X	X	N
3362113331	Other trucks, complete, produced on purchased chassis, not designed primarily for transporting persons or goods, nec	10	X	X	51 507	N	X	X	N
3362113Y	Complete vehicles produced on purchased chassis, nsk	N	X	X	121 351	N	X	X	N
3362113YWV	Complete vehicles produced on purchased chassis, nsk	N	X	X	121 351	N	X	X	N
336211W	Motor vehicle body, nsk, total	N	X	X	563 153	N	X	X	N
336211WY	Motor vehicle body manufacturing, nsk, total	N	X	X	563 153	N	X	X	N
336211WYWW	Motor vehicle body manufacturing, nsk, for nonadministrative-record establishments	N	X	X	350 323	N	X	X	N
336211WYWY	Motor vehicle body manufacturing, nsk, for administrative-record establishments	N	X	X	212 830	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
3362111	TRUCK, BUS, AND OTHER VEHICLE BODIES INCLUDING PASSENGER CAR BODIES AND KIT CARS FOR SALE SEPARATELY		
	United States	5 043 843	N
	Alabama	130 838	N
	Arizona	27 903	N
	Florida	28 989	N
	Georgia	62 073	N
	Illinois	110 983	N
	Indiana	359 082	N
	Iowa	65 823	N
	Kansas	73 497	N
	Kentucky	75 672	N
	Michigan	118 408	N
	Minnesota	42 004	N
	Mississippi	65 955	N
	Missouri	28 370	N
	New Jersey	13 112	N
	New York	33 125	N
	North Carolina	375 968	N
	Ohio	260 219	N
	Oklahoma	21 807	N
	Pennsylvania	375 481	N
	South Dakota	6 016	N
	Tennessee	157 232	N
	Texas	144 373	N
	Virginia	33 797	N
	Washington	19 162	N
	West Virginia	19 030	N
	Wisconsin	92 500	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
3362113	COMPLETE VEHICLES PRODUCED ON PURCHASED CHASSIS		
	United States	2 520 335	N
	California	73 657	N
	Florida	297 431	N
	Georgia	224 569	N
	Indiana	187 610	N
	Iowa	169 681	N
	Kansas	150 790	N
	Missouri	8 764	N
	New Jersey	32 990	N
	New York	125 998	N
	North Carolina	88 692	N
	Ohio	118 364	N
	Oregon	32 984	N
	Pennsylvania	88 062	N
	South Dakota	9 115	N
	Texas	10 031	N
	Virginia	7 559	N
	Wisconsin	306 237	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)
336211	MOTOR VEHICLE BODY MFG				
33600001	Purchased chassis for vehicles (excluding passenger cars)	X	509 592	X	333 418
33621103	Truck bodies	X	57 412	X	38 829
33635003	Transmissions and parts	X	65 657	X	35 089
33600005	Axles, brakes, drums, rims, wheels, and other metal motor wheel parts	X	42 866	X	42 252
33621101	Car bodies	X	14 518	X	N
33633000	Shocks, struts, and other suspension equipment and parts	X	16 046	X	N
33637000	Automotive stampings (including body parts, hubcaps, fenders, etc.)	X	54 082	X	N
33251011	Motor vehicle metal hardware (lock units, door and window handles, hinges, etc.), except forgings	X	106 339	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	35 583	X	N
33200091	Other fabricated metal products, except forgings	X	104 937	X	N
33210001	Forgings	X	13 922	X	N
00190090	Fluid power products	X	125 009	X	72 778
32621003	Pneumatic tires and inner tubes	X	24 805	X	N
32610033	Fabricated plastics products, including components, housings, accessories, etc. (except gaskets, hose and belting)	X	16 730	X	N
32720005	Glass and glass products including windows and mirrors	X	26 009	X	N
33636003	Seats (purchased separately) for automobiles, trucks, and buses	X	33 732	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	46 892	X	N
33632100	Motor vehicle lighting fixtures (including headlights, taillights, running lights, and dome fixtures; except auto lamps)	X	29 285	X	N
33511003	Automotive lamps (bulbs and sealed beams)	X	4 180	X	N
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	101 985	X	N
33120017	Steel sheet and strip, including tin plate	X	204 832	X	N
33120019	Steel structural shapes and sheet piling (except castings, forgings, and fabricated metal products)	X	47 892	X	29 862
33120091	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	33 940	X	30 889
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing	X	129 616	X	82 563
33131600	Aluminum and aluminum-base alloy extruded shapes, including extruded rod, bar, pipe, tube, etc.	X	45 908	X	54 257
33100049	Other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	14 500
33100077	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	2 828
32100019	Rough and dressed lumber	X	20 005	X	29 854
00970099	All other materials and components, parts, containers, and supplies	X	824 304	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	2 656 308	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; 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

336211 MOTOR VEHICLE BODY MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing truck and bus bodies and cabs and automobile bodies. The products made may be sold separately or may be assembled on purchased chassis and sold as complete vehicles.

The data published with NAICS code 336211 include the following SIC industries:

- 3711 Motor vehicles and car bodies (pt)
- 3713 Truck and bus bodies
- 3714 Motor vehicle parts and accessories (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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621212W	37150	37150	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	336212WYWW	3715000	3715000	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	336212WYWW	3715002	3715002	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	3362130	37160	37160	3363121544	3714227	3714227
3361201 pt.	37114 pt.	37114 pt.	3362130101	3716001	3716001	3363121571	3714241	3714241
3361201 pt.	37115 pt.	37117	3362130104	3716005	3716005	3363121574	3714249	3714249
3361201100 pt.	3711407	3711400 pt.	3362130107	3716007	3716007	3363121YVW	3714200 pt.	3714200 pt.
3361201100 pt.	3711400 pt.	3711400 pt.	3362130111	3716021	3716021	3363123	37144 pt.	37144 pt.
3361201100 pt.	3711500 pt.	3711700	3362130YWW	3716000	3716000	3363123101	3714A02	3714A02
3361201100 pt.	3711500 pt.	3711800	3362141	37921	37921	3363123104	3714A03	3714A03
3361202 pt.	37114 pt.	37114 pt.	3362141101	3792112	3792112	3363123107	3714A23	3714A23
3361202 pt.	37119	37119	3362141104	3792114	3792114	3363123111	3714A25	3714A25
3361202100 pt.	3711409	3711400 pt.	3362141207	3792116	3792116	3363123121	3714A43	3714A41 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141311	3792118	3792118	3363123YVW	3714A00 pt.	3714A00 pt.
3361202100 pt.	3711900	3711900	3362141413	3792125	3792125	336312W	37140 pt.	37140 pt.
3361203	37113	37113	3362141516	3792128	3792128	336312WYWW	3714000 pt.	3714000 pt.
3361203101	3711304	3711304	3362141YVW	3792100	3792100	336312WYVW	3714002 pt.	3714002 pt.
3361203104	3711303	3711303	3362143	37996	37996	3363210	36470	36470
3361203YVW	3711300	3711300	3362143101	3799611	3799601 pt.	3363210100	3647000 pt.	3647000 pt.
336120W	37110 pt.	37110 pt.	3362143105	3799613	3799602 pt.	3363210YWW	3647000 pt.	3647000 pt.
336120WYWW	3711000 pt.	3711000 pt.	3362143108	3799615	3799604 pt.	3363210YVW	3647002	3647002
336120WYVW	3711002 pt.	3711002 pt.	3362143111	3799617	3799607 pt.	3363221	36941	36941
3362111 pt.	37111 pt.	37111 pt.	3362143114	3799619	3799609 pt.	3363221101	3694101	3694101
3362111 pt.	37131	37131	3362143117 pt.	3799651 pt.	3799602 pt.	3363221104	3694102	3694102
3362111 pt.	37149 pt.	37149 pt.	3362143117 pt.	3799651 pt.	3799604 pt.	3363221201	3694103	3694103
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799607 pt.	3363221204	3694104	3694104
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799609 pt.	3363221YVW	3694100	3694100
3362111307	3713112	3713112	3362143YVW	3799600	3799600	3363223	36942	36942
3362111411	3713115	3713115	3362145	37922	37922	3363223101	3694201	3694201
3362111413	3713116	3713116	3362145101	3792242	3792242	3363223104	3694202	3694202
3362111416	3713117	3713117	3362145204	3792244	3792244	3363223201	3694203	3694203
3362111519	3713121	3713121	3362145207	3792247	3792247	3363223204	3694204	3694204
3362111522	3713131	3713131	3362145311 pt.	3792268 pt.	3792261	3363223YVW	3694200	3694200
3362111525	3713132	3713132	3362145311 pt.	3792268 pt.	3792263	3363225	36943	36943
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792269	3363225101	3694301	3694301
3362111531	3713139	3713139	3362145YVW	3792200	3792200	3363225104	3694302	3694302
3362111534	3713143	3713143	336214W pt.	37920	37920	3363225201	3694303	3694303
3362111537	3713153	3713153	336214W pt.	37990 pt.	37990 pt.	3363225YVW	3694300	3694300
3362111541	3713155	3713155	336214WYWW pt.	3792000	3792000	3363227	36944	36944
3362111543	3713161	3713161	336214WYWW pt.	3792002	3792002	3363227100	3694400	3694400
3362111546	3713162	3713162	336214WYVW pt.	3799002 pt.	3799002 pt.	3363229	36947	36947
3362111549	3713163	3713163	3363111	35921	35921	3363229101	3694701	3694701
3362111552	3711171	3711171	3363111101	3592101	3592101	3363229201	3694711	3694711
3362111555	3711181	3711181 pt.	3363111103	3592102	3592102	3363229301	3694702	3694702
3362111558	3714925	3714925	3363111105	3592103	3592103	3363229304	3694704	3694704
3362111571 pt.	3713171	3713171	3363111207	3592105	3592105	3363229307	3694705	3694705
3362111571 pt.	3714924	3714941 pt.	3363111YVW	3592100	3592100	3363229309	3694719	3694719
3362111YVW pt.	3711100 pt.	3711100 pt.	3363113	35922	35922	3363229YVW	3694700	3694700
3362111YVW pt.	3713100	3713100	3363113101	3592201	3592201	336322A	36949	36949
3362111YVW pt.	3714900 pt.	3714900 pt.	3363113103	3592202	3592202	336322A101	3694901	3694901
3362113 pt.	37114 pt.	37114 pt.	3363113205	3592203	3592203	336322A204	3694907	3694907
3362113 pt.	37132	37132	3363113207	3592204	3592204	336322A307	3694911	3694911
3362113101	3713201	3713201	3363113209	3592205	3592205	336322A409	3694912	3694912
3362113219	3713225	3713225	3363113211	3592206	3592206	336322A512	3694913	3694913
3362113304	3713211	3713211	3363113313	3592209	3592209	336322A615	3694919	3694919
3362113307	3713213	3713213	3363113YVW	3592200	3592200	336322AYVW	3694900	3694900
3362113311	3713215	3713215	3363113101	3592201	3592201	336322C pt.	36799 pt.	36799 pt.
3362113313	3713217	3713217	3363113103	3592202	3592202	336322C pt.	37149 pt.	37149 pt.
3362113316	3713218	3713218	3363113205	3592203	3592203	336322C pt.	3714A pt.	3714A pt.
3362113322	3713226	3713226	3363113207	3592204	3592204	336322C102	3714913	3714913
3362113325	3713227	3713227	3363113209	3592205	3592205	336322C104	3714914	3714914
3362113328	3713241	3713239 pt.	3363113211	3592206	3592206	336322C107	3714915	3714915
3362113331 pt.	3711411	3711400 pt.	3363113313	3592209	3592209	336322C111 pt.	3714921 pt.	3714917
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3362113YVW pt.	3711400 pt.	3711400 pt.	3363115	35923	35923	336322C111 pt.	3714921 pt.	3714917
3362113YVW pt.	3713200	3713200	3363115101	3592301	3592301	336322C114	3714942	3714904 pt.
			3363115103	3592302	3592302	336322C117	3714944	3714904 pt.
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			336311W	35920	35920	336322C121	3714945	3714941 pt.
			336311WYWW	3592000	3592000	336322C122	3714946	3714941 pt.
			336311WYVW	3592002	3592002	336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	3363505W	3714000 pt	3714000 pt	3364117101	3721813	3721813
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336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
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3363301 pt	37142 pt	37142 pt	3363606W pt	23990 pt	23990 pt	3364125	37243	37243
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3363301101	3714905	3714905	3363606WYVW pt	2396000 pt	2396000 pt	3364125104	3724323	3724323
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3363301511	3714908	3714908	3363606WYVW pt	2399002 pt	2399002 pt	3364127	37244	37244
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3363301521	3714918	3714941 pt	3363700	34650	34650	3364127104	3724402	3724402
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3363301528	3714911	3714911	3363700YVW	3465002	3465002	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363917	35857	35851 pt	3364127YVW	3724400	3724400
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3363301YVW pt	3714900 pt	3714900 pt	3363917020	3585707	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917030	3585719	3585100 pt	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917YVW	3585700	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	336391B	3585B	35854 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B000	3585B00	3585400 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	336391W	35850 pt	35850 pt	3364131107	3728251	3728251
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3363401313	3714809	3714809	3363991YVW	3714400	3714400	3364135211	3728595	3728595
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3363401722	3714815	3714815	3363993YVW	3714500	3714500	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363995	37147	37147	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363995101	3714701	3714701	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363995104	3714705	3714705	3364141	37611	37611
3363401745	3714912	3714912	3363995107	3714707	3714707	3364141100	3761100	3761100
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3363401747 pt	3292200 pt	3292215 pt	3363997 pt	35199 pt	35199 pt	3364145	37616	37616
3363401747 pt	3292200 pt	3292221 pt	3363997 pt	37142 pt	37142 pt	3364145100	3761600	3761600
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3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
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3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414AYVW	3761700	3761700
3363403114	3714A35	3714A35	3363997 pt	37149 pt	37149 pt	336414W	37610	37610
3363403117	3714A37	3714A37	3363997 pt	37149 pt	37149 pt	336414WYVW	3761000	3761000
3363403117	3714A37	3714A37	3363997 pt	37149 pt	37149 pt	336414WYVW	3761002	3761002
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3363403YVW	3714A00 pt	3714A00 pt	3363997 pt	37149 pt	37149 pt	3364151101	3764511	3764511
336340W pt	32920 pt	32920 pt	3363997 pt	37149 pt	37149 pt	3364151204	3764513	3764513
336340W pt	37140 pt	37140 pt	3363997 pt	37149 pt	37149 pt	3364151307	3764515	3764515
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336340WYVW pt	3714000 pt	3714000 pt	3363997 pt	37149 pt	37149 pt	3364153	37646	37646
336340WYVW pt	3292002 pt	3292002 pt	3363997 pt	37149 pt	37149 pt	3364153101	3764611	3764611
336340WYVW pt	3714002 pt	3714002 pt	3363997 pt	37149 pt	37149 pt	3364153104	3764613	3764613
3363501	37146	37146	3363997 pt	37149 pt	37149 pt	3364153107	3764615	3764615
3363501101	3714603	3714603	3363997 pt	37149 pt	37149 pt	3364153YVW	3764600	3764600
3363501104	3714605	3714605	3363997 pt	37149 pt	37149 pt	3364155	37647	37647
3363501207	3714613	3714613	3363997 pt	37149 pt	37149 pt	3364155101	3764711	3764711
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3363501316	3714625	3714625	3363997 pt	37149 pt	37149 pt	3364155YVW	3764700	3764700
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3363501519	3714628	3714628	3363997 pt	37149 pt	37149 pt	3364157101	3764811	3764811
3363501522	3714631	3714631	3363997 pt	37149 pt	37149 pt	3364157104	3764813	3764813
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3363501528	3714635	3714635	3363997 pt	37149 pt	37149 pt	3364157YVW	3764800	3764800
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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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3364191311	3769225	3769225	3366115113	3731348	3731348	336612WYVWY	3732002 pt	3732002 pt
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3364193	37694	37694	3366115123	3731333	3731333	3369911101 pt	3751148 pt	3751141
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3364193104	3769419	3769419	3366115124 pt	3731361 pt	3731326	3369911101 pt	3751148 pt	3751145
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3366111101	3731111	3731111	3366125YVW	3732400	3732400	3369993417	3799915	3799923 pt
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3366111YVW	3731100	3731100	3366127101	3732702	3732702	3369993YVW	3799900 pt	3799900 pt
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			3366127107	3732706	3732706	336999W	37990 pt	37990 pt
			3366127111	3732708	3732708	336999WYVW	3799000 pt	3799000 pt
3366113	37312	37312	3366127113	3732712	3732712	336999WYVWY	3799002 pt	3799002 pt
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1997

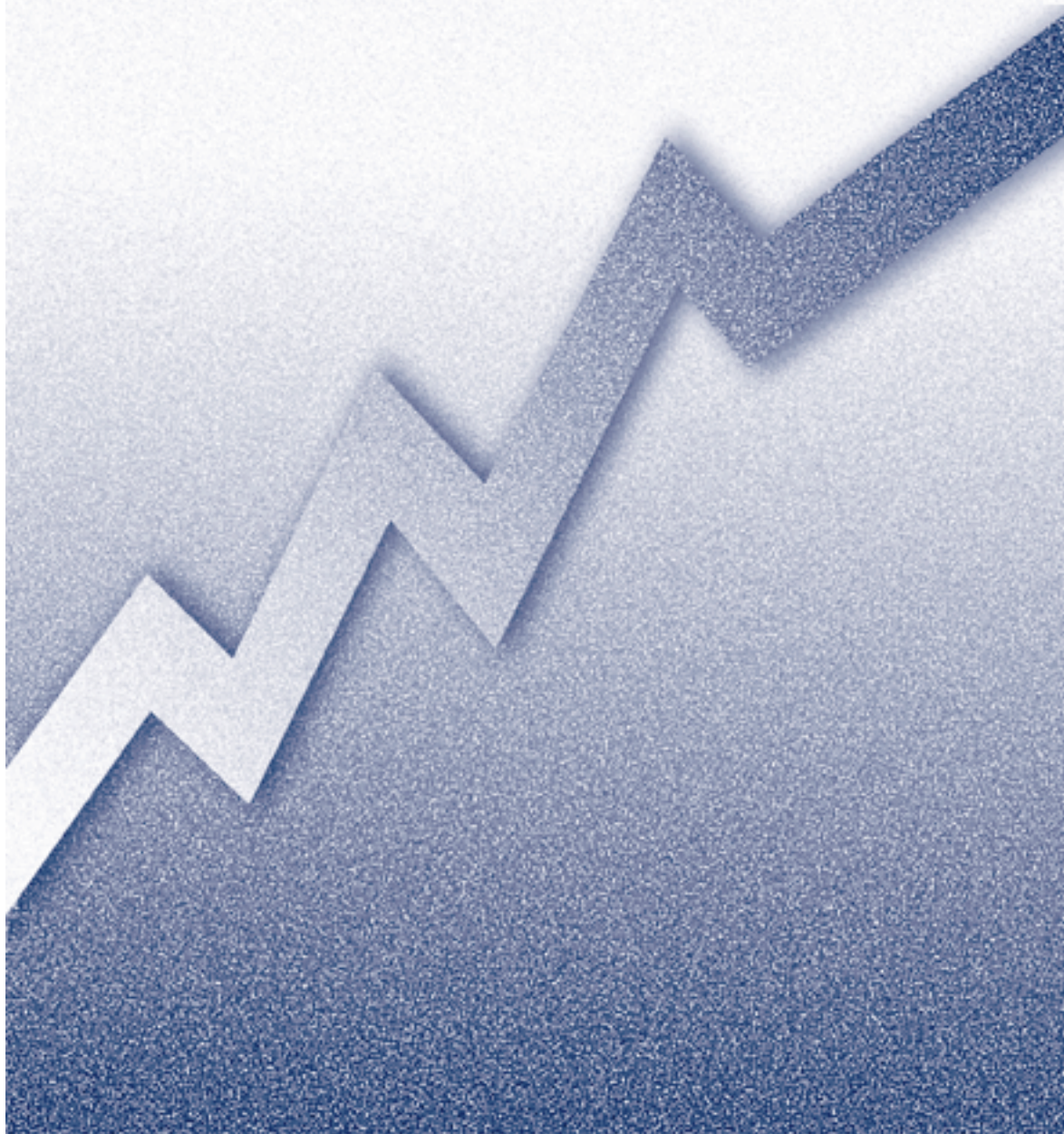
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1997 Economic Census

Manufacturing

Industry Series



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Industry Series



U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336212	Truck trailer mfg	354	388	30 644	835 333	25 635	50 441	577 524	1 785 264	3 764 716	5 500 475	88 895
371500	Truck trailers	N	388	30 644	835 333	25 635	50 441	577 524	1 785 264	3 764 716	5 500 475	88 895

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)				
336212, TRUCK TRAILER MFG												
United States	-	388	181	30 644	835 333	25 635	50 441	577 524	1 785 264	3 764 716	5 500 475	88 895
Alabama	-	19	12	2 154	51 358	1 852	3 422	40 128	88 412	219 966	310 334	5 005
Arkansas	-	12	6	820	18 585	711	1 360	14 338	61 420	130 028	187 289	5 612
California	2	24	13	1 158	39 900	754	1 529	19 404	59 572	101 299	155 561	5 743
Georgia	-	14	10	1 274	35 171	1 091	1 821	21 932	77 272	129 573	205 765	3 149
Illinois	-	11	9	2 491	59 162	2 107	3 997	45 936	116 927	352 046	490 228	4 459
Indiana	-	15	6	5 815	188 778	5 222	10 537	124 577	355 689	1 035 454	1 347 245	27 508
Iowa	-	16	10	1 471	35 465	994	1 759	20 829	57 016	150 678	208 046	4 200
Kansas	-	11	4	225	5 223	188	387	4 068	9 261	15 283	25 483	1 022
Minnesota	-	7	3	468	13 604	356	608	7 046	34 112	40 722	74 414	793
Mississippi	-	4	3	370	4 428	349	582	3 046	21 876	41 361	63 184	610
Missouri	1	20	7	509	12 309	433	841	9 022	31 817	50 286	80 509	1 604
Nebraska	-	5	3	646	18 659	560	1 154	12 620	63 721	106 278	166 432	1 305
North Carolina	3	6	1	131	2 923	117	230	2 320	9 886	12 587	21 956	272
Ohio	-	14	8	926	28 895	741	1 696	18 862	56 167	107 242	164 319	1 659
Oregon	1	7	3	197	5 802	161	378	4 316	9 415	20 796	30 365	633
South Carolina	4	4	4	136	3 648	119	237	2 510	6 685	12 740	19 454	239
South Dakota	-	7	5	817	21 563	665	1 443	15 555	85 104	66 643	152 672	1 495
Texas	-	42	20	2 200	58 436	1 866	3 815	42 627	123 831	233 823	350 959	6 375
Wisconsin	-	19	6	1 963	46 526	1 727	3 388	37 129	91 986	226 223	325 667	1 797

* 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
336212, TRUCK TRAILER MFG		336212, TRUCK TRAILER MFG—Con.	
Companies ¹ number..	354	Value added \$1,000..	1 785 264
All establishments number..	388	Total inventories, beginning of year \$1,000..	673 361
Establishments with 1 to 19 employees number..	207	Finished goods inventories, beginning of year \$1,000..	153 792
Establishments with 20 to 99 employees number..	105	Work-in-process inventories, beginning of year \$1,000..	140 518
Establishments with 100 employees or more number..	76	Materials and supplies inventories, beginning of year \$1,000..	379 051
All employees number..	30 644	Total inventories, end of year \$1,000..	972 959
Total compensation ² \$1,000..	1 075 686	Finished goods inventories, end of year \$1,000..	189 710
Annual payroll \$1,000..	835 333	Work-in-process inventories, end of year \$1,000..	154 105
Total fringe benefits \$1,000..	240 353	Materials and supplies inventories, end of year \$1,000..	629 144
Production workers, average for year number..	25 635	Gross book value of total assets at beginning of year \$1,000..	867 603
Production workers on March 15 number..	24 801	Total capital expenditures (new and used) \$1,000..	88 895
Production workers on May 15 number..	24 926	Capital expenditures for buildings and other structures (new and used) \$1,000..	20 640
Production workers on August 15 number..	25 959	Capital expenditures for machinery and equipment (new and used) \$1,000..	68 255
Production workers on November 15 number..	26 850	Total retirements ² \$1,000..	74 595
Production-worker hours 1,000..	50 441	Gross book value of total assets at end of year \$1,000..	881 903
Production-worker wages \$1,000..	577 524	Total depreciation during year ² \$1,000..	73 599
Total cost of materials \$1,000..	3 764 716	Total rental payments ² \$1,000..	23 282
Cost of materials, parts, containers, etc., consumed \$1,000..	3 487 640	Buildings and other structures rental payments ² \$1,000..	14 756
Cost of resales \$1,000..	222 231	Machinery and equipment rental payments ² \$1,000..	8 526
Cost of fuels \$1,000..	8 624	Cost of purchased services for the repair of buildings and other structures ³ \$1,000..	5 983
Cost of purchased electricity \$1,000..	21 214	Response coverage ratio ⁴ percent..	79
Cost of contract work \$1,000..	25 007	Cost of purchased services for the repair of machinery and equipment ³ \$1,000..	21 933
Quantity of electricity purchased for heat and power 1,000 kWh..	380 906	Response coverage ratio ⁴ percent..	79
Quantity of electricity generated less sold for heat and power 1,000 kWh..	S	Cost of purchased communications services ³ \$1,000..	5 348
Total value of shipments \$1,000..	5 500 475	Response coverage ratio ⁴ percent..	79
Primary products value of shipments \$1,000..	5 092 637	Cost of purchased legal services ³ \$1,000..	6 549
Secondary products value of shipments \$1,000..	81 459	Response coverage ratio ⁴ percent..	79
Total miscellaneous receipts \$1,000..	326 379	Cost of purchased accounting and bookkeeping services ³ \$1,000..	2 182
Value of resales \$1,000..	256 173	Response coverage ratio ⁴ percent..	79
Contract receipts \$1,000..	2 416	Cost of purchased advertising services ³ \$1,000..	7 863
Other miscellaneous receipts \$1,000..	67 790	Response coverage ratio ⁴ percent..	79
Primary products specialization ratio percent..	98	Cost of purchased software and other data processing services ³ \$1,000..	1 870
Value of primary products shipments made in all industries \$1,000..	5 279 933	Response coverage ratio ⁴ percent..	79
Value of primary products shipments made in this industry \$1,000..	5 092 637	Cost of purchased refuse removal (including hazardous waste) services ³ \$1,000..	2 465
Value of primary products shipments made in other industries \$1,000..	187 296	Response coverage ratio ⁴ percent..	79
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)				
336212, TRUCK TRAILER MFG												
All establishments	-	388	181	30 644	835 333	25 635	50 441	577 524	1 785 264	3 764 716	5 500 475	88 895
Establishments with 1 to 4 employees	9	88	-	195	3 924	169	266	2 917	7 067	17 644	24 750	589
Establishments with 5 to 9 employees	9	54	-	356	7 827	305	516	5 854	14 136	35 062	49 276	1 045
Establishments with 10 to 19 employees	8	65	-	892	19 371	750	1 256	14 231	34 182	80 948	115 121	2 619
Establishments with 20 to 49 employees	2	61	61	1 883	49 331	1 442	2 846	31 681	81 158	176 733	256 406	4 876
Establishments with 50 to 99 employees	-	44	44	2 909	78 537	2 236	4 545	49 740	165 043	256 287	418 041	5 599
Establishments with 100 to 249 employees	-	44	44	6 298	171 919	5 148	10 612	119 385	365 617	595 038	954 138	21 702
Establishments with 250 to 499 employees	-	22	22	7 891	204 962	6 409	12 627	138 373	512 564	922 725	1 425 764	23 021
Establishments with 500 to 999 employees	-	6	6	3 814	100 099	3 416	6 076	80 376	220 361	547 462	776 241	2 181
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	-	1	1	D	D	D	D	D	D	D	D	D
Administrative records ²	9	187	-	1 505	31 424	1 279	2 067	23 319	56 830	142 810	199 890	4 281

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)				
336212	Truck trailer mfg	388	30 644	835 333	25 635	50 441	577 524	1 785 264	3 764 716	5 500 475	88 895
3362121	Truck trailers and chassis, with axle rating of 10,000 lb or more	142	26 336	744 105	22 016	44 072	511 414	1 590 596	3 372 860	4 921 235	79 152
3362123	Truck trailers and chassis, with axle rating of less than 10,000 lb	21	1 845	36 330	1 546	2 742	25 884	98 565	160 740	254 088	2 904

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)
336212	Truck trailers	N	X	X	5 279 933	N	X	X	3 175 875
3362121	Truck trailers and chassis, with axle rating of 10,000 lb or more @	N	X	X	4 699 733	N	X	X	2 859 730
33621210	Truck trailers and chassis, with axle rating of 10,000 lb or more	N	X	X	4 699 733	N	X	X	N
3362121000	Truck trailers and chassis, with axle rating of 10,000 lb or more	149	X	X	4 699 733	137	X	X	2 859 730
3362123	Truck trailers and chassis, with axle rating of less than 10,000 lb	N	X	X	271 497	N	X	X	122 041
33621231	Truck trailers and chassis, with axle rating of less than 10,000 lb	N	X	X	271 497	N	X	X	N
3362123100	Truck trailers and chassis, with axle rating of less than 10,000 lb	41	X	X	271 497	34	X	X	122 041
336212W	Truck trailers, nsk, total	N	X	X	308 703	N	X	X	194 104
336212WY	Truck trailers and chassis, nsk, total	N	X	X	308 703	N	X	X	N
336212WYWW	Truck trailer manufacturing, nsk, for nonadministrative-record establishments	N	X	X	116 641	N	X	X	146 205
336212WYWY	Truck trailer manufacturing, nsk, for administrative-record establishments	N	X	X	192 062	N	X	X	47 899

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
3362121	TRUCK TRAILERS AND CHASSIS, WITH AXLE RATING OF 10,000 LB OR MORE @		
	United States	4 699 733	2 859 730
	Alabama	284 928	192 291
	Arkansas	159 024	N
	California	101 159	63 582
	Colorado	52 386	21 404
	Florida	50 510	41 125
	Georgia	167 706	N
	Illinois	410 960	339 502
	Indiana	1 168 333	740 556
	Iowa	181 414	N
	Kansas	37 009	N
	Missouri	83 201	46 245
	Nebraska	167 115	N
	Ohio	134 926	N
	Oklahoma	31 319	15 261
	Pennsylvania	207 011	117 179
	South Dakota	119 834	64 361
	Tennessee	113 621	72 459
	Texas	213 818	40 802
	Washington	35 949	N
	West Virginia	12 975	N
3362123	TRUCK TRAILERS AND CHASSIS, WITH AXLE RATING OF LESS THAN 10,000 LB		
	United States	271 497	122 041
	Alabama	13 224	N
	California	4 406	N
	South Dakota	22 080	6 054
	Texas	73 494	N
	Wisconsin	2 238	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)
336212	TRUCK TRAILER MFG				
33637000	Automotive stampings (including body parts, hubcaps, fenders, etc.)	X	D	X	N
33251011	Motor vehicle metal hardware (lock units, door and window handles, hinges, etc.), except forgings	X	9 386	X	10 750
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	34 896	X	43 336
33200091	Other fabricated metal products, except forgings	X	79 850	X	N
33210001	Forgings	X	2 603	X	2 213
33100035	Castings (rough and semifinished)	X	13 917	X	4 976
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	106 850	X	58 409
33120017	Steel sheet and strip, including tin plate	X	98 836	X	86 381
33120019	Steel structural shapes and sheet piling (except castings, forgings, and fabricated metal products)	X	50 678	X	33 939
33120091	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	77 548	X	21 208
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing	X	284 296	X	183 513
33131600	Aluminum and aluminum-base alloy extruded shapes, including extruded rod, bar, pipe, tube, etc.	X	282 385	X	163 132
33100049	Other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	36 737	X	7 086
33100077	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	2 846	X	252
33600001	Purchased chassis for vehicles (excluding passenger cars)	X	9 371	X	16 597
33621103	Truck bodies	X	4 879	X	D
33635003	Transmissions and parts	X	3 512	X	D
33633000	Shocks, struts, and other suspension equipment and parts	X	147 788	X	86 769
33600005	Axles, brakes, drums, rims, wheels, and other metal motor wheel parts	X	346 494	X	264 931
32621003	Pneumatic tires and inner tubes	X	319 774	X	223 158
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	86 294	X	33 901
32720005	Glass and glass products including windows and mirrors	X	D	X	D
32100019	Rough and dressed lumber	X	235 950	X	95 655
00190090	Fluid power products	X	38 804	X	19 197
33632100	Motor vehicle lighting fixtures (including headlights, taillights, running lights, and dome fixtures; except auto lamps)	X	22 900	X	20 111
33511003	Automotive lamps (bulbs and sealed beams)	X	1 752	X	D
33636003	Seats (purchased separately) for automobiles, trucks, and buses	X	D	X	D
32610033	Fabricated plastics products, including components, housings, accessories, etc. (except gaskets, hose and belting)	X	5 018	X	12 477
00970099	All other materials and components, parts, containers, and supplies	X	914 935	X	404 938
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	248 915	X	291 598

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

336212 TRUCK TRAILER MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing truck trailers, truck trailer chassis, cargo container chassis, detachable trailer bodies, and detachable trailer chassis for sale separately.

The data published with NAICS code 336212 include the following SIC industry:

3715 Truck trailers

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
@3362121	For additional detail, see Current Industrial Report M336L , Truck Trailers.

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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121507	3714207	3714207
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3715000	3715000	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121547	3714241	3714241
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121574	3714249	3714249
3361201 pt.	37114 pt.	37114 pt.	33621213100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201 pt.	37115 pt.	37117	3362130	37160	37160	3363123	37144 pt.	37144 pt.
3361201 pt.	37115 pt.	37118	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711407	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711400 pt.	3711400 pt.	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711400 pt.	3711400 pt.	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361201100 pt.	3711500 pt.	3711700	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361201100 pt.	3711500 pt.	3711800	3362130YWW	3716002	3716002	3363123YWW	3714A00 pt.	3714A00 pt.
3361202 pt.	37114 pt.	37114 pt.	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202 pt.	37119	37119	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361202100 pt.	3711409	3711400 pt.	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141207	3792116	3792116	3363210	36470	36470
3361202100 pt.	3711900	3711900	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203	37113	37113	3362141311	3792118	3792118	3363210YWW	3647000 pt.	3647000 pt.
3361203101	3711304	3711304	3362141413	3792125	3792125	3363210YWW	3647002	3647002
3361203104	3711303	3711303	3362141516	3792128	3792128	3363221	36941	36941
3361203YWW	3711300	3711300	3362141YWW	3792100	3792100	3363221101	3694101	3694101
336120W	37110 pt.	37110 pt.	3362143	37996	37996	3363221104	3694102	3694102
336120WYWW	3711000 pt.	3711000 pt.	3362143101	3799611	3799601 pt.	3363221201	3694103	3694103
336120WYWW	3711002 pt.	3711002 pt.	3362143108	3799615	3799604 pt.	3363221204	3694104	3694104
3362111 pt.	37111 pt.	37111 pt.	3362143111	3799617	3799607 pt.	3363221YWW	3694100	3694100
3362111 pt.	37131	37131	3362143114	3799619	3799609 pt.	3363223	36942	36942
3362111 pt.	37149 pt.	37149 pt.	3362143117 pt.	3799651 pt.	3799601 pt.	3363223101	3694201	3694201
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363223104	3694202	3694202
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799604 pt.	3363223201	3694203	3694203
3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223204	3694204	3694204
3362111411	3713115	3713115	3362143YWW	3799600	3799609 pt.	3363223YWW	3694200	3694200
3362111413	3713116	3713116	3362145	37922	37922	3363225	36943	36943
3362111416	3713117	3713117	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111519	3713121	3713121	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111522	3713131	3713131	3362145207	3792247	3792247	3363225201	3694303	3694303
3362111525	3713132	3713132	3362145311 pt.	3792268 pt.	3792261	3363225YWW	3694300	3694300
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792263	3363227	36944	36944
3362111531	3713139	3713139	3362145YWW	3792200	3792200	3363227100	3694400	3694400
3362111534	3713143	3713143	336214W pt.	37920	37920	3363229	36947	36947
3362111537	3713153	3713153	336214W pt.	37990 pt.	37990 pt.	3363229101	3694701	3694701
3362111541	3713155	3713155	336214WYWW pt.	3792000	3792000	3363229201	3694711	3694711
3362111543	3713161	3713161	336214WYWW pt.	3792000	3792000	3363229301	3694702	3694702
3362111546	3713162	3713162	336214WYWW pt.	3792002	3792002	3363229304	3694704	3694704
3362111549	3713163	3713163	336214WYWW pt.	3792002	3792002	3363229307	3694705	3694705
3362111552	3711171	3711171	336214WYWW pt.	3799002 pt.	3799002 pt.	3363229309	3694719	3694719
3362111555	3711181	3711181 pt.	3363111	35921	35921	3363229YWW	3694700	3694700
3362111558	3714925	3714925	3363111101	3592101	3592101	336322A	36949	36949
3362111571 pt.	3713171	3713171	3363111103	3592102	3592102	336322A101	3694901	3694901
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111105	3592103	3592103	336322A204	3694907	3694907
3362111YWW pt.	3713100	3713100	3363111207	3592105	3592105	336322A307	3694911	3694911
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111YWW	3592100	3592100	336322A409	3694912	3694912
3362113 pt.	37114 pt.	37114 pt.	3363113	35922	35922	336322A512	3694913	3694913
3362113101	37132	37132	3363113101	3592201	3592201	336322A615	3694919	3694919
3362113219	3713225	3713225	3363113103	3592202	3592202	336322AYWW	3694900	3694900
3362113304	3713211	3713211	3363113205	3592203	3592203	336322C pt.	36799 pt.	36799 pt.
3362113307	3713213	3713213	3363113207	3592204	3592204	336322C pt.	37149 pt.	37149 pt.
3362113311	3713215	3713215	3363113209	3592205	3592205	336322C pt.	37144 pt.	37144 pt.
3362113313	3713217	3713217	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113316	3713218	3713218	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113322	3713226	3713226	3363113YWW	3592200	3592200	336322C107	3714915	3714915
3362113325	3713227	3713227	3363115	35923	35923	336322C111 pt.	3714921	3714921
3362113328	3713241	3713239 pt.	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714921 pt.
3362113331 pt.	3711411	3711400 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113331 pt.	3713243	3713239 pt.	3363115YWW	3592300	3592300	336322C117	3714944	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	336311W	35920	35920	336322C119	3679926	3679920 pt.
3362113YWW pt.	3713200	3713200	336311WYWW	3592000	3592000	336322C121	3714945	3714941 pt.
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			336311WYWW	3592000	3592000	336322C124	3714A05	3714A41 pt.
			336311WYWW	3592002	3592002	336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127307	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	3364127YVW	3724400	3724400
3363301YVW pt	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412W	37240	37240
3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	336391B000	3585B00	3585400 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131111	3728261	3728261
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585000 pt	3585000 pt	3364131YVW	3728200	3728200
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364133	37283	37283
3363401 pt	32922	32922	3363991	37144	37144	3364133101	3728313	3728313
3363401 pt	37148	37148	3363991101	3714401	3714401	3364133104	3728315	3728315
3363401 pt	37149 pt	37149 pt	3363991104	3714402	3714402	3364133YVW	3728300	3728300
3363401101	3714801	3714801	3363991107	3714404	3714404	3364135	37285	37285
3363401104	3714802	3714802	3363991111	3714405	3714405	3364135101	3728513	3728513
3363401211	3714807	3714807	3363991113	3714407	3714407	3364135104	3728515	3728515
3363401313	3714809	3714809	3363991116	3714408	3714408	3364135207	3728594	3728594
3363401416	3714811	3714811	3363991119	3714409	3714409	3364135211	3728595	3728595
3363401519	3714813	3714813	3363991YVW	3714400	3714400	3364135313	3728598	3728598
3363401625	3714817	3714817	3363993	37145	37145	3364135416	3728599	3728599
3363401707	3714803	3714803	3363993101	3714501	3714501	3364135YVW	3728500	3728500
3363401722	3714815	3714815	3363993104	3714502	3714502	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363993107	3714503	3714503	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363993YVW	3714500	3714500	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363995	37147	37147	3364141	37611	37611
3363401745	3714912	3714912	3363995101	3714701	3714701	3364141100	3761100	3761100
3363401747 pt	3292200 pt	3292200 pt	3363995104	3714705	3714705	3364143	37613	37613
3363401747 pt	3292200 pt	3292211	3363995107	3714707	3714707	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292211	3363995111	3714714	3714714	3364145	37616	37616
3363401747 pt	3292200 pt	3292258	3363995YVW	3714700	3714700	3364145100	3761600	3761600
3363401747 pt	3714827	3714827	3363997 pt	35199 pt	35199 pt	3364147	37612	37612
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	37142 pt	37142 pt	3364147101	3761201	3761201
3363401YVW pt	3714800	3714800	3363997 pt	37149 pt	37149 pt	3364147204	3761202	3761202
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403114	3714A35	3714A35	3363997101	3714901	3714901	336414A101	3761702	3761702
3363403117	3714A37	3714A37	3363997204	3714902	3714902	336414A104	3761703	3761703
3363403121	3714A44	3714A41 pt	3363997307	3714903	3714903	336414AYVW	3761700	3761700
3363403YVW	3714A00 pt	3714A00 pt	3363997401	3714235	3714235	336414W	37610	37610
336340W pt	32920 pt	32920 pt	3363997405	3714236	3714236	336414WYVW	3761000	3761000
336340W pt	37140 pt	37140 pt	3363997409	3519987	3519987	336414WYVW	3761002	3761002
336340WYVW pt	3292000 pt	3292000 pt	3363997514	3714909	3714909	3364151	37645	37645
336340WYVW pt	3714000 pt	3714000 pt	3363997524	3714916	3714916	3364151101	3764511	3764511
336340WYVW pt	3292002 pt	3292002 pt	3363997527	3714922	3714922	3364151204	3764513	3764513
336340WYVW pt	3714002 pt	3714002 pt	3363997531	3714923	3714923	3364151307	3764515	3764515
3363501	37146	37146	3363997534	3714931	3714931	3364151YVW	3764500	3764500
3363501101	3714603	3714603	3363997551	3714951	3714941 pt	3364153	37646	37646
3363501104	3714605	3714605	3363997554	3714A52	3714A41 pt	3364153101	3764611	3764611
3363501207	3714613	3714613	3363997YVW pt	3519900 pt	3519900 pt	3364153104	3764613	3764613
3363501211	3714615	3714615	3363997YVW pt	3714200 pt	3714200 pt	3364153107	3764615	3764615
3363501313	3714623	3714623	3363997YVW pt	3714900 pt	3714900 pt	3364153YVW	3764600	3764600
3363501316	3714625	3714625	336399W pt	35190 pt	35190 pt	3364155	37647	37647
3363501434	3714641	3714641	336399WYVW pt	3519000 pt	3519000 pt	3364155101	3764711	3764711
3363501519	3714628	3714628	336399WYVW pt	3714000 pt	3714000 pt	3364155104	3764713	3764713
3363501522	3714631	3714631	336399WYVW pt	3519002 pt	3519002 pt	3364155107	3764715	3764715
3363501525	3714633	3714633	3364111	37211	37211	3364155YVW	3764700	3764700
3363501528	3714635	3714635	3364111100	3721100	3721100	3364157	37648	37648
3363501531	3714637	3714637	3364113	37215	37215	3364157101	3764811	3764811
3363501537	3714643	3714643	3364113000	3721500	3721500	3364157104	3764813	3764813
3363501541	3714649	3714649	3364115	37217	37217	3364157107	3764815	3764815
3363501YVW	3714600	3714600	3364115101	3721711	3721711	3364157YVW	3764800	3764800
3363503	3714A pt	3714A pt	3364115104	3721751	3721751	336415W	37640	37640
3363503101	3714A04	3714A04	3364115YVW	3721700	3721700	336415WYVW	3764000	3764000
3363503104	3714A27	3714A27				336415WYVW	3764002	3764002

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3364191	37692	37692	3366115	37313	37313	3366127119	3732719	3732719
336419101	3769211	3769211	3366115101	3731315	3731315	3366127YVW	3732700	3732700
336419104	3769213	3769213	3366115107	3731335	3731335	336612W	37320 pt	37320 pt
3364191207	3769219	3769219	3366115111	3731343	3731343	336612WYVW	3732000 pt	3732000 pt
3364191311	3769225	3769225	3366115113	3731348	3731348	336612WYVWY	3732002 pt	3732002 pt
3364191413	3769235	3769235	3366115116	3731357	3731357	3369911 pt	37511	37511
3364191YVW	3769200	3769200	3366115119	3731321	3731321	3369911 pt	39443 pt	39443 pt
			3366115121	3731332	3731332	3369911101 pt	3751148 pt	3751139
3364193	37694	37694	3366115123	3731333	3731333	3369911101 pt	3751148 pt	3751141
3364193101	3769414	3769414	3366115124 pt	3731361 pt	3731324	3369911101 pt	3751148 pt	3751143
3364193104	3769419	3769419	3366115124 pt	3731361 pt	3731326	3369911101 pt	3751148 pt	3751145
3364193107	3769425	3769425	3366115124 pt	3731361 pt	3731328	3369911101 pt	3751148 pt	3751147
3364193111	3769435	3769435	3366115YVW	3731300	3731300	3369911101 pt	3751148 pt	3751149
3364193YVW	3769400	3769400				3369911101 pt	3751148 pt	3751155
			3366117	37314	37314	3369911104 pt	3751109	3751109
336419W	37690	37690	3366117101	3731441	3731441	3369911104 pt	3944336	3944346 pt
336419WYVW	3769000	3769000	3366117104	3731449	3731449	3369911109	3751110	3751110
336419WYVWY	3769002	3769002	3366117YVW	3731400	3731400	3369911113	3751112	3751112
						3369911116	3751115	3751115
3365101	37431 pt	37431 pt	3366119	37316	37316	3369911119	3751116	3751116
3365101101	3743102	3743101 pt	3366119101	3731601	3731601	3369911122 pt	3751124 pt	3751113
3365101104	3743104	3743101 pt	3366119104	3731602	3731602	3369911122 pt	3751124 pt	3751114
3365101107	3743105	3743101 pt	3366119YVW	3731600	3731600	3369911122 pt	3751124 pt	3751123
3365101111	3743113	3743103 pt				3369911YVW pt	3751100	3751100
3365101YVW	3743100 pt	3743100 pt	336611W	37310	37310	3369911YVWY pt	3944300 pt	3944300 pt
			336611WYVW	3731000	3731000			
3365103	37432	37432	336611WYVWY	3731002	3731002			
3365103100	3743200 pt	3743200				3369913	37512	37512
3365103100 pt	3743200 pt	3743211	3366121	37322	37322	3369913100 pt	3751200 pt	3751200
3365103100 pt	3743200 pt	3743215	3366121104	3732201	3732201	3369913100 pt	3751200 pt	3751201
3365103100 pt	3743200 pt	3743235	3366121107	3732211	3732211	3369913100 pt	3751200 pt	3751209
3365103100 pt	3743200 pt	3743241	3366121111	3732207	3732207			
3365103100 pt	3743200 pt	3743265	3366121113	3732209	3732219 pt	336991W pt	37510	37510
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3365105 pt	3531X pt	3531M pt	3366121119	3732220	3732219 pt	336991WYVWY pt	3751000	3751000
			3366121225	3732221	3732221	336991WYVWY pt	3944000 pt	3944000 pt
3365105 pt	3531X pt	3531P pt	3366121225	3732223	3732223	336991WYVWY pt	3751002	3751002
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3365105 pt	37433	37433	3366121231	3732227	3732227	3369920 pt	37114 pt	37114 pt
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3365105405	3531X21	3531P21	3366121243	3732224	3732229 pt	3369920111	3795001	3795001
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3365105411	3743311	3743311	3366121246	3732228	3732228	3369920216	3711401	3711400 pt
3365105413	3743312	3743312	3366121337	3732228	3732228	3369920217	3795098	3795098
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3365105YVW pt	3531X00 pt	3531M00 pt	3366123104	3732311	3732311	3369920YVWY pt	3711002 pt	3711002 pt
3365105YVW pt	3531X00 pt	3531P00 pt	3366123107	3732316	3732316	3369920YVWY pt	3795002	3795002
3365105YVW pt	3743300	3743300	3366123201	3732304	3732304			
			3366123211	3732321	3732321	3369991	37993	37993
336510W pt	35310 pt	35310 pt	3366123YVW	3732300	3732300	3369991101	3799382	3799382
						3369991104	3799384	3799384
336510W pt	37430 pt	37430 pt	3366125	37324	37324	3369991YVW	3799300	3799300
336510WYVW pt	3531000 pt	3531000 pt	3366125107	3732405	3732405			
336510WYVWY pt	3743000 pt	3743000 pt	3366125201	3732401	3732401	3369993	37999 pt	37999 pt
336510WYVWY pt	3531002 pt	3531002 pt	3366125204	3732403	3732403	3369993101	3799903	3799903
336510WYVWY pt	3743002 pt	3743002 pt	3366125211	3732406	3732409 pt	3369993204	3799904	3799904
			3366125213 pt	3732408 pt	3732407	3369993307	3799905	3799905
			3366125213 pt	3732408 pt	3732409 pt	3369993314	3799916	3799923 pt
			3366125YVW	3732400	3732400	3369993414	3799917	3799923 pt
						3369993417	3799915	3799923 pt
3366111	37311	37311	3366127	37327	37327	3369993421	3799920	3799923 pt
3366111101	3731111	3731111	3366127101	3732702	3732702	3369993513	3799925	3799925
3366111104	3731107	3731107	3366127104	3732704	3732704	3369993YVW	3799900 pt	3799900 pt
3366111107	3731119	3731119	3366127107	3732706	3732706			
3366111YVW	3731100	3731100	3366127111	3732708	3732708	336999W	37990 pt	37990 pt
			3366127113	3732712	3732712	336999WYVW	3799000 pt	3799000 pt
3366113	37312	37312	3366127116	3732717	3732717	336999WYVWY	3799002 pt	3799002 pt
3366113100	3731200	3731200						

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Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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 shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
336213	Motor home mfg	74	86	17 936	503 294	14 765	29 611	353 049	1 228 486	2 679 768	3 895 449	49 753
371600	Motor homes	N	86	17 936	503 294	14 765	29 611	353 049	1 228 486	2 679 768	3 895 449	49 753

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)				
336213, MOTOR HOME MFG												
United States	-	86	49	17 936	503 294	14 765	29 611	353 049	1 228 486	2 679 768	3 895 449	49 753
California	-	9	6	2 528	57 783	2 150	4 442	45 147	171 395	389 074	554 229	10 033
Indiana	-	26	17	6 370	201 561	5 244	10 005	145 445	530 865	1 229 704	1 754 025	24 957
Michigan	-	5	4	928	27 202	782	1 516	17 063	52 112	140 163	189 511	1 627
Missouri	-	4	2	116	3 038	78	166	1 632	5 648	12 329	17 941	31
Oregon	-	5	5	1 768	39 374	1 595	3 328	32 045	100 008	205 430	306 395	2 311
Tennessee	3	4	2	189	4 568	156	333	2 707	6 057	14 925	20 950	56

* 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
336213, MOTOR HOME MFG		336213, MOTOR HOME MFG—Con.	
Companies ¹	number.. 74	Value added	\$1,000.. 1 228 486
All establishments	number.. 86	Total inventories, beginning of year	\$1,000.. 457 163
Establishments with 1 to 19 employees	number.. 37	Finished goods inventories, beginning of year	\$1,000.. 113 936
Establishments with 20 to 99 employees	number.. 14	Work-in-process inventories, beginning of year	\$1,000.. 103 616
Establishments with 100 employees or more	number.. 35	Materials and supplies inventories, beginning of year	\$1,000.. 239 611
All employees	number.. 17 936	Total inventories, end of year	\$1,000.. 453 611
Total compensation ²	\$1,000.. 604 576	Finished goods inventories, end of year	\$1,000.. 115 428
Annual payroll	\$1,000.. 503 294	Work-in-process inventories, end of year	\$1,000.. 114 929
Total fringe benefits	\$1,000.. 101 282	Materials and supplies inventories, end of year	\$1,000.. 223 254
Production workers, average for year	number.. 14 765	Gross book value of total assets at beginning of year	\$1,000.. 365 062
Production workers on March 15	number.. 14 556	Total capital expenditures (new and used)	\$1,000.. 49 753
Production workers on May 15	number.. 14 688	Capital expenditures for buildings and other structures	
Production workers on August 15	number.. 14 584	(new and used)	\$1,000.. 25 065
Production workers on November 15	number.. 15 232	Capital expenditures for machinery and equipment (new	
Production-worker hours	1,000.. 29 611	and used)	\$1,000.. 24 688
Production-worker wages	\$1,000.. 353 049	Total retirements ²	\$1,000.. 32 390
Total cost of materials	\$1,000.. 2 679 768	Gross book value of total assets at end of year	\$1,000.. 382 425
Cost of materials, parts, containers, etc., consumed	\$1,000.. 2 627 035	Total depreciation during year ²	\$1,000.. 25 105
Cost of resales	\$1,000.. 33 083	Total rental payments ²	\$1,000.. 11 511
Cost of fuels	\$1,000.. 4 338	Buildings and other structures rental payments ²	\$1,000.. 8 709
Cost of purchased electricity	\$1,000.. 8 834	Machinery and equipment rental payments ²	\$1,000.. 2 802
Cost of contract work	\$1,000.. 6 478	Cost of purchased services for the repair of buildings and other	
Quantity of electricity purchased for heat and power	1,000 kWh.. 149 800	structures ³	\$1,000.. S
Quantity of electricity generated less sold for heat and power	1,000 kWh.. -	Response coverage ratio ⁴	percent.. S
Total value of shipments	\$1,000.. 3 895 449	Cost of purchased services for the repair of machinery and	
Primary products value of shipments	\$1,000.. 3 508 726	equipment ³	\$1,000.. 4 287
Secondary products value of shipments	\$1,000.. 288 432	Response coverage ratio ⁴	percent.. 83
Total miscellaneous receipts	\$1,000.. 98 291	Cost of purchased communications services ³	\$1,000.. 4 144
Value of resales	\$1,000.. 40 266	Response coverage ratio ⁴	percent.. 83
Contract receipts	\$1,000.. D	Cost of purchased legal services ³	\$1,000.. 6 746
Other miscellaneous receipts	\$1,000.. D	Response coverage ratio ⁴	percent.. 83
Primary products specialization ratio	percent.. 92	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 1 060
Value of primary products shipments made in all industries	\$1,000.. 3 533 144	Response coverage ratio ⁴	percent.. 83
Value of primary products shipments made in this industry	\$1,000.. 3 508 726	Cost of purchased advertising services ³	\$1,000.. 19 742
Value of primary products shipments made in other		Response coverage ratio ⁴	percent.. 83
industries	\$1,000.. 24 418	Cost of purchased software and other data processing	
Coverage ratio	percent.. 99	services ³	\$1,000.. 1 330
		Response coverage ratio ⁴	percent.. 83
		Cost of purchased refuse removal (including hazardous waste)	
		services ³	\$1,000.. 3 003
		Response coverage ratio ⁴	percent.. 83

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)				
336213, MOTOR HOME MFG												
All establishments	-	86	49	17 936	503 294	14 765	29 611	353 049	1 228 486	2 679 768	3 895 449	49 753
Establishments with 1 to 4 employees	9	18	-	35	913	31	49	533	2 053	4 505	6 647	62
Establishments with 5 to 9 employees	8	9	-	53	1 419	40	68	804	2 756	6 085	8 816	83
Establishments with 10 to 19 employees	6	10	-	132	2 936	99	160	1 719	6 775	11 050	17 783	146
Establishments with 20 to 49 employees	5	8	8	257	6 196	197	384	3 692	11 899	18 345	30 100	181
Establishments with 50 to 99 employees	3	6	6	404	10 412	315	565	5 820	23 422	46 853	67 967	490
Establishments with 100 to 249 employees	1	9	9	1 536	36 152	1 223	2 228	22 759	75 097	149 152	222 673	2 011
Establishments with 250 to 499 employees	-	15	15	5 119	140 370	4 268	8 971	105 931	371 431	865 197	1 229 743	10 365
Establishments with 500 to 999 employees	-	8	8	5 391	158 540	4 563	9 480	113 614	425 101	907 947	1 331 198	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	-	1	1	D	D	D	D	D	D	D	D	D
Administrative records ²	9	26	-	118	2 833	94	144	1 649	6 384	13 962	20 234	194

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)				
336213	Motor home mfg	86	17 936	503 294	14 765	29 611	353 049	1 228 486	2 679 768	3 895 449	49 753

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)
336213	Motor homes produced on purchased chassis	N	X	X	3 533 144	N	X	X	3 163 969
3362130	Motor homes built on purchased chassis	N	X	X	3 533 144	N	X	X	3 163 969
33621301	Motor homes built on purchased chassis	N	X	X	3 392 094	N	X	X	N
3362130101	Conventional (type A) motor homes built on purchased chassis	17	X	X	2 564 616	26	X	X	1 390 050
3362130104	Chopped van (type C) motor homes built on purchased chassis	12	X	X	435 556	18	X	X	390 788
3362130107	Van camper (type B) motor homes built on purchased chassis	6	X	X	28 990	3	X	X	7 657
3362130111	Converted vans not qualifying as van campers (type B) motor homes built on purchased chassis	12	X	X	362 932	11	X	X	1 195 772
3362130Y	Motor homes produced on purchased chassis, nsk, total	N	X	X	141 050	N	X	X	N
3362130YWW	Motor homes produced on purchased chassis, nsk, for nonadministrative-record establishments	N	X	X	118 975	N	X	X	164 699
3362130YWY	Motor homes produced on purchased chassis, nsk, for administrative-record establishments	N	X	X	22 075	N	X	X	15 003

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)
336213	MOTOR HOME MFG				
33600003	Trailer axles, wheels, brakes, undercarriages, and other metal vehicular parts	X	163 767	X	96 566
32621003	Pneumatic tires and inner tubes	X	14 569	X	D
33612000	Purchased chassis for motor homes	X	938 009	X	533 666
001900B2	Household appliances, including refrigerators, cooking equipment, and other household appliances, exc. air conditioners	X	119 436	X	73 364
001900A7	Air-conditioning equipment	X	40 291	X	24 339
33341401	Metal heating equipment (except electric)	X	19 314	X	10 096
33232101	Metal doors and door units, windows and window units	X	41 735	X	25 448
33291300	Metal plumbing fixtures, fittings, and trim (including enameled) (except forgings)	X	26 319	X	9 993
332000A9	Sheet metal products, except stampings	X	35 897	X	16 964
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	12 312	X	N
33200083	Other fabricated metal products, except forgings	X	9 683	X	N
33210001	Forgings	X	D	X	N
33100035	Castings (rough and semifinished)	X	D	X	D
33120001	Steel shapes and forms (except castings, forgings, and fabricated metal products)	X	45 468	X	15 380
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing	X	37 734	X	N
33100055	All other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	N
33100077	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	5 791	X	N
33593101	Current-carrying wiring devices	X	84 447	X	47 605
32121003	Plywood	X	77 975	X	41 865
32100021	Dressed lumber	X	55 239	X	37 947
00190099	Millwork, wood (including wood doors, window sash, moldings, and cabinets)	X	76 580	X	31 338
32720005	Glass and glass products including windows and mirrors	X	35 471	X	15 047
32610011	Fabricated plastics products (except gaskets)	X	33 827	X	23 393
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	18 750	X	23 415
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	13 897	X	8 719
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	33 683	X	8 857
31411003	Carpeting	X	37 530	X	21 735
31412100	Curtains and draperies	X	43 200	X	17 657
00190075	Molded composites	X	61 701	X	N
00970099	All other materials and components, parts, containers, and supplies	X	332 822	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	186 051	X	501 971

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

336213 MOTOR HOME MANUFACTURING

This U.S. industry comprises establishments primarily engaged in (1) manufacturing motor homes on purchased chassis and/or (2) manufacturing conversion vans on an assembly line basis. Motor homes are units where the motor and the living quarters are integrated in the same unit.

The data published with NAICS code 336213 include the following SIC industry:

3716 Motor homes

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		
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3713002	3713002	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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 shipments (\$1,000)	Total capital expenditures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
336214	Travel trailer & camper mfg	748	806	32 036	770 504	25 942	49 315	527 220	1 624 840	2 724 961	4 339 783	62 502
379200	Travel trailer & campers	N	311	19 800	497 805	16 250	31 224	343 137	1 061 496	1 917 413	2 988 732	34 621
379920	Transportation equipment, n.e.c. (pt)	N	495	12 236	272 699	9 692	18 091	184 083	563 344	807 548	1 351 051	27 881

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 expenditures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
336214, TRAVEL TRAILER & CAMPER MFG												
United States	1	806	311	32 036	770 504	25 942	49 315	527 220	1 624 840	2 724 961	4 339 783	62 502
Arizona	2	18	2	161	3 046	133	207	2 108	5 508	8 173	13 658	826
California	1	79	33	3 431	79 764	2 783	5 229	54 540	186 447	274 253	443 874	5 703
Florida	1	46	10	872	17 537	715	1 247	11 958	37 803	55 860	94 097	1 205
Idaho	1	17	10	820	16 682	706	1 319	12 135	25 635	52 050	79 459	956
Indiana	-	85	61	7 958	228 598	6 430	13 575	161 167	455 527	906 726	1 373 696	19 593
Kansas	-	19	12	1 317	27 865	979	1 923	18 430	48 208	107 811	160 787	1 130
Michigan	3	25	10	815	25 086	618	1 331	15 278	50 441	77 668	128 744	2 464
Mississippi	-	6	3	119	2 142	100	170	1 488	3 730	5 665	9 371	764
Missouri	1	37	11	783	15 005	651	1 044	9 845	36 066	52 556	90 501	1 390
North Carolina	3	22	3	248	6 106	196	384	4 054	11 515	18 803	31 158	386
Oklahoma	1	30	19	1 948	39 031	1 620	3 031	27 275	103 372	132 068	231 213	3 942
Oregon	1	27	12	1 589	36 211	1 376	2 477	24 515	75 418	123 003	196 937	1 852
Pennsylvania	-	37	15	1 893	47 326	1 553	2 666	30 860	104 456	146 892	249 011	2 889
South Carolina	6	14	2	129	2 893	83	145	1 481	6 321	11 589	18 100	356
Texas	2	74	26	2 034	47 034	1 675	3 218	32 705	94 458	158 326	252 954	3 971

* 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
336214, TRAVEL TRAILER & CAMPER MFG		336214, TRAVEL TRAILER & CAMPER MFG—Con.	
Companies ¹	number.. 748	Value added	\$1,000.. 1 624 840
All establishments	number.. 806	Total inventories, beginning of year	\$1,000.. 440 878
Establishments with 1 to 19 employees	number.. 495	Finished goods inventories, beginning of year	\$1,000.. 174 619
Establishments with 20 to 99 employees	number.. 225	Work-in-process inventories, beginning of year	\$1,000.. 62 231
Establishments with 100 employees or more	number.. 86	Materials and supplies inventories, beginning of year	\$1,000.. 204 028
All employees	number.. 32 036	Total inventories, end of year	\$1,000.. 473 969
Total compensation ²	\$1,000.. 926 269	Finished goods inventories, end of year	\$1,000.. 182 868
Annual payroll	\$1,000.. 770 504	Work-in-process inventories, end of year	\$1,000.. 64 000
Total fringe benefits	\$1,000.. 155 765	Materials and supplies inventories, end of year	\$1,000.. 227 101
Production workers, average for year	number.. 25 942	Gross book value of total assets at beginning of year	\$1,000.. 543 952
Production workers on March 15	number.. 25 919	Total capital expenditures (new and used)	\$1,000.. 62 502
Production workers on May 15	number.. 26 158	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 26 832
Production workers on August 15	number.. 25 990	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 35 670
Production workers on November 15	number.. 25 701	Total retirements ²	\$1,000.. 14 870
Production-worker hours	1,000.. 49 315	Gross book value of total assets at end of year	\$1,000.. 591 584
Production-worker wages	\$1,000.. 527 220	Total depreciation during year ²	\$1,000.. 44 644
Total cost of materials	\$1,000.. 2 724 961	Total rental payments ²	\$1,000.. 30 001
Cost of materials, parts, containers, etc., consumed	\$1,000.. 2 533 304	Buildings and other structures rental payments ²	\$1,000.. 17 147
Cost of resales	\$1,000.. 138 816	Machinery and equipment rental payments ²	\$1,000.. 12 854
Cost of fuels	\$1,000.. 8 405	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 5 023
Cost of purchased electricity	\$1,000.. 14 714	Response coverage ratio ⁴	percent.. 78
Cost of contract work	\$1,000.. 29 722	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 8 538
Quantity of electricity purchased for heat and power	1,000 kWh.. 244 090	Response coverage ratio ⁴	percent.. 78
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 7 563
Total value of shipments	\$1,000.. 4 339 783	Response coverage ratio ⁴	percent.. 78
Primary products value of shipments	\$1,000.. 4 048 169	Cost of purchased legal services ³	\$1,000.. 4 106
Secondary products value of shipments	\$1,000.. 103 890	Response coverage ratio ⁴	percent.. 78
Total miscellaneous receipts	\$1,000.. 187 724	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 2 657
Value of resales	\$1,000.. 165 589	Response coverage ratio ⁴	percent.. 78
Contract receipts	\$1,000.. 4 137	Cost of purchased advertising services ³	\$1,000.. 19 042
Other miscellaneous receipts	\$1,000.. 17 998	Response coverage ratio ⁴	percent.. 78
Primary products specialization ratio	percent.. 97	Cost of purchased software and other data processing services ³	\$1,000.. 2 171
Value of primary products shipments made in all industries	\$1,000.. 4 455 694	Response coverage ratio ⁴	percent.. 78
Value of primary products shipments made in this industry	\$1,000.. 4 048 169	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 4 543
Value of primary products shipments made in other industries	\$1,000.. 407 525	Response coverage ratio ⁴	percent.. 78
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)				
336214, TRAVEL TRAILER & CAMPER MFG												
All establishments	1	806	311	32 036	770 504	25 942	49 315	527 220	1 624 840	2 724 961	4 339 783	62 502
Establishments with 1 to 4 employees	9	248	—	483	9 127	404	575	5 792	17 336	31 862	49 636	1 164
Establishments with 5 to 9 employees	7	128	—	864	16 540	679	1 045	10 797	31 829	58 871	91 869	1 918
Establishments with 10 to 19 employees	5	119	—	1 612	33 972	1 261	2 153	22 208	70 684	108 992	180 048	3 633
Establishments with 20 to 49 employees	2	160	160	4 926	106 245	3 843	6 856	69 357	201 474	321 904	524 020	10 416
Establishments with 50 to 99 employees	1	65	65	4 558	115 188	3 573	7 110	74 500	241 252	347 610	586 466	10 067
Establishments with 100 to 249 employees	—	59	59	8 589	225 972	7 027	13 647	156 400	468 764	797 873	1 256 193	12 318
Establishments with 250 to 499 employees	—	22	22	7 139	182 323	5 949	11 792	125 323	373 899	664 422	1 035 222	8 269
Establishments with 500 to 999 employees	—	4	4	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	334	—	1 591	28 967	1 281	1 827	18 995	59 099	104 770	165 031	3 277

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)				
336214	Travel trailer & camper mfg	806	32 036	770 504	25 942	49 315	527 220	1 624 840	2 724 961	4 339 783	62 502
3362141	Travel trailers	72	13 109	326 725	10 988	21 319	234 704	682 710	1 382 435	2 077 105	21 465
3362143	Automobile and light truck trailers	228	10 693	244 401	8 490	16 385	166 496	515 349	712 822	1 206 272	23 288
3362145	Camping trailers, campers, pickup covers, and parts	68	5 276	141 056	4 132	8 001	88 897	311 930	426 357	736 357	10 661

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)
336214	Travel trailers and campers	N	X	X	4 455 694	N	X	X	N
3362141	Travel trailers	N	X	X	2 067 870	N	X	X	1 465 374
33621411	Conventional travel trailers, up to 24 ft 11 in. (7.595 m) in length	N	X	X	353 616	N	X	X	N
3362141101	Conventional travel trailers, less than 20 ft (6.096 m) in length	24	X	X	122 935	19	X	X	63 294
3362141104	Conventional travel trailers, 20 ft (6.096 m) to 24 ft 11 in. (7.595 m) in length	21	X	X	230 681	19	X	X	253 978
33621412	Conventional travel trailers, 25 ft (7.620 m) to 29 ft 11 in. (9.118 m) in length	N	X	X	322 707	N	X	X	N
3362141207	Conventional travel trailers, 25 ft (7.620 m) to 29 ft 11 in. (9.118 m) in length	28	X	X	322 707	23	X	X	183 826
33621413	Conventional travel trailers, 30 ft (9.144 m) or more in length, including park models	N	X	X	305 421	N	X	X	N
3362141311	Conventional travel trailers, 30 ft (9.144 m) or more in length, including park models	33	X	X	305 421	34	X	X	218 801
33621414	Fifth wheel travel trailers, less than 30 ft (9.144 m) in length	N	X	X	379 644	N	X	X	N
3362141413	Fifth wheel travel trailers, less than 30 ft (9.144 m) in length	29	X	X	379 644	26	X	X	247 190
33621415	Fifth wheel travel trailers, 30 ft (9.144 m) or more in length	N	X	X	526 743	N	X	X	N
3362141516	Fifth wheel travel trailers, 30 ft (9.144 m) or more in length	31	X	X	526 743	27	X	X	333 420
3362141Y	Travel trailers, nsk	N	X	X	179 739	N	X	X	N
3362141YWV	Travel trailers, nsk	N	X	X	179 739	N	X	X	164 865
3362143	Automobile and light truck trailers	N	X	X	1 230 710	N	X	X	686 131
33621431	Automobile and light truck trailers	N	X	X	1 171 824	N	X	X	N
3362143101	Automobile and light truck horse trailers 26,000 lb or less GVW, excluding those pulled by truck tractors	52	X	X	263 073	N	X	X	N
3362143105	Automobile and light truck boat trailers 26,000 lbs or less GVW	102	X	X	401 727	N	X	X	N
3362143108	Automobile and light truck mobile equipment trailers 26,000 lbs or less GVW	38	X	X	99 348	N	X	X	N
3362143111	Other automobile and light truck trailers 26,000 lbs or less GVW, including general utility, commercial display, etc., for transport of goods	58	X	X	183 949	N	X	X	N
3362143114	Other automobile and light truck trailers 26,000 lbs or less GVW, including general utility, commercial display, etc., for other uses	61	X	X	223 727	N	X	X	N
3362143117	Automobile and light truck trailers 26,001 lbs or more GVW	-	X	X	-	N	X	X	N
3362143Y	Automobile and light truck trailers, nsk	N	X	X	58 886	N	X	X	N
3362143YWV	Automobile and light truck trailers, nsk	N	X	X	58 886	N	X	X	20 484
3362145	Camping trailers, campers, pickup covers, and parts	N	X	X	851 768	N	X	X	585 654
33621451	Folddown camping trailers	N	X	X	277 789	N	X	X	N
3362145101	Folddown camping trailers	11	X	X	277 789	10	X	X	157 814
33621452	Truck (pickup) campers (for sliding on and off trucks), caps, or box covers	N	X	X	251 686	N	X	X	N
3362145204	Truck (pickup) campers (for sliding on and off trucks), excluding parts	16	X	X	48 484	21	X	X	51 678
3362145207	Truck (pickup) caps or box covers, excluding parts	27	X	X	203 202	39	X	X	176 280
33621453	Other parts for travel and camping trailers (including bodies and chassis), and parts for pickup campers and caps (excluding appliances and furnishings)	N	X	X	322 293	N	X	X	N
3362145311	Other parts for travel and camping trailers (including bodies and chassis), and parts for pickup campers and caps (excluding appliances and furnishings)	52	X	X	322 293	N	X	X	N
3362145Y	Camping trailers, campers, pickup covers, and parts, nsk	N	X	X	-	N	X	X	N
3362145YWV	Camping trailers, campers, pickup covers, and parts, nsk	N	X	X	-	N	X	X	51 906
336214W	Travel trailers and campers, nsk, total	N	X	X	305 346	N	X	X	N
336214WY	Travel trailer and camper manufacturing, nsk, total	N	X	X	305 346	N	X	X	N
336214WYWV	Travel trailer and camper manufacturing, nsk, for nonadministrative-record establishments	N	X	X	148 009	N	X	X	N
336214WYWY	Travel trailer and camper manufacturing, nsk, for administrative-record establishments	N	X	X	157 337	N	X	X	N

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

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
3362141	TRAVEL TRAILERS		
	United States	2 067 870	1 465 374
	California	217 156	98 320
	Indiana	1 079 950	761 646
	Kansas	116 388	95 681
	Ohio	61 071	52 037
	Oregon	156 621	N
	Pennsylvania	52 534	47 632
	Texas	86 245	N
	3362143	AUTOMOBILE AND LIGHT TRUCK TRAILERS	
United States		1 230 710	686 131
Arizona		7 104	6 856
Arkansas		21 136	16 091
California		89 321	37 915
Florida		62 191	23 241
Georgia		14 158	2 391
Idaho		33 637	22 547
Illinois		13 824	10 148
Indiana		106 473	52 204
Iowa		173 549	68 990
Kansas		25 360	13 167
Michigan		33 317	14 488
Minnesota		15 932	29 768
Mississippi		7 942	4 855
Missouri		53 839	36 131
New York		4 448	N
North Carolina		21 357	10 163
Ohio		24 337	16 877
Oklahoma		156 212	94 107
Oregon		6 163	N
Pennsylvania		47 423	27 360
Tennessee		43 427	35 361
Texas		113 670	44 461
Utah		30 658	N
Washington		33 290	N
Wisconsin		55 138	20 358
3362145		CAMPING TRAILERS, CAMPERS, PICKUP COVERS, AND PARTS	
	United States	851 768	585 654
	California	92 201	62 211
	Indiana	264 132	208 553
	Iowa	43 971	N
	Kansas	9 344	N
	Michigan	77 365	34 866
	Ohio	5 914	N
	Oregon	20 817	N

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

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)
336214	TRAVEL TRAILER & CAMPER MFG				
33600003	Trailer axles, wheels, brakes, undercarriages, and other metal vehicular parts	X	236 572	X	N
32621003	Pneumatic tires and inner tubes	X	81 429	X	N
33612000	Purchased chassis for motor homes	X	33 983	X	N
001900B2	Household appliances, including refrigerators, cooking equipment, and other household appliances, exc. air conditioners	X	120 882	X	N
001900A7	Air-conditioning equipment	X	43 445	X	N
33210001	Forgings	X	D	X	N
33100035	Castings (rough and semifinished)	X	D	X	N
33200081	Fabricated metal products (except forgings)	X	285 534	X	N
33120001	Steel shapes and forms (except castings, forgings, and fabricated metal products)	X	156 714	X	N
33100039	Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	110 693	X	N
33100077	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	3 800	X	N
33593101	Current-carrying wiring devices	X	42 236	X	N
32720005	Glass and glass products including windows and mirrors	X	45 242	X	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	29 206	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	45 807	X	N
31411003	Carpeting	X	28 821	X	N
31412100	Curtains and draperies	X	28 543	X	N
00970099	All other materials and components, parts, containers, and supplies	X	719 438	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	512 117	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

336214 TRAVEL TRAILER AND CAMPER MANUFACTURING

This U.S. industry comprises establishments primarily engaged in one or more of the following: (1) manufacturing travel trailers and campers designed to attach to motor vehicles; (2) manufacturing pickup coaches (i.e., campers) and caps (i.e., covers) for mounting on pickup trucks; and (3) manufacturing automobile, utility and light-truck trailers. Travel trailers do not have their own motor

but are designed to be towed by a motor unit, such as an automobile or a light truck.

The data published with NAICS code 336214 include the following SIC industries:

- 3792 Travel trailer and campers
- 3799 Transportation equipment, 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
3361110 pt.....	37110 pt.....	37110 pt	336211W pt.....	37110 pt.....	37110 pt	3363121.....	37142 pt.....	37142 pt
3361110 pt.....	37111 pt.....	37111 pt	336211W pt.....	37130.....	37130	3363121101.....	3714201.....	3714201
3361110 pt.....	37114 pt.....	37114 pt	336211W pt.....	37140 pt.....	37140 pt	3363121224.....	3714218.....	3714218
336111000 pt.....	3711100 pt.....	3711100 pt	336211WYWW pt.....	3711000 pt.....	3711000 pt	3363121351.....	3714231.....	3714231
336111000 pt.....	3711111.....	3711111 pt	336211WYWW pt.....	3713000.....	3713000	3363121354.....	3714232.....	3714232
336111000 pt.....	3711151.....	3711151	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121457.....	3714234.....	3714234
336111000 pt.....	3711400 pt.....	3711400 pt	336211WYWW pt.....	3711002 pt.....	3711002 pt	3363121467.....	3714237.....	3714237
336111000 pt.....	3711403.....	3711400 pt	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121504.....	3714206.....	3714206
3361110YWW.....	3711000 pt.....	3711000 pt	336211WYWW pt.....	3713002.....	3713002	3363121507.....	3714207.....	3714207
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3714002 pt.....	3714002 pt	3363121511.....	3714208.....	3714208
3361120 pt.....	37110 pt.....	37110 pt	3362121.....	37151.....	37151	3363121514.....	3714209.....	3714209
3361120 pt.....	37114 pt.....	37114 pt	3362121000.....	3715100.....	3715100	3363121517.....	3714215.....	3714215
3361120 pt.....	37116.....	37116	3362121000.....	3715100.....	3715100	3363121521.....	3714216.....	3714216
3361120100 pt.....	3711405.....	3711400 pt	3362121000.....	3715100.....	3715100	3363121527.....	3714217.....	3714217
3361120100 pt.....	3711400 pt.....	3711400 pt	3362121000.....	3715100.....	3715100	3363121531.....	3714222.....	3714222
3361120100 pt.....	3711600.....	3711600	336212123.....	37152.....	37152	3363121534.....	3714224.....	3714224
3361120YWW.....	3711000 pt.....	3711000 pt	33621213100.....	3715200.....	3715200	3363121537.....	3714225.....	3714225
3361120YWW.....	3711002 pt.....	3711002 pt	336212W.....	37150.....	37150	3363121541.....	3714226.....	3714226
3361201 pt.....	37114 pt.....	37114 pt	336212WYWW.....	3715000.....	3715000	3363121544.....	3714227.....	3714227
3361201 pt.....	37115 pt.....	37117	336212WYWW.....	3715002.....	3715002	3363121571.....	3714241.....	3714241
336120100 pt.....	3711407.....	3711400 pt	3362130YWW.....	3716000.....	3716000	3363121574.....	3714249.....	3714249
336120100 pt.....	3711400 pt.....	3711400 pt	3362130YWW.....	3716002.....	3716002	3363121YWW.....	3714200 pt.....	3714200 pt
336120100 pt.....	3711500 pt.....	3711700	3362130.....	37160.....	37160	3363123.....	37144 pt.....	37144 pt
336120100 pt.....	3711500 pt.....	3711800	3362130101.....	3716001.....	3716001	3363123101.....	3714A02.....	3714A02
3361202 pt.....	37114 pt.....	37114 pt	3362130104.....	3716005.....	3716005	3363123104.....	3714A03.....	3714A03
3361202 pt.....	37119.....	37119	3362130107.....	3716007.....	3716007	3363123107.....	3714A23.....	3714A23
336120200 pt.....	3711409.....	3711400 pt	3362130111.....	3716021.....	3716021	3363123111.....	3714A25.....	3714A25
336120200 pt.....	3711400 pt.....	3711400 pt	3362130YWW.....	3716000.....	3716000	3363123121.....	3714A43.....	3714A41 pt
336120200 pt.....	3711900.....	3711900	3362130YWW.....	3716002.....	3716002	3363123YV.....	3714A00 pt.....	3714A00 pt
3361203.....	37113.....	37113	3362141.....	37921.....	37921	336312W.....	37140 pt.....	37140 pt
336120301.....	3711304.....	3711304	3362141101.....	3792112.....	3792112	336312WYWW.....	3714000 pt.....	3714000 pt
336120304.....	3711303.....	3711303	3362141104.....	3792114.....	3792114	336312WYWW.....	3714002 pt.....	3714002 pt
3361203YV.....	3711300.....	3711300	3362141207.....	3792116.....	3792116			
336120W.....	37110 pt.....	37110 pt	3362141311.....	3792118.....	3792118	3363210.....	36470.....	36470
336120WYWW.....	3711000 pt.....	3711000 pt	3362141413.....	3792125.....	3792125	3363210100.....	3647000 pt.....	3647000 pt
336120WYWW.....	3711002 pt.....	3711002 pt	3362141516.....	3792128.....	3792128	3363210YWW.....	3647000 pt.....	3647000 pt
3362111 pt.....	37111 pt.....	37111 pt	3362141YV.....	3792100.....	3792100	3363210YV.....	3647002.....	3647002
3362111 pt.....	37131.....	37131	3362143.....	37996.....	37996	3363221.....	36941.....	36941
3362111 pt.....	37149 pt.....	37149 pt	3362143101.....	3799611.....	3799601 pt	3363221101.....	3694101.....	3694101
3362111101.....	3713101.....	3713101	3362143105.....	3799613.....	3799602 pt	3363221104.....	3694102.....	3694102
3362111204.....	3713102.....	3713102	3362143108.....	3799615.....	3799604 pt	3363221201.....	3694103.....	3694103
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			3366127113	3732712	3732712	336999WYVW	3799000 pt	3799000 pt
3366113	37312	37312	3366127116	3732717	3732717	336999WYVWY	3799002 pt	3799002 pt
3366113100	3731200	3731200						

Carburetor, Piston, Piston Ring, and Valve Manufacturing

1997

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1997 Economic Census

Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

**Economics
and Statistics
Administration**

Robert J. Shapiro,

Under Secretary for
Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336311	Carburetor, piston, piston ring, & valve mfg	123	142	18 226	687 915	15 117	31 460	522 323	1 660 132	1 162 207	2 828 024	184 044
359200	Carburetors, pistons, rings, & valves	N	142	18 226	687 915	15 117	31 460	522 323	1 660 132	1 162 207	2 828 024	184 044

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)				
336311, CARBURETOR, PISTON, PISTON RING, & VALVE MFG												
United States	-	142	70	18 226	687 915	15 117	31 460	522 323	1 660 132	1 162 207	2 828 024	184 044
California	1	25	12	1 153	27 456	950	1 718	17 041	49 516	30 578	79 848	2 727
Michigan	-	13	8	3 847	211 542	3 210	7 752	176 949	537 410	583 256	1 131 574	78 267
Pennsylvania	2	8	4	659	22 823	575	1 151	18 446	52 543	16 937	68 218	2 998
Texas	8	14	6	377	10 021	307	553	7 415	19 535	17 216	36 795	2 001
Virginia	1	3	1	102	3 150	78	166	2 187	6 580	3 253	9 899	311

* 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
336311, CARBURETOR, PISTON, PISTON RING, & VALVE MFG		336311, CARBURETOR, PISTON, PISTON RING, & VALVE MFG—Con.	
Companies ¹	number.. 123	Value added	\$1,000.. 1 660 132
All establishments	number.. 142	Total inventories, beginning of year	\$1,000.. 231 575
Establishments with 1 to 19 employees	number.. 72	Finished goods inventories, beginning of year	\$1,000.. 75 209
Establishments with 20 to 99 employees	number.. 35	Work-in-process inventories, beginning of year	\$1,000.. 81 968
Establishments with 100 employees or more	number.. 35	Materials and supplies inventories, beginning of year	\$1,000.. 74 398
All employees	number.. 18 226	Total inventories, end of year	\$1,000.. 226 916
Total compensation ²	\$1,000.. 900 112	Finished goods inventories, end of year	\$1,000.. 72 384
Annual payroll	\$1,000.. 687 915	Work-in-process inventories, end of year	\$1,000.. 79 108
Total fringe benefits	\$1,000.. 212 197	Materials and supplies inventories, end of year	\$1,000.. 75 424
Production workers, average for year	number.. 15 117	Gross book value of total assets at beginning of year	\$1,000.. 1 482 500
Production workers on March 15	number.. 15 109	Total capital expenditures (new and used)	\$1,000.. 184 044
Production workers on May 15	number.. 15 054	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 12 493
Production workers on August 15	number.. 15 161	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 171 551
Production workers on November 15	number.. 15 144	Total retirements ²	\$1,000.. 69 730
Production-worker hours	1,000.. 31 460	Gross book value of total assets at end of year	\$1,000.. 1 596 814
Production-worker wages	\$1,000.. 522 323	Total depreciation during year ²	\$1,000.. 94 414
Total cost of materials	\$1,000.. 1 162 207	Total rental payments ²	\$1,000.. 9 994
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 033 747	Buildings and other structures rental payments ²	\$1,000.. 3 043
Cost of resales	\$1,000.. 63 076	Machinery and equipment rental payments ²	\$1,000.. 6 951
Cost of fuels	\$1,000.. 10 018	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 6 702
Cost of purchased electricity	\$1,000.. 34 482	Response coverage ratio ⁴	percent.. 83
Cost of contract work	\$1,000.. 20 884	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 27 095
Quantity of electricity purchased for heat and power	1,000 kWh.. 714 910	Response coverage ratio ⁴	percent.. 83
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 41 330
Total value of shipments	\$1,000.. 2 828 024	Response coverage ratio ⁴	percent.. 83
Primary products value of shipments	\$1,000.. 2 117 755	Cost of purchased legal services ³	\$1,000.. 1 958
Secondary products value of shipments	\$1,000.. 625 630	Response coverage ratio ⁴	percent.. 83
Total miscellaneous receipts	\$1,000.. 84 639	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 2 423
Value of resales	\$1,000.. 81 819	Response coverage ratio ⁴	percent.. 83
Contract receipts	\$1,000.. 308	Cost of purchased advertising services ³	\$1,000.. 4 987
Other miscellaneous receipts	\$1,000.. 2 512	Response coverage ratio ⁴	percent.. 83
Primary products specialization ratio	percent.. 77	Cost of purchased software and other data processing services ³	\$1,000.. 2 243
Value of primary products shipments made in all industries	\$1,000.. 2 521 904	Response coverage ratio ⁴	percent.. 83
Value of primary products shipments made in this industry	\$1,000.. 2 117 755	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 5 894
Value of primary products shipments made in other industries	\$1,000.. 404 149	Response coverage ratio ⁴	percent.. 83
Coverage ratio	percent.. 83		

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)				
336311, CARBURETOR, PISTON, PISTON RING, & VALVE MFG												
All establishments	-	142	70	18 226	687 915	15 117	31 460	522 323	1 660 132	1 162 207	2 828 024	184 044
Establishments with 1 to 4 employees	7	39	-	81	2 328	67	121	1 730	5 588	3 422	8 978	1 078
Establishments with 5 to 9 employees	8	17	-	116	3 456	94	172	2 510	7 942	5 118	13 025	589
Establishments with 10 to 19 employees	7	16	-	199	5 578	160	288	3 900	10 155	12 278	22 696	1 234
Establishments with 20 to 49 employees	2	22	22	730	22 233	557	1 037	12 581	51 918	28 624	80 699	2 729
Establishments with 50 to 99 employees	4	13	13	999	30 220	841	1 473	21 239	61 640	37 046	97 773	4 016
Establishments with 100 to 249 employees	2	9	9	1 527	41 706	1 299	2 498	29 984	104 216	52 954	151 542	13 902
Establishments with 250 to 499 employees	-	15	15	4 644	139 251	3 924	8 455	108 281	382 541	167 794	550 185	15 725
Establishments with 500 to 999 employees	-	8	8	5 331	212 536	4 204	8 703	154 159	412 429	288 567	700 958	37 721
Establishments with 1,000 to 2,499 employees	-	3	3	4 599	230 607	3 971	8 713	187 939	623 703	566 404	1 202 168	107 050
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	9	65	-	414	11 218	348	595	8 538	23 609	15 331	38 813	2 000

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)				
336311	Carburetor, piston, piston ring, & valve mfg	142	18 226	687 915	15 117	31 460	522 323	1 660 132	1 162 207	2 828 024	184 044
3363111	Carburetors, new and rebuilt (all types)	18	5 245	238 449	4 464	9 400	197 123	658 246	612 472	1 282 133	90 215
3363113	Pistons, piston rings, and piston pins (engine)	37	9 067	285 453	7 399	15 455	197 974	638 165	353 407	992 662	71 405
3363115	Valves (engine intake and exhaust) ..	14	3 268	147 683	2 713	5 721	114 797	329 342	174 001	496 704	19 511

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)
336311	Carburetors, pistons, piston rings and valves	N	X	X	2 521 904	N	X	X	1 844 553
3363111	Carburetors, new and rebuilt (all types)	N	X	X	1 008 282	N	X	X	714 461
33631111	Carburetors, new and rebuilt, except parts	N	X	X	D	N	X	X	N
3363111101	Carburetors for motor vehicle engines (passenger car, truck, and bus), new, all types	7	X	X	629 400	5	X	X	N
3363111103	All other carburetors, new, all types	7	X	X	D	7	X	X	N
3363111105	Carburetors, rebuilt, all types	13	X	X	92 779	15	X	X	71 787
33631112	Parts for carburetors (excluding gaskets and screw machine products)	N	X	X	D	N	X	X	N
336311207	Parts for carburetors (excluding gaskets and screw machine products)	6	X	X	D	7	X	X	160 665
3363111Y	Carburetors, new and rebuilt (all types), nsk	N	X	X	-	N	X	X	N
3363111YWV	Carburetors, new and rebuilt (all types), nsk	N	X	X	-	N	X	X	14 619
3363113	Pistons, piston rings, and piston pins (engine)	N	X	X	1 050 492	N	X	X	716 223
33631131	Pistons, all types	N	X	X	624 837	N	X	X	N
3363113101	Pistons for motor vehicle engines (passenger car, truck, and bus), all types (machined), except rough castings	13	X	X	497 948	11	X	X	232 922
3363113103	All other engine pistons, all types (machined), except rough castings	18	X	X	126 889	19	X	X	69 501
33631132	Piston rings, all types	N	X	X	D	N	X	X	N
3363113205	Oil type piston rings for motor vehicle engines (passenger car, truck, and bus), all types	5	X	X	50 260	8	X	X	84 475
3363113207	All other oil type engine piston rings	7	X	X	28 830	8	X	X	50 858
3363113209	Compression type piston rings for motor vehicle engines (passenger car, truck, and bus), all types	4	X	X	D	5	X	X	161 212
3363113211	All other compression type engine piston rings	13	X	X	91 346	12	X	X	39 522
33631133	Engine piston pins	N	X	X	D	N	X	X	N
3363113313	Engine piston pins	5	X	X	D	4	X	X	N
3363113Y	Pistons, piston rings, and piston pins (engine), nsk	N	X	X	29 896	N	X	X	N
3363113YWV	Pistons, piston rings, and piston pins (engine), nsk	N	X	X	29 896	N	X	X	N
3363115	Valves (engine intake and exhaust)	N	X	X	413 663	N	X	X	362 354
33631151	Intake and exhaust valves for all engines	N	X	X	413 663	N	X	X	N
3363115101	Intake and exhaust valves for motor vehicle engines (passenger car, truck, and bus)	9	X	X	255 269	8	X	X	292 404
3363115103	Intake and exhaust valves for other engines	12	X	X	158 394	13	X	X	69 950
3363115Y	Valves (engine intake and exhaust), nsk	N	X	X	-	N	X	X	N
3363115YWV	Valves (engine intake and exhaust), nsk	N	X	X	-	N	X	X	-
336311W	Carburetors, pistons, piston rings, and valves, nsk, total	N	X	X	49 467	N	X	X	51 515
336311WY	Carburetors, pistons, piston rings, and valves, nsk, total	N	X	X	49 467	N	X	X	N
336311WYWW	Carburetors, pistons, piston rings, and valves, nsk, for nonadministrative-record establishments	N	X	X	13 293	N	X	X	29 286
336311WYWY	Carburetors, pistons, piston rings, and valves, nsk, for administrative-record establishments	N	X	X	36 174	N	X	X	22 229

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
3363111	CARBURETORS, NEW AND REBUILT (ALL TYPES)		
	United States	1 008 282	714 461
	California	30 929	33 275
3363113	PISTONS, PISTON RINGS, AND PISTON PINS (ENGINE)		
	United States	1 050 492	716 223
	California	22 025	10 407
	Indiana	203 039	160 830
	Michigan	83 375	80 083
	Ohio	42 433	31 940
	Texas	9 161	9 266
	Wisconsin	240 581	136 278
3363115	VALVES (ENGINE INTAKE AND EXHAUST)		
	United States	413 663	362 354
	Pennsylvania	43 372	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)
336311	CARBURETOR, PISTON, PISTON RING, & VALVE MFG				
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	52 215	X	37 964
33200095	Other fabricated metal products (except forgings)	X	31 984	X	49 119
33151001	Iron and steel castings (rough and semifinished)	X	77 362	X	68 201
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	259 712	X	157 628
33152003	Other nonferrous castings (rough and semifinished)	X	D	X	4 276
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	53 011	X	65 625
33120085	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	127 397	X	N
33100039	Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	58 143	X	45 679
33100077	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	8 006	X	5 100
00190003	Flexible packaging materials	X	389	X	384
33999103	Gaskets (all types), and packing and sealing devices	X	9 156	X	8 482
00970099	All other materials and components, parts, containers, and supplies	X	231 708	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	44 796	X	36 390

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

336311 CARBURETOR, PISTON, PISTON RING, AND VALVE MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing and/or rebuilding carburetors, pistons, piston rings, and engine intake and exhaust valves.

The data published with NAICS code 336311 include the following SIC industries:

3592 Carburetors, pistons, rings, and valves

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
3361110 pt.....	37110 pt	37110 pt	336211W pt.....	37110 pt	37110 pt	3363121	37142 pt	37142 pt
3361110 pt.....	37111 pt	37111 pt	336211W pt.....	37130	37130	3363121101	3714201	3714201
3361110 pt.....	37114 pt	37114 pt	336211W pt.....	37140 pt	37140 pt	3363121224	3714218	3714218
3361110100 pt.....	3711100 pt.....	3711100 pt	336211WYWW pt.....	3711000 pt.....	3711000 pt	3363121351	3714231	3714231
3361110100 pt.....	3711111	3711111	336211WYWW pt.....	3713000	3713000	3363121457	3714234	3714234
3361110100 pt.....	3711151	3711151	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121467	3714237	3714237
3361110100 pt.....	3711400 pt.....	3711400 pt	336211WYWW pt.....	3711002 pt.....	3711002 pt	3363121504	3714206	3714206
3361110100 pt.....	3711403	3711403	336211WYWW pt.....	3713002	3713002	3363121507	3714207	3714207
3361110YWW.....	3711000 pt.....	3711000 pt	336211WYWW pt.....	3714002 pt.....	3714002 pt	3363121511	3714208	3714208
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3715002	3715002	3363121514	3714209	3714209
3361120 pt.....	37110 pt	37110 pt	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.....	37114 pt	37114 pt	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.....	37116	37116	3362121000	3715100	3715100	3363121527	3714217	3714217
3361120100 pt.....	3711405	3711400 pt	3362121000	3715100	3715100	3363121531	3714222	3714222
3361120100 pt.....	3711400 pt.....	3711400 pt	336212123	37152	37152	3363121534	3714224	3714224
3361120100 pt.....	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW.....	3711000 pt.....	3711000 pt	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW.....	3711002 pt.....	3711002 pt	33621213100	3715200	3715200	3363121544	3714227	3714227
3361120100 pt.....	37114 pt	37114 pt	33621212W.....	37150	37150	3363121547	3714227	3714227
3361120100 pt.....	37115 pt	37117	33621212WYWW.....	3715000	3715000	3363121571	3714241	3714241
3361120100 pt.....	37115 pt	37118	33621212WYWW.....	3715002	3715002	3363121574	3714249	3714249
3361120100 pt.....	3711407	3711400 pt	336212130.....	37160	37160	3363121YVV.....	3714200 pt.....	3714200 pt
3361120100 pt.....	3711400 pt.....	3711400 pt	3362130101	3716001	3716001	3363121301	3714200 pt.....	3714200 pt
3361120100 pt.....	3711500 pt.....	3711700	3362130104	3716005	3716005	3363121304	3714A02	3714A02
3361120100 pt.....	3711500 pt.....	3711800	3362130107	3716007	3716007	3363121307	3714A23	3714A23
3361202 pt.....	37114 pt	37114 pt	3362130111	3716021	3716021	3363121311	3714A25	3714A25
3361202 pt.....	37119	37119	3362130YWW.....	3716000	3716000	3363123121	3714A43	3714A41 pt
3361202100 pt.....	3711400 pt.....	3711400 pt	3362130YWW.....	3716002	3716002	3363123YVV.....	3714A00 pt.....	3714A00 pt
3361202100 pt.....	3711900	3711900	3362141	37921	37921	336312W	37140 pt	37140 pt
3361202100 pt.....	3711900	3711900	3362141101	3792112	3792112	336312WYWW.....	3714000 pt.....	3714000 pt
3361203	37113	37113	3362141104	3792114	3792114	336312WYWW.....	3714002 pt.....	3714002 pt
3361203101	3711304	3711304	3362141207	3792116	3792116	3363210	36470	36470
3361203104	3711303	3711303	3362141311	3792118	3792118	3363210100	3647000 pt.....	3647000 pt
3361203YVV.....	3711300	3711300	3362141413	3792125	3792125	3363210YWW.....	3647000 pt.....	3647000 pt
336120W	37110 pt	37110 pt	3362141416	3792128	3792128	3363210YWW.....	3647002	3647002
336120WYWW.....	3711000 pt.....	3711000 pt	3362141YVV.....	3792100	3792100	3363221	36941	36941
336120WYWW.....	3711002 pt.....	3711002 pt	33621413	37996	37996	3363221101	3694101	3694101
3362111 pt.....	37111 pt	37111 pt	3362143101	3799611	3799601 pt	3363221104	3694102	3694102
3362111 pt.....	37131	37131	3362143105	3799613	3799602 pt	3363221201	3694103	3694103
3362111 pt.....	37149 pt	37149 pt	3362143108	3799615	3799604 pt	3363221204	3694104	3694104
3362111101	3713101	3713101	3362143111	3799617	3799607 pt	3363221YVV.....	3694100	3694100
3362111204	3713102	3713102	3362143114	3799619	3799609 pt	3363223	36942	36942
3362111307	3713112	3713112	3362143117 pt.....	3799651 pt.....	3799602 pt	3363223101	3694201	3694201
3362111411	3713115	3713115	3362143117 pt.....	3799651 pt.....	3799604 pt	3363223104	3694202	3694202
3362111413	3713116	3713116	3362143117 pt.....	3799651 pt.....	3799607 pt	3363223201	3694203	3694203
3362111416	3713117	3713117	3362143117 pt.....	3799651 pt.....	3799609 pt	3363223204	3694204	3694204
3362111519	3713121	3713121	3362143YVV.....	3799600	3799600	3363223YVV.....	3694200	3694200
3362111522	3713131	3713131	3362145	37922	37922	3363225	36943	36943
3362111525	3713132	3713132	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111528	3713135	3713135	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111531	3713139	3713139	3362145207	3792247	3792247	3363225201	3694303	3694303
3362111534	3713143	3713143	3362145311 pt.....	3792268 pt.....	3792261	3363225YVV.....	3694300	3694300
3362111537	3713153	3713153	3362145311 pt.....	3792268 pt.....	3792263	3363227	36944	36944
3362111541	3713155	3713155	3362145311 pt.....	3792268 pt.....	3792269	3363227100	3694400	3694400
3362111543	3713161	3713161	3362145YVV.....	3792200	3792200	3363229	36947	36947
3362111546	3713162	3713162	336214W pt.....	37920	37920	3363229101	3694701	3694701
3362111549	3713163	3713163	336214W pt.....	3792000	3792000	3363229201	3694711	3694711
3362111552	3711171	3711171	336214WYWW pt.....	3792000 pt.....	3792000 pt	3363229301	3694702	3694702
3362111555	3711181	3711181 pt	336214WYWW pt.....	3792002	3792002	3363229304	3694704	3694704
3362111558	3714925	3714925	336214WYWW pt.....	3799002 pt.....	3799002 pt	3363229307	3694705	3694705
3362111571 pt.....	3713171	3713171	3363111	35921	35921	3363229309	3694719	3694719
3362111YWW pt.....	3711100 pt.....	3711100 pt	3363111101	3592101	3592101	3363229YVV.....	3694700	3694700
3362111YVV pt.....	3713100	3713100	3363111103	3592102	3592102	336322A.....	36949	36949
3362111YVV pt.....	3714900 pt.....	3714900 pt	3363111105	3592103	3592103	336322A101	3694901	3694901
3362113 pt.....	37114 pt	37114 pt	3363111207	3592105	3592105	336322A204	3694907	3694907
3362113 pt.....	37132	37132	3363111YVV.....	3592100	3592100	336322A307	3694911	3694911
3362113101	3713201	3713201	3363113	35922	35922	336322A409	3694912	3694912
3362113219	3713225	3713225	3363113101	3592201	3592201	336322A512	3694913	3694913
3362113304	3713211	3713211	3363113103	3592202	3592202	336322A615	3694919	3694919
3362113307	3713213	3713213	3363113105	3592203	3592203	336322AYVV.....	3694900	3694900
3362113311	3713215	3713215	3363113205	3592204	3592204	336322C pt.....	36799 pt	36799 pt
3362113313	3713217	3713217	3363113207	3592204	3592204	336322C pt.....	37149 pt	37149 pt
3362113316	3713218	3713218	3363113209	3592205	3592205	336322C pt.....	3714A pt	3714A pt
3362113322	3713226	3713226	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113325	3713227	3713227	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113328	3713241	3713239 pt	3363113YVV.....	3592200	3592200	336322C107	3714915	3714915
3362113331 pt.....	3711411	3711400 pt	3363115	35923	35923	336322C111 pt.....	3714921 pt.....	3714917
3362113331 pt.....	3713243	3713239 pt	3363115101	3592301	3592301	336322C111 pt.....	3714921 pt.....	3714917
3362113YVV pt.....	3711400 pt.....	3711400 pt	3363115103	3592302	3592302	336322C114	3714942	3714904 pt
3362113YVV pt.....	3713200	3713200	3363115YVV.....	3592300	3592300	336322C117	3714944	3714904 pt
			336311W	35920	35920	336322C119	3679926	3679920 pt
			336311WYWW.....	3592000	3592000	336322C121	3714945	3714941 pt
			336311WYWW.....	3592002	3592002	336322C122	3714946	3714941 pt
						336322C124	3714A05	3714A41 pt
						336322C127	3714A40	3714A41 pt

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt.	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt.	3714900 pt	3714900 pt	336350YVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt.	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt.	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt.	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt.	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
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3366113	37312	37312	3366127113	3732712	3732712			
3366113100	3731200	3731200	3366127116	3732717	3732717			

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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336312	Gasoline engine & engine parts mfg	810	880	81 160	3 550 770	65 971	136 724	2 718 009	8 024 896	17 847 864	25 927 117	1 750 675
371420	Motor vehicle parts & accessories (pt)	N	880	81 160	3 550 770	65 971	136 724	2 718 009	8 024 896	17 847 864	25 927 117	1 750 675

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)				
336312, GASOLINE ENGINE & ENGINE PARTS MFG												
United States	-	880	260	81 160	3 550 770	65 971	136 724	2 718 009	8 024 896	17 847 864	25 927 117	1 750 675
Arizona	-	14	3	517	9 252	400	445	5 588	17 193	23 414	40 762	2 070
Arkansas	1	13	4	1 228	22 665	1 045	1 403	14 909	77 053	84 957	162 321	7 035
California	3	126	32	2 651	69 930	1 964	3 225	37 666	163 434	164 728	325 783	15 989
Connecticut	-	12	4	1 262	43 349	948	1 975	26 823	107 623	178 229	285 031	17 231
Illinois	1	31	13	2 733	75 650	1 981	3 339	46 586	255 337	197 844	450 244	20 320
Michigan	-	107	59	27 130	1 473 816	23 019	50 792	1 201 818	2 564 828	7 109 196	9 747 772	684 865
New Jersey	1	19	5	565	18 459	431	770	10 512	40 963	87 199	142 064	4 743
Oregon	9	12	2	211	8 657	172	378	5 288	19 621	27 684	47 486	2 606
Pennsylvania	4	18	4	440	13 876	355	587	8 560	30 203	41 345	71 976	2 846
Texas	-	47	6	1 317	55 786	1 095	1 933	44 682	89 473	206 443	295 669	15 957
Virginia	-	16	6	2 097	70 941	1 563	3 252	45 231	184 225	120 699	305 963	15 110

* 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
336312, GASOLINE ENGINE & ENGINE PARTS MFG		336312, GASOLINE ENGINE & ENGINE PARTS MFG—Con.	
Companies ¹	number.. 810	Value added	\$1,000.. 8 024 896
All establishments	number.. 880	Total inventories, beginning of year	\$1,000.. 1 832 947
Establishments with 1 to 19 employees	number.. 620	Finished goods inventories, beginning of year	\$1,000.. 321 053
Establishments with 20 to 99 employees	number.. 121	Work-in-process inventories, beginning of year	\$1,000.. 914 872
Establishments with 100 employees or more	number.. 139	Materials and supplies inventories, beginning of year	\$1,000.. 597 022
All employees	number.. 81 160	Total inventories, end of year	\$1,000.. 1 713 613
Total compensation ²	\$1,000.. 4 691 481	Finished goods inventories, end of year	\$1,000.. 365 591
Annual payroll	\$1,000.. 3 550 770	Work-in-process inventories, end of year	\$1,000.. 815 977
Total fringe benefits	\$1,000.. 1 140 711	Materials and supplies inventories, end of year	\$1,000.. 532 045
Production workers, average for year	number.. 65 971	Gross book value of total assets at beginning of year	\$1,000.. 11 178 330
Production workers on March 12	number.. 66 548	Total capital expenditures (new and used)	\$1,000.. 1 750 675
Production workers on May 12	number.. 66 226	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 194 057
Production workers on August 12	number.. 65 091	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 1 556 618
Production workers on November 12	number.. 66 019	Total retirements ²	\$1,000.. 905 938
Production-worker hours	1,000.. 136 724	Gross book value of total assets at end of year	\$1,000.. 12 023 067
Production-worker wages	\$1,000.. 2 718 009	Total depreciation during year ²	\$1,000.. 742 992
Total cost of materials	\$1,000.. 17 847 864	Total rental payments ²	\$1,000.. 75 029
Cost of materials, parts, containers, etc., consumed	\$1,000.. 17 007 022	Buildings and other structures rental payments ²	\$1,000.. 25 710
Cost of resales	\$1,000.. 501 510	Machinery and equipment rental payments ²	\$1,000.. 49 319
Cost of fuels	\$1,000.. 61 008	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 17 260
Cost of purchased electricity	\$1,000.. 191 294	Response coverage ratio ⁴	percent.. 79
Cost of contract work	\$1,000.. 87 030	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 88 868
Quantity of electricity purchased for heat and power	1,000 kWh.. 3 455 327	Response coverage ratio ⁴	percent.. 79
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 11 018
Total value of shipments	\$1,000.. 25 927 117	Response coverage ratio ⁴	percent.. 79
Primary products value of shipments	\$1,000.. 23 763 480	Cost of purchased legal services ³	\$1,000.. 4 365
Secondary products value of shipments	\$1,000.. 1 490 558	Response coverage ratio ⁴	percent.. 79
Total miscellaneous receipts	\$1,000.. 673 079	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 2 354
Value of resales	\$1,000.. 618 521	Response coverage ratio ⁴	percent.. 79
Contract receipts	\$1,000.. 3 348	Cost of purchased advertising services ³	\$1,000.. 10 580
Other miscellaneous receipts	\$1,000.. 51 210	Response coverage ratio ⁴	percent.. 79
Primary products specialization ratio	percent.. 94	Cost of purchased software and other data processing services ³	\$1,000.. 11 052
Value of primary products shipments made in all industries	\$1,000.. 25 555 938	Response coverage ratio ⁴	percent.. 79
Value of primary products shipments made in this industry	\$1,000.. 23 763 480	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 17 423
Value of primary products shipments made in other industries	\$1,000.. 1 792 458	Response coverage ratio ⁴	percent.. 79
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)				
336312, GASOLINE ENGINE & ENGINE PARTS MFG												
All establishments	-	880	260	81 160	3 550 770	65 971	136 724	2 718 009	8 024 896	17 847 864	25 927 117	1 750 675
Establishments with 1 to 4 employees	8	366	-	758	15 408	623	743	9 439	34 801	48 089	83 196	4 554
Establishments with 5 to 9 employees	7	156	-	1 014	23 508	806	965	14 486	48 528	64 543	113 594	6 524
Establishments with 10 to 19 employees	5	98	-	1 339	35 169	1 080	1 478	22 037	82 725	105 045	187 699	9 117
Establishments with 20 to 49 employees	2	70	70	2 220	63 872	1 672	2 908	35 917	132 530	123 444	256 700	13 283
Establishments with 50 to 99 employees	1	51	51	3 691	112 088	2 746	4 833	66 410	254 115	244 925	500 134	57 997
Establishments with 100 to 249 employees	1	56	56	8 834	254 232	6 860	13 110	157 704	671 602	796 542	1 466 486	69 852
Establishments with 250 to 499 employees	-	44	44	14 976	449 972	11 513	23 217	298 861	1 165 663	1 402 858	2 580 434	141 354
Establishments with 500 to 999 employees	-	17	17	10 760	389 562	8 318	16 540	272 521	1 114 758	1 405 250	2 527 524	92 773
Establishments with 1,000 to 2,499 employees	-	18	18	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	-	4	4	D	D	D	D	D	D	D	D	D
Administrative records ²	9	464	-	2 161	43 899	1 766	1 979	26 650	100 194	141 391	242 521	13 203

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)				
336312	Gasoline engine & engine parts mfg	880	81 160	3 550 770	65 971	136 724	2 718 009	8 024 896	17 847 864	25 927 117	1 750 675
3363121	Gasoline engines and gasoline engine parts for motor vehicles, new	233	72 523	3 338 146	59 476	126 251	2 586 624	7 528 163	17 176 095	24 752 738	1 710 142
3363123	Gasoline engines and engine parts for motor vehicles, rebuilt	59	5 028	133 800	3 582	7 023	83 167	330 234	441 926	777 295	16 858

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)
336312	Gasoline engines and engine parts	N	X	X	25 555 938	N	X	X	N
3363121	Gasoline engines and gasoline engine parts for motor vehicles, new	N	X	X	24 676 176	N	X	X	N
33631211	Gasoline engines, new (with or without cylinder heads, fuel pumps, water pumps, and other standard accessories)	N	X	X	15 120 065	N	X	X	N
3363121101	Gasoline engines, new (with or without cylinder heads, fuel pumps, water pumps, and other standard accessories), for motor vehicles	28	X	X	15 120 065	19	X	X	10 521 531
33631212	Gasoline engine fuel injection systems, new, for motor vehicles	N	X	X	2 409 386	N	X	X	N
3363121224	Gasoline engine fuel injection systems, new, for motor vehicles	26	X	X	2 409 386	24	X	X	1 055 156
33631213	Gasoline engine fuel and water pump assemblies (excluding kits), new, for motor vehicles	N	X	X	1 268 356	N	X	X	N
3363121351	Gasoline engine fuel pump assemblies (excluding kits), new, for motor vehicles	12	X	X	1 021 940	12	X	X	640 054
3363121354	Gasoline engine water pump assemblies (excluding kits), new, for motor vehicles	13	X	X	246 416	14	X	X	137 752
33631214	Gasoline engine cooling fans and thermostats, new, for motor vehicles	N	X	X	351 283	N	X	X	N
3363121457	Gasoline engine cooling fans (including hubs and clutches), new, for motor vehicles	11	X	X	341 303	10	X	X	140 389
3363121467	Gasoline engine thermostats (engine cooling system), new, for motor vehicles	3	X	X	9 980	4	X	X	D
33631215	All other gasoline engines and gasoline engine parts for motor vehicles, new	N	X	X	5 366 558	N	X	X	N
3363121504	Gasoline engine intake manifolds, new, for motor vehicles	17	X	X	358 342	12	X	X	148 544
3363121507	Gasoline engine exhaust manifolds, new, for motor vehicles	21	X	X	230 889	15	X	X	148 320
3363121511	Gasoline engine crankshafts, new, for motor vehicles	11	X	X	183 047	10	X	X	60 177
3363121514	Gasoline engine camshafts, new, for motor vehicles	13	X	X	408 035	11	X	X	131 271
3363121517	Gasoline engine rocker arms and parts, new, for motor vehicles	15	X	X	128 343	13	X	X	55 690
3363121521	Gasoline engine valve guides, seats, and tappets, new, for motor vehicles	19	X	X	640 040	15	X	X	218 966
3363121527	Gasoline engine flywheels and flexplates, new, for motor vehicles	10	X	X	48 771	10	X	X	36 122
3363121531	Gasoline engine timing gears, sprockets, and chains, new, for motor vehicles	14	X	X	215 934	12	X	X	87 734
3363121534	Gasoline engine main engine bearings (halves), new, for motor vehicles	8	X	X	110 413	8	X	X	96 697
3363121537	Gasoline engine connecting rod, engine bearings (halves), new, for motor vehicles	11	X	X	119 189	7	X	X	90 191
3363121541	Other gasoline engine bearings (halves) (balance shaft, camshaft, etc.), new, for motor vehicles	7	X	X	91 733	11	X	X	D
3363121544	Gasoline engine oil pumps, new, for motor vehicles	12	X	X	168 415	12	X	X	83 414
3363121571	Gasoline engine PCV (positive crankcase ventilation) valves, new, for motor vehicles	6	X	X	15 260	7	X	X	17 975
3363121574	All other parts and accessories for gasoline engines, new, for motor vehicles	121	X	X	2 648 147	110	X	X	1 861 026
3363121Y	Gasoline engines and gasoline engine parts for motor vehicles, new, nsk	N	X	X	160 528	N	X	X	N
3363121YVV	Gasoline engines and gasoline engine parts for motor vehicles, new, nsk	N	X	X	160 528	N	X	X	N
3363123	Gasoline engines and engine parts for motor vehicles, rebuilt	N	X	X	498 924	N	X	X	N
33631231	Gasoline engines and engine parts for motor vehicles, rebuilt	N	X	X	498 924	N	X	X	N
3363123101	Motor vehicle fuel pumps, rebuilt	5	X	X	5 576	6	X	X	1 927
3363123104	Motor vehicle water pumps, rebuilt	30	X	X	76 151	35	X	X	105 841
3363123107	Car and light truck gasoline engines, rebuilt	43	X	X	306 917	43	X	X	216 198
3363123111	Heavy truck and bus gasoline engines, rebuilt	6	X	X	72 738	4	X	X	27 779
3363123121	Other rebuilt engine parts and components	22	X	X	37 542	N	X	X	N
3363123Y	Other rebuilt engine and engine parts, nsk	N	X	X	-	N	X	X	N
3363123YVV	Other rebuilt engine and engine parts, 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)
336312	Gasoline engines and engine parts—Con.								
336312W	Gasoline engine and engine parts, nsk, total	N	X	X	380 838	N	X	X	N
336312WY	Gasoline engine and engine part manufacturing, nsk, total	N	X	X	380 838	N	X	X	N
336312WYWW	Gasoline engine and engine part manufacturing, nsk for nonadministrative-record establishments	N	X	X	154 372	N	X	X	N
336312WYWY	Gasoline engine and engine part manufacturing, nsk for administrative-record establishments	N	X	X	226 466	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
3363121	GASOLINE ENGINES AND GASOLINE ENGINE PARTS FOR MOTOR VEHICLES, NEW		
	United States	24 676 176	N
	Arkansas	175 767	N
	California	260 259	N
	Connecticut	231 916	N
	Florida	126 021	N
	Georgia	48 445	N
	Illinois	368 675	N
	Indiana	1 292 535	N
	Iowa	92 973	N
	Michigan	9 895 876	N
	Mississippi	126 948	N
	Missouri	23 812	N
	New Jersey	32 132	N
	North Carolina	305 574	N
	Ohio	5 194 629	N
	South Carolina	614 672	N
	Tennessee	388 983	N
3363123	GASOLINE ENGINES AND ENGINE PARTS FOR MOTOR VEHICLES, REBUILT		
	United States	498 924	N
	Arkansas	4 672	N
	California	37 539	N
	North Carolina	7 606	N
	Pennsylvania	33 699	N
	Tennessee	19 263	N
	Washington	27 130	N
	Wisconsin	16 175	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)
336312	GASOLINE ENGINE & ENGINE PARTS MFG				
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	D	X	N
33291207	Fluid power valves (hydraulic and pneumatic)	X	D	X	N
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic)	X	D	X	N
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic)	X	D	X	N
33399901	Fluid power filters (hydraulic and pneumatic)	X	D	X	N
00190089	Other fluid power products (hydraulic and pneumatic)	X	D	X	N
33637000	Automotive stampings (including body parts, hubcaps, fenders, etc.)	X	355 775	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	534 942	X	N
33200019	Other fabricated metal products, except fluid power and forgings	X	2 409 555	X	N
33210001	Forgings	X	D	X	N
33151001	Iron and steel castings (rough and semifinished)	X	2 990 558	X	N
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	941 482	X	N
33152003	Other nonferrous castings (rough and semifinished)	X	D	X	N
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	268 418	X	N
33120017	Steel sheet and strip, including tin plate	X	161 161	X	N
33120033	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	69 640	X	N
33142111	Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	21 405	X	N
33100039	Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	183 571	X	N
33100083	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	166 239	X	N
33299105	Ball bearings (mounted or unmounted)	X	161 800	X	N
33299103	Roller bearings (mounted or unmounted)	X	38 914	X	N
32610011	Fabricated plastics products (except gaskets)	X	154 227	X	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	36 245	X	N
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	43 125	X	N
32600017	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	X	73 474	X	N
32622001	Rubber and plastics hose and belting	X	87 470	X	N
32500023	Ceramic raw materials, including powders, chemicals, and fibers (excluding refractory uses)	X	43 091	X	N
32700035	Ceramic and ceramic composite parts, components, and accessories	X	29 084	X	N
33999103	Gaskets (all types), and packing and sealing devices	X	81 783	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	5 192	X	N
32552003	Glues and adhesives	X	12 921	X	N
00190003	Flexible packaging materials	X	4 479	X	N
32220015	Paper and paperboard containers	X	30 280	X	N
33632200	Engine electrical equipment, including spark plugs, magnetos, generators, starters, etc.	X	1 039 250	X	N
001900B7	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	X	555 811	X	N
00999826	Core parts purchased for use in remanufacturing or rebuilding	X	82 431	X	N
00970099	All other materials and components, parts, containers, and supplies	X	1 633 531	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	2 685 975	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

336312 GASOLINE ENGINE AND ENGINE PARTS MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing and/or rebuilding gasoline motor vehicle engines and gasoline motor vehicle engine parts, excluding carburetors, pistons, piston rings, and valves.

The data published with NAICS code 336312 include the following SIC industry:

3714 Motor vehicle parts and accessories (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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121507	3714207	3714207
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121511	3714208	3714208
3361120 pt.	37110 pt.	37110 pt.	336211WYWW pt.	3713002	3713002	3363121514	3714209	3714209
3361120 pt.	37114 pt.	37114 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37116	37116	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120100 pt.	3711405	3711400 pt.	3362123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711400 pt.	3711400 pt.	3362123100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711600	3711600	3362123	37152	37152	3363121534	3714224	3714224
3361120YWW	3711000 pt.	3711000 pt.	336212W	37150	37150	3363121537	3714225	3714225
3361120YWW	3711002 pt.	3711002 pt.	336212WYWW	3715000	3715000	3363121541	3714226	3714226
3361201 pt.	37114 pt.	37114 pt.	336212WYWW	3715002	3715002	3363121544	3714227	3714227
3361201 pt.	37115 pt.	37117	3362130	37160	37160	3363121571	3714241	3714241
336120100 pt.	3711407	3711400 pt.	3362130101	3716001	3716001	3363121574	3714249	3714249
3361201100 pt.	3711400 pt.	3711400 pt.	3362130104	3716005	3716005	3363121YVW	3714200 pt.	3714200 pt.
3361201100 pt.	3711400 pt.	3711400 pt.	3362130107	3716007	3716007	3363123	37144 pt.	37144 pt.
3361201100 pt.	3711500 pt.	3711700	3362130111	3716021	3716021	3363123101	3714A02	3714A02
3361201100 pt.	3711500 pt.	3711800	3362130YWW	3716000	3716000	3363123104	3714A03	3714A03
3361202 pt.	37114 pt.	37114 pt.	3362130YVW	3716002	3716002	3363123107	3714A23	3714A23
3361202 pt.	37119	37119	3362141	37921	37921	3363123111	3714A25	3714A25
3361202100 pt.	3711409	3711400 pt.	3362141101	3792112	3792112	3363123121	3714A43	3714A41 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141104	3792114	3792114	3363123YVW	3714A00 pt.	3714A00 pt.
3361202100 pt.	3711900	3711900	3362141207	3792116	3792116	336312W	37140 pt.	37140 pt.
3361203	37113	37113	3362141311	3792118	3792118	336312WYVW	3714000 pt.	3714000 pt.
3361203101	3711304	3711304	3362141413	3792125	3792125	336312WYVW	3714002 pt.	3714002 pt.
3361203104	3711303	3711303	3362141516	3792128	3792128	3363210	36470	36470
3361203YVW	3711300	3711300	3362141YVW	3792100	3792100	3363210100	3647000 pt.	3647000 pt.
336120W	37110 pt.	37110 pt.	3362143	37996	37996	3363210YVW	3647000 pt.	3647000 pt.
336120WYVW	3711000 pt.	3711000 pt.	3362143101	3799611	3799601 pt.	3363210YVW	3647002	3647002
336120WYVW	3711002 pt.	3711002 pt.	3362143105	3799613	3799602 pt.	3363221	36941	36941
3362111 pt.	37111 pt.	37111 pt.	3362143108	3799615	3799604 pt.	3363221101	3694101	3694101
3362111 pt.	37131	37131	3362143111	3799617	3799607 pt.	3363221104	3694102	3694102
3362111 pt.	37149 pt.	37149 pt.	3362143114	3799619	3799609 pt.	3363221201	3694103	3694103
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363221204	3694104	3694104
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3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223	36942	36942
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3362111537	3713153	3713153	3362145311 pt.	3792268 pt.	3792263	3363225YVW	3694300	3694300
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3362111555	3711181	3711111 pt.	336214WYVW pt.	3792002	3792002	3363229301	3694702	3694702
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3362113 pt.	37114 pt.	37114 pt.	3363111YVW	3592100	3592100	336322A204	3694907	3694907
3362113 pt.	37132	37132	3363113	35922	35922	336322A307	3694911	3694911
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3362113316	3713218	3713218	3363113313	3592209	3592209	336322C pt.	3714A pt.	3714A pt.
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			336311WYVW	3592002	3592002	336322C119	3679926	3679920 pt.
						336322C121	3714945	3714941 pt.
						336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published			1997 collected			1992 published			1997 published			1997 collected			1992 published					
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218	3363503YVW	3714A00 pt	3714A00 pt	3364117101	3721813	3721813	3363503YVW	3714A00 pt	3714A00 pt	3364117104	3721815	3721815
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3365101101	3743102	3743101 pt	3366119101	3731601	3731601	3369911122 pt	3751124 pt	3751113
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3365101107	3743105	3743101 pt	3366119YVW	3731600	3731600	3369911122 pt	3751124 pt	3751123
3365101111	3743113	3743103 pt	336611W	37310	37310	3369911YVW pt	3751100	3751100
3365101YVW	3743100 pt	3743100 pt	336611WYVW	3731000	3731000	3369911YVWY pt	3944300 pt	3944300 pt
			336611WYVWY	3731002	3731002			
3365103	37432	37432	3366121	37322	37322	3369913	37512	37512
3365103100	3743200 pt	3743200	3366121101	3732201	3732201	3369913100 pt	3751200 pt	3751200
3365103100 pt	3743200 pt	3743211	3366121104	3732202	3732202	3369913100 pt	3751200 pt	3751201
3365103100 pt	3743200 pt	3743215	3366121107	3732211	3732211	3369913100 pt	3751200 pt	3751209
3365103100 pt	3743200 pt	3743235	3366121111	3732207	3732207			
3365103100 pt	3743200 pt	3743241	3366121113	3732209	3732219 pt	336991W pt	37510	37510
3365103100 pt	3743200 pt	3743265	3366121116	3732210	3732219 pt	336991W pt	39440 pt	39440 pt
			3366121119	3732220	3732219 pt	336991WYVW pt	3751000	3751000
3365105 pt	3531X pt	3531M pt	3366121225	3732221	3732221	336991WYVWY pt	3944000 pt	3944000 pt
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3365105407	3743304	3743304	3366121246	3732231	3732228 pt	3369920214	3795051	3795051
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3365105419 pt	3743319	3743319	3366123104	3732311	3732311	3369920YVWY pt	3795000	3795000
3365105YVW pt	3531X00 pt	3531M00 pt	3366123107	3732316	3732316	3369920YVWY pt	3711002 pt	3711002 pt
3365105YVW pt	3531X00 pt	3531P00 pt	3366123201	3732304	3732304	3369920YVWY pt	3795002	3795002
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336510W pt	35310 pt	35310 pt	3366125	37324	37324	3369991101	3799382	3799382
			3366125107	3732405	3732405	3369991104	3799384	3799384
336510W pt	37430 pt	37430 pt	3366125201	3732401	3732401	3369991YVW	3799300	3799300
336510WYVW pt	3531000 pt	3531000 pt	3366125204	3732403	3732403			
336510WYVW pt	3743000 pt	3743000 pt	3366125211	3732406	3732409 pt	3369993	37999 pt	37999 pt
336510WYVWY pt	3531002 pt	3531002 pt	3366125213 pt	3732408 pt	3732407	3369993101	3799903	3799903
336510WYVWY pt	3743002 pt	3743002 pt	3366125213 pt	3732408 pt	3732407	3369993204	3799904	3799904
			3366125YVW	3732400	3732400	3369993307	3799905	3799905
3366111	37311	37311				3369993414	3799916	3799923 pt
3366111101	3731111	3731111	3366127	37327	37327	3369993417	3799915	3799923 pt
3366111104	3731107	3731107	3366127101	3732702	3732702	3369993421	3799920	3799923 pt
3366111107	3731119	3731119	3366127104	3732704	3732704	3369993513	3799925	3799925
3366111YVW	3731100	3731100	3366127107	3732706	3732706	3369993YVW	3799900 pt	3799900 pt
			3366127111	3732708	3732708	336999W	37990 pt	37990 pt
3366113	37312	37312	3366127113	3732712	3732712	336999WYVW	3799000 pt	3799000 pt
3366113100	3731200	3731200	3366127116	3732717	3732717	336999WYVWY	3799002 pt	3799002 pt

Vehicular Lighting Equipment Manufacturing

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1997 Economic Census

Manufacturing

Industry Series



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Industry Series



U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

**Economics
and Statistics
Administration**

Robert J. Shapiro,

Under Secretary for
Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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 shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
336321	Vehicular lighting equipment mfg	99	106	16 506	628 534	12 913	26 471	444 640	1 585 656	1 686 309	3 282 824	169 235
364700	Vehicular lighting equipment . . .	N	106	16 506	628 534	12 913	26 471	444 640	1 585 656	1 686 309	3 282 824	169 235

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)				
336321, VEHICULAR LIGHTING EQUIPMENT MFG												
United States	-	106	54	16 506	628 534	12 913	26 471	444 640	1 585 656	1 686 309	3 282 824	169 235
California	5	14	5	411	13 767	309	561	9 501	31 904	29 220	62 528	1 662
Indiana	-	12	7	5 203	216 105	4 093	8 563	158 187	423 832	333 729	756 500	30 581
Missouri	-	5	3	772	24 769	532	1 202	10 394	54 422	62 995	117 101	4 788
Texas	-	5	3	559	17 984	234	459	5 191	53 601	43 361	96 066	1 987

* 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
336321, VEHICULAR LIGHTING EQUIPMENT MFG		336321, VEHICULAR LIGHTING EQUIPMENT MFG	
— Con.		— Con.	
Companies ¹	number.. 99	Value added	\$1,000.. 1 585 656
All establishments	number.. 106	Total inventories, beginning of year	\$1,000.. 300 976
Establishments with 1 to 19 employees	number.. 52	Finished goods inventories, beginning of year	\$1,000.. 64 510
Establishments with 20 to 99 employees	number.. 26	Work-in-process inventories, beginning of year	\$1,000.. 110 879
Establishments with 100 employees or more	number.. 28	Materials and supplies inventories, beginning of year	\$1,000.. 125 587
All employees	number.. 16 506	Total inventories, end of year	\$1,000.. 282 419
Total compensation ²	\$1,000.. 863 704	Finished goods inventories, end of year	\$1,000.. 62 909
Annual payroll	\$1,000.. 628 534	Work-in-process inventories, end of year	\$1,000.. 101 621
Total fringe benefits	\$1,000.. 235 170	Materials and supplies inventories, end of year	\$1,000.. 117 889
Production workers, average for year	number.. 12 913	Gross book value of total assets at beginning of year	\$1,000.. 1 260 238
Production workers on March 15	number.. 13 286	Total capital expenditures (new and used)	\$1,000.. 169 235
Production workers on May 15	number.. 12 979	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 10 964
Production workers on August 15	number.. 12 750	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 158 271
Production workers on November 15	number.. 12 637	Total retirements ²	\$1,000.. 76 669
Production-worker hours	1,000.. 26 471	Gross book value of total assets at end of year	\$1,000.. 1 352 804
Production-worker wages	\$1,000.. 444 640	Total depreciation during year ²	\$1,000.. 79 750
Total cost of materials	\$1,000.. 1 686 309	Total rental payments ²	\$1,000.. 19 370
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 510 935	Buildings and other structures rental payments ²	\$1,000.. 14 738
Cost of resales	\$1,000.. 117 378	Machinery and equipment rental payments ²	\$1,000.. 4 632
Cost of fuels	\$1,000.. 6 501	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 3 233
Cost of purchased electricity	\$1,000.. 27 794	Response coverage ratio ⁴	percent.. 94
Cost of contract work	\$1,000.. 23 701	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 11 622
Quantity of electricity purchased for heat and power	1,000 kWh.. 570 780	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.. 5 678
Total value of shipments	\$1,000.. 3 282 824	Response coverage ratio ⁴	percent.. 94
Primary products value of shipments	\$1,000.. 2 631 993	Cost of purchased legal services ³	\$1,000.. 4 932
Secondary products value of shipments	\$1,000.. 517 804	Response coverage ratio ⁴	percent.. 94
Total miscellaneous receipts	\$1,000.. 133 027	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 4 665
Value of resales	\$1,000.. 125 126	Response coverage ratio ⁴	percent.. 94
Contract receipts	\$1,000.. —	Cost of purchased advertising services ³	\$1,000.. 3 850
Other miscellaneous receipts	\$1,000.. 7 901	Response coverage ratio ⁴	percent.. 94
Primary products specialization ratio	percent.. 83	Cost of purchased software and other data processing services ³	\$1,000.. 8 503
Value of primary products shipments made in all industries	\$1,000.. 2 696 783	Response coverage ratio ⁴	percent.. 94
Value of primary products shipments made in this industry	\$1,000.. 2 631 993	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 3 952
Value of primary products shipments made in other industries	\$1,000.. 64 790	Response coverage ratio ⁴	percent.. 94
Coverage ratio	percent.. 97		

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)				
336321, VEHICULAR LIGHTING EQUIPMENT MFG												
All establishments	-	106	54	16 506	628 534	12 913	26 471	444 640	1 585 656	1 686 309	3 282 824	169 235
Establishments with 1 to 4 employees	9	31	-	65	1 394	53	91	1 079	4 398	4 482	8 936	329
Establishments with 5 to 9 employees	9	11	-	74	1 744	60	110	1 358	5 338	5 200	10 617	380
Establishments with 10 to 19 employees	5	10	-	134	3 332	96	191	2 318	11 649	10 169	21 895	580
Establishments with 20 to 49 employees	1	12	12	412	14 752	287	531	7 113	40 573	29 781	69 811	1 102
Establishments with 50 to 99 employees	3	14	14	886	26 561	629	1 145	14 915	61 554	53 713	116 076	3 775
Establishments with 100 to 249 employees	-	13	13	2 226	57 574	1 646	3 309	33 430	235 296	137 434	371 244	11 698
Establishments with 250 to 499 employees	-	6	6	2 189	63 043	1 541	2 705	31 848	206 809	117 170	331 961	8 126
Establishments with 500 to 999 employees	-	6	6	4 874	163 466	3 982	8 158	121 115	323 621	634 828	965 222	55 075
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	-	1	1	D	D	D	D	D	D	D	D	D
Administrative records ²	9	43	-	190	4 309	157	293	3 350	13 551	13 252	27 098	969

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)				
336321	Vehicular lighting equipment mfg	106	16 506	628 534	12 913	26 471	444 640	1 585 656	1 686 309	3 282 824	169 235

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)
336321	Vehicular lighting equipment	N	X	X	2 696 783	N	X	X	1 808 770
3363210	Vehicular lighting equipment, electric (including parts and accessories)	N	X	X	2 696 783	N	X	X	1 808 770
33632101	Vehicular lighting equipment, electric (including parts and accessories)	N	X	X	2 642 527	N	X	X	N
3363210100	Vehicular lighting equipment, electric (including parts and accessories)	66	X	X	2 642 527	N	X	X	N
3363210Y	Vehicular lighting equipment, electric (including parts and accessories), nsk, total	N	X	X	54 256	N	X	X	N
3363210YWW	Vehicular lighting equipment, nsk, for nonadministrative-record establishments	N	X	X	29 019	N	X	X	N
3363210YWY	Vehicular lighting equipment, nsk, for administrative-record establishments	N	X	X	25 237	N	X	X	7 960

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; a 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)
336321	VEHICULAR LIGHTING EQUIPMENT MFG				
33531100	Specialty transformers and fluorescent ballasts	X	4 127	X	6 640
33593101	Current-carrying wiring devices	X	89 003	X	22 802
33511001	Electric lamp bulbs	X	96 831	X	91 022
32721101	Flat glass (plate, float, and sheet)	X	1 496	X	D
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	287 587	X	144 633
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	24 605	X	14 857
32610011	Fabricated plastics products (except gaskets)	X	134 894	X	173 688
331000A7	Insulated wire and cable, including magnet wire	X	25 438	X	10 193
32221001	Paperboard containers, boxes, and corrugated paperboard	X	62 270	X	23 365
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	49 881	X	25 247
33299903	Metal poles	X	D	X	D
33200027	All other fabricated metal products (except forgings)	X	35 669	X	18 229
33210001	Forgings	X	D	X	N
33151001	Iron and steel castings (rough and semifinished)	X	D	X	5 862
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	4 478	X	1 953
33152003	Other nonferrous castings (rough and semifinished)	X	D	X	D
33120017	Steel sheet and strip, including tin plate	X	8 407	X	5 215
33120025	Steel wire and wire products	X	D	X	D
33120097	All other steel mill shapes and forms (except castings and forgings)	X	D	X	1 080
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing	X	3 578	X	D
33131600	Aluminum and aluminum-base alloy extruded shapes, including extruded rod, bar, pipe, tube, etc.	X	5 289	X	D
33100049	Other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	D
33142111	Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	817	X	1 285
33100083	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	335	X	621
33512100	Lamp shades	X	D	X	D
00970099	All other materials and components, parts, containers, and supplies	X	558 349	X	323 806
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	66 842	X	58 398

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

336321 VEHICULAR LIGHTING EQUIPMENT MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing vehicular lighting fixtures.

The data published with NAICS code 336321 include the following SIC industry:

3647 Vehicular lighting equipment

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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
336110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
336110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
336110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
336110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
336110100 pt.	3711403	3711403	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121504	3714206	3714206
336110100 pt.	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121507	3714207	3714207
3361101YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121511	3714208	3714208
3361101YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3715000	3715000	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	3362121000	3715100	3715100	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	3362121000	3715100	3715100	3363121527	3714217	3714217
3361120100 pt.	3711400 pt.	3711400 pt.	336212123	37152	37152	3363121527	3714222	3714222
3361120100 pt.	3711600	3711600	33621212301	3715200	3715200	3363121534	3714224	3714224
3361120YWW	3711000 pt.	3711000 pt.	33621212301	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711002 pt.	3711002 pt.	33621212301	3715200	3715200	3363121541	3714226	3714226
3361201 pt.	37114 pt.	37114 pt.	33621212301	3715200	3715200	3363121541	3714226	3714226
3361201 pt.	37115 pt.	37117	33621212301	3715200	3715200	3363121544	3714227	3714227
3361201 pt.	37115 pt.	37118	33621212301	3715200	3715200	3363121544	3714227	3714227
3361201100 pt.	3711407	3711400 pt.	33621212301	3715200	3715200	3363121571	3714241	3714241
3361201100 pt.	3711400 pt.	3711400 pt.	33621212301	3715200	3715200	3363121574	3714249	3714249
3361201100 pt.	3711500 pt.	3711700	33621212301	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201100 pt.	3711500 pt.	3711800	33621212301	3715200	3715200	336312123	37144 pt.	37144 pt.
3361202 pt.	37114 pt.	37114 pt.	33621212301	3715200	3715200	3363123101	3714A02	3714A02
3361202 pt.	37119	37119	33621212301	3715200	3715200	3363123104	3714A03	3714A03
3361202100 pt.	3711409	3711400 pt.	33621212301	3715200	3715200	3363123107	3714A23	3714A23
3361202100 pt.	3711400 pt.	3711400 pt.	33621212301	3715200	3715200	3363123111	3714A25	3714A25
3361202100 pt.	3711900	3711900	33621212301	3715200	3715200	3363123121	3714A43	3714A41 pt.
3361203	37113	37113	33621212301	3715200	3715200	3363123YWW	3714A00 pt.	3714A00 pt.
3361203101	3711304	3711304	33621212301	3715200	3715200	336312W	37140 pt.	37140 pt.
3361203104	3711303	3711303	33621212301	3715200	3715200	336312WYWW	3714000 pt.	3714000 pt.
3361203YWW	3711300	3711300	33621212301	3715200	3715200	336312WYWW	3714002 pt.	3714002 pt.
336120W	37110 pt.	37110 pt.	336212141	37921	37921	3363210	36470	36470
336120WYWW	3711000 pt.	3711000 pt.	336212141101	3792112	3792112	3363210100	3647000 pt.	3647000 pt.
336120WYWW	3711002 pt.	3711002 pt.	336212141104	3792114	3792114	3363210YWW	3647000 pt.	3647000 pt.
3362111 pt.	37111 pt.	37111 pt.	336212141207	3792116	3792116	3363210YWW	3647002	3647002
3362111 pt.	37131	37131	336212141311	3792118	3792118	3363221	36941	36941
3362111 pt.	37149 pt.	37149 pt.	336212141311	3792125	3792125	3363221101	3694101	3694101
3362111101	3713101	3713101	336212141413	3792128	3792128	3363221104	3694102	3694102
3362111204	3713102	3713102	336212141516	3792128	3792128	3363221201	3694103	3694103
3362111307	3713112	3713112	336212141YWW	3792100	3792100	3363221204	3694104	3694104
3362111411	3713115	3713115	336212143	37996	37996	3363221YWW	3694100	3694100
3362111413	3713116	3713116	336212143101	3799611	3799601 pt.	3363223	36942	36942
3362111416	3713117	3713117	336212143105	3799613	3799602 pt.	3363223101	3694201	3694201
3362111519	3713121	3713121	336212143108	3799615	3799604 pt.	3363223104	3694202	3694202
3362111522	3713131	3713131	336212143111	3799617	3799607 pt.	3363223201	3694203	3694203
3362111525	3713132	3713132	336212143114	3799619	3799609 pt.	3363223204	3694204	3694204
3362111528	3713135	3713135	336212143117	3799651	3799609 pt.	3363223YWW	3694200	3694200
3362111531	3713139	3713139	336212143117 pt.	3799651 pt.	3799602 pt.	3363225	36943	36943
3362111534	3713143	3713143	336212143117 pt.	3799651 pt.	3799604 pt.	3363225101	3694301	3694301
3362111537	3713153	3713153	336212143117 pt.	3799651 pt.	3799607 pt.	3363225104	3694302	3694302
3362111541	3713155	3713155	336212143117 pt.	3799651 pt.	3799609 pt.	3363225201	3694303	3694303
3362111543	3713161	3713161	336212143117 pt.	3799651 pt.	3799609 pt.	3363225YWW	3694300	3694300
3362111546	3713162	3713162	336212143117 pt.	3799651 pt.	3799609 pt.	3363227	36944	36944
3362111549	3713163	3713163	336212143117 pt.	3799651 pt.	3799609 pt.	3363227100	3694400	3694400
3362111552	3711171	3711171	336212143YWW	3799600	3799600	3363229	36947	36947
3362111555	3711181	3711181	336212145	37922	37922	3363229101	3694701	3694701
3362111558	3714925	3714925	336212145101	3792244	3792244	3363229201	3694711	3694711
3362111571 pt.	3713171	3713171	336212145104	3792244	3792244	3363229301	3694702	3694702
3362111571 pt.	3714924	3714941 pt.	336212145204	3792247	3792247	3363229304	3694704	3694704
3362111YWW pt.	3711100 pt.	3711100 pt.	336212145311 pt.	3792268 pt.	3792261	3363229307	3694705	3694705
3362111YWW pt.	3711300	3713100	336212145311 pt.	3792268 pt.	3792263	3363229309	3694719	3694719
3362111YWW pt.	3714900 pt.	3714900 pt.	336212145311 pt.	3792268 pt.	3792269	3363229YWW	3694700	3694700
3362113 pt.	37114 pt.	37114 pt.	336212145YWW	3792200	3792200	336322A	36949	36949
3362113 pt.	37132	37132	336212145YWW	3792200	3792200	336322A101	3694901	3694901
3362113101	3713201	3713201	336212145YWW	3792200	3792200	336322A204	3694907	3694907
3362113219	3713225	3713225	336212145YWW	3792200	3792200	336322A307	3694911	3694911
3362113304	3713211	3713211	336212145YWW	3792200	3792200	336322A409	3694912	3694912
3362113307	3713213	3713213	336212145YWW	3792200	3792200	336322A512	3694913	3694913
3362113311	3713215	3713215	336212145YWW	3792200	3792200	336322A615	3694919	3694919
3362113313	3713217	3713217	336212145YWW	3792200	3792200	336322AYWW	3694900	3694900
3362113316	3713218	3713218	336212145YWW	3792200	3792200	336322C pt.	36799 pt.	36799 pt.
3362113322	3713226	3713226	336212145YWW	3792200	3792200	336322C pt.	37149 pt.	37149 pt.
3362113325	3713227	3713227	336212145YWW	3792200	3792200	336322C pt.	3714A pt.	3714A pt.
3362113328	3713241	3713239 pt.	336212145YWW	3792200	3792200	336322C102	3714913	3714913
3362113331 pt.	3711411	3711400 pt.	336212145YWW	3792200	3792200	336322C104	3714914	3714914
3362113331 pt.	3711400 pt.	3711400 pt.	336212145YWW	3792200	3792200	336322C107	3714915	3714915
3362113YWW pt.	3714000 pt.	3714000 pt.	336212145YWW	3792200	3792200	336322C111	3714921	3714921
3362113YWW pt.	3713200	3713200	336212145YWW	3792200	3792200	336322C111 pt.	3714921 pt.	3714921 pt.
			3363111	35921	35921	336322C114	3714942	3714942
			3363111101	3592101	3592101	336322C117	3714944	3714944
			3363111103	3592102	3592102	336322C119	3679926	3679926
			3363111105	3592103	3592103	336322C121	3714945	3714945
			3363111207	3592105	3592105	336322C122	3714946	3714946
			3363111YWW	3592100	3592100	336322C124	3714A05	3714A41 pt.
			3363113	35922	35922	336322C127	3714A40	3714A41 pt.
			3363113101	3592201	3592201			
			3363113103	3592202	3592202			
			3363113205	3592203	3592203			
			3363113207	3592204	3592204			
			3363113209	3592205	3592205			
			3363113211	3592206	3592206			
			3363113313	3592209	3592209			
			3363113YWW	3592200	3592200			
			3363115	35923	35923			
			3363115101	3592301	3592301			
			3363115103	3592302	3592302			
			3363115YWW	3592300	3592300			
			336311W	35920	35920			
			336311YWW	3592000	3592000			
			336311YWW	3592002	3592002			

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336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt....	3679000 pt	3679000 pt	3363505W	3714000 pt	3714000 pt	3364117101	3721813	3721813
336322CYVW pt....	3714900 pt	3714900 pt	3363505WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt....	3714A00 pt	3714A00 pt	3363506WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt.....	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt.....	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
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336322WYVW pt....	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt....	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt....	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt....	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt....	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt....	3714002 pt	3714002 pt	3363606W pt.....	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt.....	37142 pt	37142 pt	3363606W pt.....	23990 pt	23990 pt	3364125	37243	37243
3363301 pt.....	37149 pt	37149 pt	3363606W pt.....	25310 pt	25310 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	3363606WYVW pt....	2396000 pt	2396000 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	3363606WYVW pt....	2399000 pt	2399000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	3363606WYVW pt....	2531000 pt	2531000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	3363606WYVW pt....	2396002 pt	2396002 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	3363606WYVW pt....	2399002 pt	2399002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	3363606WYVW pt....	2531002 pt	2531002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	3363606WYVW pt....	34650	34650	3364127104	3724402	3724402
3363301524	3714919	3714941 pt	3363606WYVW pt....	3465000 pt	3465000 pt	3364127204	3724406	3724406
3363301526	3714228	3714228	3363606WYVW pt....	3465000 pt	3465000 pt	3364127307	3724405	3724405
3363301528	3714911	3714911	3363606WYVW pt....	3465002 pt	3465002 pt	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363700	34650	34650	3364127YVW	3724400	3724400
3363301YVW pt....	3714200 pt	3714200 pt	3363700100	3465000 pt	3465000 pt	336412W	37240	37240
3363301YVW pt....	3714900 pt	3714900 pt	3363700YVW	3465000 pt	3465000 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363700YVW	3465002	3465002	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917	35857	35851 pt	3364131	37282	37282
3363303104	3714A39	3714A39	3363917010	3585705	3585100 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	3363917020	3585707	3585100 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	3363917030	3585719	3585100 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	3363917YVW	3585700	3585100 pt	3364131111	3728261	3728261
336330WYVW	3714000 pt	3714000 pt	336391B	3585B	35854 pt	3364131YVW	3728200	3728200
336330WYVW	3714002 pt	3714002 pt	336391B000	3585B00	3585400 pt	3364133	37283	37283
3363401 pt.....	32922	32922	336391W	35850 pt	35850 pt	3364133101	3728313	3728313
3363401 pt.....	37148	37148	336391WYVW	3585000 pt	3585000 pt	3364133104	3728315	3728315
3363401 pt.....	37149 pt	37149 pt	336391WYVW	3585002 pt	3585002 pt	3364133YVW	3728300	3728300
3363401101	3714801	3714801	3363991	37144	37144	3364135	37285	37285
3363401104	3714802	3714802	3363991101	3714401	3714401	3364135101	3728513	3728513
3363401211	3714807	3714807	3363991104	3714402	3714402	3364135104	3728515	3728515
3363401313	3714809	3714809	3363991107	3714404	3714404	3364135207	3728594	3728594
3363401416	3714811	3714811	3363991111	3714405	3714405	3364135211	3728595	3728595
3363401519	3714813	3714813	3363991113	3714407	3714407	3364135313	3728598	3728598
3363401625	3714817	3714817	3363991116	3714408	3714408	3364135416	3728599	3728599
3363401707	3714803	3714803	3363991119	3714409	3714409	3364135YVW	3728500	3728500
3363401722	3714815	3714815	3363991YVW	3714400	3714400	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363993	37145	37145	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363993101	3714501	3714501	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363993104	3714502	3714502	3364141	37611	37611
3363401745	3714912	3714912	3363993107	3714503	3714503	3364141100	3761100	3761100
3363401747 pt.....	3292200 pt	3292200 pt	3363993YVW	3714500	3714500	3364143	37613	37613
3363401747 pt.....	3292211 pt	3292211 pt	3363995	37147	37147	3364143100	3761300	3761300
3363401747 pt.....	3292215 pt	3292215 pt	3363995101	3714701	3714701	3364145	37616	37616
3363401747 pt.....	3292221 pt	3292221 pt	3363995104	3714705	3714705	3364145100	3761600	3761600
3363401747 pt.....	3292258 pt	3292258 pt	3363995107	3714707	3714707	3364147	37612	37612
3363401747 pt.....	3714827	3714827	3363995111	3714714	3714714	3364147101	3761201	3761201
3363401YVW pt....	3292200 pt	3292200 pt	3363995YVW	3714700	3714700	3364147204	3761202	3761202
3363401YVW pt....	3714800	3714800	3363997 pt.....	35199 pt	35199 pt	3364147YVW	3761200	3761200
3363401YVW pt....	3714900 pt	3714900 pt	3363997 pt.....	37149 pt	37149 pt	3364149	37614	37614
3363403	3714A pt	3714A pt	3363997 pt.....	37149 pt	37149 pt	3364149101	3761401	3761401
3363403101	3714A09	3714A09	3363997 pt.....	37149 pt	37149 pt	3364149104	3761402	3761402
3363403104	3714A10	3714A10	3363997 pt.....	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403107	3714A11	3714A11	3363997 pt.....	3714A pt	3714A pt	336414A	37617	37617
3363403111	3714A33	3714A33	3363997 pt.....	3714A pt	3714A pt	336414A101	3761702	3761702
3363403114	3714A35	3714A35	3363997101	3714901	3714901	336414A104	3761703	3761703
3363403117	3714A37	3714A37	3363997204	3714902	3714902	336414AYVW	3761700	3761700
3363403121	3714A44	3714A44 pt	3363997307	3714903	3714903	336414W	37610	37610
3363403YVW	3714A00 pt	3714A00 pt	3363997401	3714235	3714235	336414WYVW	3761000	3761000
336340W pt.....	32920 pt	32920 pt	3363997405	3714236	3714236	336414WYVW	3761002	3761002
336340W pt.....	37140 pt	37140 pt	3363997409	3519987	3519987	3364151	37645	37645
336340WYVW pt....	3292000 pt	3292000 pt	3363997514	3714909	3714909	3364151101	3764511	3764511
336340WYVW pt....	3714000 pt	3714000 pt	3363997524	3714916	3714916	3364151204	3764513	3764513
336340WYVW pt....	3292002 pt	3292002 pt	3363997527	3714922	3714922	3364151307	3764515	3764515
336340WYVW pt....	3714002 pt	3714002 pt	3363997531	3714923	3714923	3364151YVW	3764500	3764500
3363501	37146	37146	3363997534	3714931	3714931	3364153	37646	37646
3363501101	3714603	3714603	3363997551	3714951	3714951 pt	3364153101	3764611	3764611
3363501104	3714605	3714605	3363997554	3714A52	3714A41 pt	3364153104	3764613	3764613
3363501207	3714613	3714613	3363997YVW pt....	3519900 pt	3519900 pt	3364153107	3764615	3764615
3363501211	3714615	3714615	3363997YVW pt....	3714200 pt	3714200 pt	3364153YVW	3764600	3764600
3363501313	3714623	3714623	3363997YVW pt....	3714900 pt	3714900 pt	3364155	37647	37647
3363501316	3714625	3714625	3363997YVW pt....	3714A00 pt	3714A00 pt	3364155101	3764711	3764711
3363501434	3714641	3714641	3363999W pt.....	35190 pt	35190 pt	3364155104	3764713	3764713
3363501519	3714628	3714628	3363999W pt.....	37140 pt	37140 pt	3364155107	3764715	3764715
3363501522	3714631	3714631	3363999WYVW pt....	3519000 pt	3519000 pt	3364155YVW	3764700	3764700
3363501525	3714633	3714633	3363999WYVW pt....	3714000 pt	3714000 pt	3364157	37648	37648
3363501528	3714635	3714635	3363999WYVW pt....	3519002 pt	3519002 pt	3364157101	3764811	3764811
3363501531	3714637	3714637	3363999WYVW pt....	3714002 pt	3714002 pt	3364157104	3764813	3764813
3363501537	3714643	3714643	3364111	37211	37211	3364157107	3764815	3764815
3363501541	3714649	3714649	3364111100	3721100	3721100	3364157YVW	3764800	3764800
3363501YVW	3714600	3714600	3364113	37215	37215	336415W	37640	37640
3363503	3714A pt	3714A pt	33641131000	3721500	3721500	336415WYVW	3764000	3764000
3363503101	3714A04	3714A04	3364115	37217	37217	336415WYVW	3764002	3764002
3363503104	3714A27	3714A27	3364115101	3721711	3721711			
3363503107	3714A29	3714A29	3364115104	3721751	3721751			
3363503111	3714A31	3714A31	3364115YVW	3721700	3721700			
3363503114	3714A32	3714A41 pt						
3363503117	3714A30	3714A41 pt						

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3364191	37692	37692	3366115	37313	37313	3366127119	3732719	3732719
336419101	3769211	3769211	3366115101	3731315	3731315	3366127YVW	3732700	3732700
336419104	3769213	3769213	3366115107	3731335	3731335	336612W	37320 pt	37320 pt
3364191207	3769219	3769219	3366115111	3731343	3731343	336612WYVW	3732000 pt	3732000 pt
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3364191413	3769235	3769235	3366115116	3731357	3731357	3369911 pt	37511	37511
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336510WYVWY pt	3743002 pt	3743002 pt	3366125211	3732406	3732409 pt	3369993307	3799905	3799905
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3366111104	3731107	3731107	3366125YVW	3732400	3732400	3369993421	3799920	3799923 pt
3366111107	3731119	3731119	3366127	37327	37327	3369993513	3799925	3799925
3366111YVW	3731100	3731100	3366127101	3732702	3732702	3369993YVW	3799900 pt	3799900 pt
3366113	37312	37312	3366127104	3732704	3732704	336999W	37990 pt	37990 pt
3366113100	3731200	3731200	3366127107	3732706	3732706	336999WYVW	3799000 pt	3799000 pt
			3366127111	3732708	3732708	336999WYVWY	3799002 pt	3799002 pt
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			3366127116	3732717	3732717			

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1997 Economic Census

Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336322	Other motor vehicle electrical & electronic equipment mfg	950	1 021	95 617	3 059 067	75 419	144 797	2 127 720	7 048 604	9 816 731	16 973 014	694 885
367940	Electronic components, n.e.c. (pt)	N	252	12 896	368 235	9 100	17 870	191 894	739 998	701 395	1 450 716	76 330
369400	Engine electrical equipment . . .	N	570	52 232	1 642 394	41 928	81 035	1 187 878	4 033 507	5 018 404	9 075 617	379 408
371430	Motor vehicle parts & accessories (pt)	N	199	30 489	1 048 438	24 391	45 892	747 948	2 275 099	4 096 932	6 446 681	239 147

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	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)
336322, OTHER MOTOR VEHICLE ELECTRICAL & ELECTRONIC EQUIPMENT MFG												
United States	-	1 021	455	95 617	3 059 067	75 419	144 797	2 127 720	7 048 604	9 816 731	16 973 014	694 885
Arkansas	-	8	4	1 181	18 714	920	1 750	13 435	57 285	62 257	114 287	1 602
California	4	157	59	6 557	170 537	5 019	10 169	101 898	313 927	270 852	588 270	31 488
Colorado	7	12	3	159	4 433	132	250	2 646	6 044	6 311	12 866	587
Florida	1	37	11	1 853	40 182	1 414	2 765	23 605	86 931	90 462	178 917	5 456
Indiana	-	51	28	6 996	288 212	6 046	10 366	244 381	465 343	827 174	1 298 801	50 323
Iowa	1	15	9	1 489	43 361	1 271	2 707	33 502	70 324	77 344	145 642	4 012
Kansas	-	15	5	1 691	36 458	1 092	1 923	21 259	58 750	147 923	211 302	5 157
Massachusetts	4	36	12	869	30 203	521	1 006	12 984	71 195	96 391	166 653	5 059
Missouri	2	24	8	628	15 790	405	682	6 197	30 709	27 000	57 831	1 951
New Hampshire	5	8	4	149	4 159	104	341	2 231	5 683	4 780	10 874	302
North Carolina	-	15	10	1 535	39 600	1 171	2 499	21 999	139 838	133 280	267 028	16 693
Oklahoma	-	13	5	1 671	36 530	1 422	3 501	25 078	44 283	95 157	136 548	5 757
Texas	-	63	27	4 620	108 180	3 583	6 346	66 057	443 300	479 360	908 691	24 716
Utah	7	8	2	104	2 365	88	161	1 586	4 617	4 276	8 995	352

* 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
336322, OTHER MOTOR VEHICLE ELECTRICAL & ELECTRONIC EQUIPMENT MFG		336322, OTHER MOTOR VEHICLE ELECTRICAL & ELECTRONIC EQUIPMENT MFG—Con.	
Companies ¹	number.. 950	Value added	\$1,000.. 7 048 604
All establishments	number.. 1 021	Total inventories, beginning of year	\$1,000.. 1 978 889
Establishments with 1 to 19 employees	number.. 566	Finished goods inventories, beginning of year	\$1,000.. 576 032
Establishments with 20 to 99 employees	number.. 272	Work-in-process inventories, beginning of year	\$1,000.. 563 612
Establishments with 100 employees or more	number.. 183	Materials and supplies inventories, beginning of year	\$1,000.. 839 245
All employees	number.. 95 617	Total inventories, end of year	\$1,000.. 1 832 487
Total compensation ²	\$1,000.. 4 054 909	Finished goods inventories, end of year	\$1,000.. 520 487
Annual payroll	\$1,000.. 3 059 067	Work-in-process inventories, end of year	\$1,000.. 511 478
Total fringe benefits	\$1,000.. 995 842	Materials and supplies inventories, end of year	\$1,000.. 800 522
Production workers, average for year	number.. 75 419	Gross book value of total assets at beginning of year	\$1,000.. 4 475 700
Production workers on March 12	number.. 75 932	Total capital expenditures (new and used)	\$1,000.. 694 885
Production workers on May 12	number.. 75 408	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 59 679
Production workers on August 12	number.. 74 679	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 635 206
Production workers on November 12	number.. 75 657	Total retirements ²	\$1,000.. 273 756
Production-worker hours	1,000.. 144 797	Gross book value of total assets at end of year	\$1,000.. 4 896 829
Production-worker wages	\$1,000.. 2 127 720	Total depreciation during year ²	\$1,000.. 463 411
Total cost of materials	\$1,000.. 9 816 731	Total rental payments ²	\$1,000.. 106 482
Cost of materials, parts, containers, etc., consumed	\$1,000.. 8 569 906	Buildings and other structures rental payments ²	\$1,000.. 49 538
Cost of resales	\$1,000.. 931 864	Machinery and equipment rental payments ²	\$1,000.. 56 944
Cost of fuels	\$1,000.. 24 133	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 14 378
Cost of purchased electricity	\$1,000.. 100 579	Response coverage ratio ⁴	percent.. 79
Cost of contract work	\$1,000.. 190 249	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 82 311
Quantity of electricity purchased for heat and power	1,000 kWh.. 1 720 794	Response coverage ratio ⁴	percent.. 79
Quantity of electricity generated less sold for heat and power	1,000 kWh.. 1 374	Cost of purchased communications services ³	\$1,000.. 35 823
Total value of shipments	\$1,000.. 16 973 014	Response coverage ratio ⁴	percent.. 79
Primary products value of shipments	\$1,000.. 14 079 861	Cost of purchased legal services ³	\$1,000.. 5 889
Secondary products value of shipments	\$1,000.. 1 453 529	Response coverage ratio ⁴	percent.. 79
Total miscellaneous receipts	\$1,000.. 1 439 624	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 3 645
Value of resales	\$1,000.. 1 235 070	Response coverage ratio ⁴	percent.. 79
Contract receipts	\$1,000.. 162 535	Cost of purchased advertising services ³	\$1,000.. 17 510
Other miscellaneous receipts	\$1,000.. 42 019	Response coverage ratio ⁴	percent.. 79
Primary products specialization ratio	percent.. 90	Cost of purchased software and other data processing services ³	\$1,000.. 67 242
Value of primary products shipments made in all industries	\$1,000.. 15 612 890	Response coverage ratio ⁴	percent.. 79
Value of primary products shipments made in this industry	\$1,000.. 14 079 861	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 10 305
Value of primary products shipments made in other industries	\$1,000.. 1 533 029	Response coverage ratio ⁴	percent.. 79
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)				
336322, OTHER MOTOR VEHICLE ELECTRICAL & ELECTRONIC EQUIPMENT MFG												
All establishments	-	1 021	455	95 617	3 059 067	75 419	144 797	2 127 720	7 048 604	9 816 731	16 973 014	694 885
Establishments with 1 to 4 employees	8	284	-	611	20 722	492	789	12 594	24 112	29 183	54 762	5 616
Establishments with 5 to 9 employees	9	143	-	958	22 899	746	1 213	13 974	40 952	44 629	87 567	3 525
Establishments with 10 to 19 employees	7	139	-	1 975	52 561	1 484	2 621	29 770	102 939	108 171	214 445	8 286
Establishments with 20 to 49 employees	5	170	170	5 381	141 480	3 892	7 313	74 818	281 926	276 406	573 816	26 702
Establishments with 50 to 99 employees	4	102	102	7 275	184 625	5 365	10 186	103 298	359 120	361 223	728 024	28 143
Establishments with 100 to 249 employees	2	104	104	17 208	399 449	13 266	23 556	236 503	937 393	1 139 084	2 077 675	81 768
Establishments with 250 to 499 employees	-	40	40	14 494	340 553	11 473	21 657	220 511	896 712	1 167 664	2 029 120	70 592
Establishments with 500 to 999 employees	-	26	26	19 329	578 396	16 375	34 278	458 865	1 442 754	1 630 106	3 059 610	173 472
Establishments with 1,000 to 2,499 employees	-	10	10	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	-	3	3	D	D	D	D	D	D	D	D	D
Administrative records ²	9	379	-	2 356	47 642	1 943	3 125	32 021	87 925	111 138	202 389	8 415

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)				
336322	Other motor vehicle electrical & electronic equipment mfg	1 021	95 617	3 059 067	75 419	144 797	2 127 720	7 048 604	9 816 731	16 973 014	694 885
3363221	Ignition harness and cable sets	54	7 897	151 181	6 764	12 610	107 605	272 489	396 440	671 637	16 040
3363223	Battery charging alternators, generators, and regulators	65	11 881	326 978	9 863	19 701	253 097	773 631	887 936	1 634 049	53 621
3363225	Cranking motors (starters)	39	6 468	202 100	5 201	11 216	150 066	470 429	698 298	1 158 354	86 002
3363227	Spark plugs (all types)	2	D	D	D	D	D	D	D	D	D
3363229	Complete engine electrical equipment, nec	26	14 211	660 209	10 727	19 830	471 450	1 883 091	2 453 351	4 384 049	179 055
336322A	Parts for engine electrical and electronic equipment	28	4 042	103 713	3 013	5 923	59 961	286 642	276 688	562 484	22 431
336322C	Motor vehicle electrical and electronic equipment, except engine electrical equipment	81	29 903	1 037 484	23 786	45 476	739 993	2 279 814	4 139 113	6 487 696	249 781

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)
336322	Motor vehicle electrical and electronic equipment, nec	N	X	X	15 612 890	N	X	X	N
3363221	Ignition harness and cable sets	N	X	X	860 966	N	X	X	936 297
33632211	Ignition harness sets, all types	N	X	X	550 924	N	X	X	N
3363221101	Automotive-type ignition harness sets	17	X	X	457 594	28	X	X	639 213
3363221104	Other ignition harness sets, including tractor, stationary engine, and aircraft	13	X	X	93 330	17	X	X	73 706
33632212	Engine electrical cable sets, all types	N	X	X	224 711	N	X	X	N
3363221201	Automotive-type engine electrical cable sets	23	X	X	195 853	18	X	X	155 929
3363221204	Aircraft and other type engine electrical cable sets	13	X	X	28 858	6	X	X	23 408
3363221Y	Ignition harness and cable sets, nsk	N	X	X	85 331	N	X	X	N
3363221YVV	Ignition harness and cable sets, nsk	N	X	X	85 331	N	X	X	44 041
3363223	Battery charging alternators, generators, and regulators	N	X	X	2 185 691	N	X	X	1 148 964
33632231	New battery charging alternators and generators for internal combustion engines	N	X	X	1 458 543	N	X	X	N
3363223101	New automotive battery charging alternators and generators for internal combustion engines	18	X	X	1 385 008	11	X	X	622 342
3363223104	All other new battery charging alternators and generators for internal combustion engines, new	14	X	X	73 535	11	X	X	44 309
33632232	Rebuilt battery charging alternators and generators for internal combustion engines, all types, and regulators for alternators and generators	N	X	X	629 919	N	X	X	N
3363223201	Rebuilt battery charging alternators and generators for internal combustion engines, all types	68	X	X	602 841	74	X	X	405 612
3363223204	Regulators for battery charging alternators and generators (new and rebuilt)	10	X	X	27 078	7	X	X	15 719
3363223Y	Battery charging alternators, generators, and regulators, nsk	N	X	X	97 229	N	X	X	N
3363223YVV	Battery charging alternators, generators, and regulators, nsk	N	X	X	97 229	N	X	X	60 982
3363225	Cranking motors (starters)	N	X	X	752 272	N	X	X	902 292
33632251	New starting (engine cranking) motors	N	X	X	348 439	N	X	X	N
3363225101	Automotive starting (engine cranking) motors, new	8	X	X	D	13	X	X	484 437
3363225104	Other new starting (engine cranking) motors	10	X	X	D	11	X	X	75 820
33632252	Rebuilt starting (engine cranking) motors, all types	N	X	X	325 953	N	X	X	N
3363225201	Rebuilt starting (engine cranking) motors, all types	59	X	X	325 953	68	X	X	324 660
3363225Y	Cranking motors (starters), nsk	N	X	X	77 880	N	X	X	N
3363225YVV	Cranking motors (starters), nsk	N	X	X	77 880	N	X	X	17 375
3363227	Spark plugs (all types)	N	X	X	479 376	N	X	X	411 786
33632271	Spark plugs (all types)	N	X	X	479 376	N	X	X	N
3363227100	Spark plugs (all types)	6	X	X	479 376	6	X	X	411 786
3363229	Complete engine electrical equipment, nec	N	X	X	3 084 558	N	X	X	2 524 165
33632291	Electrical ignition coils (all types) for complete engines	N	X	X	595 079	N	X	X	N
3363229101	Engine electrical ignition coils (all types)	16	X	X	595 079	13	X	X	335 794
33632292	Electronic systems for complete engine control, using computers or microprocessors	N	X	X	1 347 571	N	X	X	N
3363229201	Electronic systems for complete engine control, using computers or microprocessors	10	X	X	1 347 571	11	X	X	N
33632293	All other complete engine electrical and-or electronic equipment	N	X	X	942 768	N	X	X	N
3363229301	Electrical distributors (all types)	8	X	X	164 711	15	X	X	260 273
3363229304	Magnetos, magneto-dynamos, and magnetic flywheels	5	X	X	D	6	X	X	60 564
3363229307	All other complete ignition equipment, including electronic ignitions	11	X	X	D	14	X	X	252 216
3363229309	All other complete electrical and-or electronic equipment for internal combustion engines	14	X	X	622 484	6	X	X	N
3363229Y	Complete engine electrical equipment, nec, nsk	N	X	X	199 140	N	X	X	N
3363229YVV	Complete engine electrical equipment, nec, nsk	N	X	X	199 140	N	X	X	24 686

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)
336322	Motor vehicle electrical and electronic equipment, nec—Con.								
336322A	Parts for engine electrical and electronic equipment.....	N	X	X	526 563	N	X	X	430 237
336322A1	Armatures, field coils, and drive-end housings for cranking motors	N	X	X	16 844	N	X	X	N
336322A101	Armatures, field coils, and drive-end housings for cranking motors	10	X	X	16 844	12	X	X	41 344
336322A2	Armatures and field coils for alternators and generators	N	X	X	4 792	N	X	X	N
336322A204	Armatures and field coils for alternators and generators	6	X	X	4 792	9	X	X	31 481
336322A3	Ignition distributor heads and rotors	N	X	X	184 777	N	X	X	N
336322A307	Ignition distributor heads and rotors	6	X	X	184 777	8	X	X	116 925
336322A4	Ignition distributor breaker point sets	N	X	X	D	N	X	X	N
336322A409	Ignition distributor breaker point sets	4	X	X	D	4	X	X	N
336322A5	Ignition distributor condensers (capacitors)	N	X	X	D	N	X	X	N
336322A512	Ignition distributor condensers (capacitors)	2	X	X	D	4	X	X	N
336322A6	Other parts for engine electrical and-or electronic equipment	N	X	X	292 961	N	X	X	N
336322A615	Other parts for engine electrical and-or electronic equipment	32	X	X	292 961	21	X	X	213 089
336322AY	Parts for engine electrical and-or electronic equipment, nsk	N	X	X	22 111	N	X	X	N
336322AYWV	Parts for engine electrical and-or electronic equipment, nsk	N	X	X	22 111	N	X	X	515
336322C	Motor vehicle electrical and electronic equipment, except engine electrical equipment @	N	X	X	6 091 519	N	X	X	N
336322C1	Motor vehicle electrical and electronic equipment, new and rebuilt	N	X	X	6 091 519	N	X	X	N
336322C102	Motor vehicle cruise control units, new	10	X	X	265 918	13	X	X	229 325
336322C104	Motor vehicle permanent defrosters, new	1	X	X	D	N	X	X	N
336322C107	Motor vehicle wiring harness sets, except ignition, new	24	X	X	D	N	X	X	N
336322C111	Motor vehicle windshield washer-wiper mechanisms, including washer pumps, new	11	X	X	247 004	N	X	X	N
336322C114	Motor vehicle block and battery heaters, new	1	X	X	D	N	X	X	N
336322C117	Other motor vehicle heaters, heater cores, and other heater parts, new	9	X	X	422 963	N	X	X	N
336322C119	Electronic control modular chips for motor vehicles	15	X	X	367 825	N	X	X	N
336322C121	Motor vehicle instrument board assemblies, new	6	X	X	80 753	N	X	X	N
336322C122	Other motor vehicle electrical and electronic equipment (excluding engine electrical equipment), new	47	X	X	1 459 459	N	X	X	N
336322C124	Cruise control units, rebuilt	1	X	X	D	N	X	X	N
336322C127	Windshield washer-wiper units, rebuilt	6	X	X	D	N	X	X	N
336322C130	Other rebuilt electrical equipment, except engine electrical equipment	9	X	X	166 545	N	X	X	N
336322CY	Motor vehicle electrical and electronic equipment, nsk	N	X	X	—	N	X	X	N
336322CYWV	Motor vehicle electrical and electronic equipment, nsk	N	X	X	—	N	X	X	N
336322W	Motor vehicle electrical and electronic equipment, nsk, total	N	X	X	1 631 945	N	X	X	N
336322WY	Motor vehicle electrical and electronic equipment, nsk, total	N	X	X	1 631 945	N	X	X	N
336322WYWV	Motor vehicle electrical and electronic equipment, nsk, for nonadministrative-record establishments	N	X	X	1 444 907	N	X	X	N
336322WYWY	Motor vehicle electrical and electronic equipment, nsk, for administrative-record establishments	N	X	X	187 038	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
3363221	IGNITION HARNESS AND CABLE SETS		
	United States	860 966	936 297
	Illinois	45 789	46 754
	Indiana	55 099	89 000
	Iowa	43 282	N
	Mississippi	101 617	78 470
	Ohio	131 171	N
	Pennsylvania	28 488	N
	Texas	21 141	N
	Wisconsin	11 016	12 363
3363223	BATTERY CHARGING ALTERNATORS, GENERATORS, AND REGULATORS		
	United States	2 185 691	1 148 964
	Alabama	7 083	N
	California	38 294	63 593
	Illinois	53 651	33 585
	Indiana	729 969	N
	Kentucky	35 029	12 410
	Missouri	14 300	N
	New Jersey	3 799	N
	Oregon	2 958	2 513
	South Carolina	28 535	N
	Texas	28 635	23 057
	Wisconsin	13 187	N
3363225	CRANKING MOTORS (STARTERS)		
	United States	752 272	902 292
	California	25 586	36 153
	Illinois	33 796	26 370
	Kentucky	31 965	20 041
	New York	5 272	8 048
	Pennsylvania	3 167	19 051
	Tennessee	14 958	N
	Texas	20 238	7 315
3363227	SPARK PLUGS (ALL TYPES)		
	United States	479 376	411 786
3363229	COMPLETE ENGINE ELECTRICAL EQUIPMENT, NEC		
	United States	3 084 558	2 524 165
	Illinois	4 270	13 570
	Ohio	74 313	31 482
336322A	PARTS FOR ENGINE ELECTRICAL AND ELECTRONIC EQUIPMENT		
	United States	526 563	430 237
	Alabama	9 442	N
	Pennsylvania	9 271	N
336322C	MOTOR VEHICLE ELECTRICAL AND ELECTRONIC EQUIPMENT, EXCEPT ENGINE ELECTRICAL EQUIPMENT @		
	United States	6 091 519	N
	Illinois	446 062	N
	Indiana	288 160	N
	Michigan	1 247 262	N
	Minnesota	37 184	N
	New York	55 147	N
	North Carolina	106 800	N
	Pennsylvania	130 633	N
	Tennessee	22 966	N
	Texas	83 275	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)
336322	OTHER MOTOR VEHICLE ELECTRICAL & ELECTRONIC EQUIPMENT MFG				
32721203	Tube blanks	X	-	N	N
33441200	Printed circuit boards (without inserted components) for electronic circuitry	X	301 117	N	N
001900C4	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	X	D	N	N
33441300	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits for electronic circuitry	X	847 687	N	N
33441400	Capacitors for electronic circuitry	X	156 522	N	N
33441500	Resistors for electronic circuitry	X	116 940	N	N
001900D3	Other components and accessories for electronic circuitry, n.e.c., except tubes	X	218 254	N	N
32518835	Silicon, hyperpure	X	-	N	N
33141911	Gold and other precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.)	X	31	N	N
33141917	Doped chemicals, and other doped materials for electronic use	X	-	N	N
33111107	Ferrites (powder and paste)	X	-	N	N
331000AA	Metal powders	X	-	N	N
33410001	Electronic computing equipment	X	43	N	N
33593101	Current-carrying wiring devices	X	83 083	N	N
33422001	Electronic communication equipment	X	D	N	N
33451501	Electrical instrument mechanisms and meter movements (including instrument relays)	X	1 133	N	N
33331401	Optical instruments and lenses (except sighting, tracking, and fire control)	X	-	N	N
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	175 239	N	N
32610011	Fabricated plastics products (except gaskets)	X	423 615	N	N
332000A9	Sheet metal products, except stampings	X	101	N	N
332000AC	Metal stampings	X	4 518	N	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	373 363	N	N
33200033	Other fabricated metal products (except forgings)	X	D	N	N
33210001	Forgings	X	D	N	N
33100035	Castings (rough and semifinished)	X	D	N	N
33120001	Steel shapes and forms (except castings, forgings, and fabricated metal products)	X	146 300	N	N
33142111	Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	315 636	N	N
33100039	Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	21 580	N	N
33100083	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	D	N	N
331000A7	Insulated wire and cable, including magnet wire	X	2 609	N	N
32220017	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	X	950	N	N
33141957	Silicon chips	X	D	N	N
32599217	Masks	X	-	N	N
32512005	Commodity gases	X	D	N	N
32611305	Resists (photosensitive resin films applied to the surface of a wafer)	X	D	N	N
32518843	Specialty gases	X	-	N	N
33200095	Other fabricated metal products (except forgings)	X	60 793	X	N
33151001	Iron and steel castings (rough and semifinished)	X	27 110	N	N
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	55 992	N	N
33152003	Other nonferrous castings (rough and semifinished)	X	1 399	N	N
33100075	All other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	48 324	X	30 388
33100099	Insulated wire and cable (except magnet wire)	X	107 205	X	108 652
33100097	Magnet wire	X	53 726	X	48 374
33299101	Ball and roller bearings (mounted or unmounted)	X	42 565	X	37 242
33361200	Mechanical speed changers, gears, and industrial high-speed drives	X	D	X	34 114
32221001	Paperboard containers, boxes, and corrugated paperboard	X	50 441	X	35 243
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	20 766	N	N
32610007	Fabricated plastics products (except gaskets, hoses, and belting)	X	197 179	X	60 668
32600017	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	X	134 587	N	N
00190033	Used engine electrical equipment for rebuilding, or to be used in rebuilding (starting motors, generators, etc.)	X	127 398	X	79 027
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	D	N	N
33291207	Fluid power valves (hydraulic and pneumatic)	X	D	N	N
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic)	X	D	N	N
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic)	X	D	N	N
33399901	Fluid power filters (hydraulic and pneumatic)	X	D	N	N
00190089	Other fluid power products (hydraulic and pneumatic)	X	-	N	N
33637000	Automotive stampings (including body parts, hubcaps, fenders, etc.)	X	48 677	N	N
33200019	Other fabricated metal products, except fluid power and forgings	X	17 142	N	N
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	6 160	N	N
33120017	Steel sheet and strip, including tin plate	X	40 910	N	N
33120033	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	15 776	N	N
33299105	Ball bearings (mounted or unmounted)	X	12 038	N	N
33299103	Roller bearings (mounted or unmounted)	X	D	N	N
32622001	Rubber and plastics hose and belting	X	3 368	N	N
32500023	Ceramic raw materials, including powders, chemicals, and fibers (excluding refractory uses)	X	D	N	N
32700035	Ceramic and ceramic composite parts, components, and accessories	X	D	N	N
33999103	Gaskets (all types), and packing and sealing devices	X	6 416	N	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	8 339	N	N
32552003	Glues and adhesives	X	2 553	N	N
00190003	Flexible packaging materials	X	D	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)
336322	OTHER MOTOR VEHICLE ELECTRICAL & ELECTRONIC EQUIPMENT MFG—Con.				
32220015	Paper and paperboard containers	X	18 188	N	N
33632200	Engine electrical equipment, including spark plugs, magnetos, generators, starters, etc.	X	591 923	N	N
001900B7	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	X	302 191	N	N
00999826	Core parts purchased for use in remanufacturing or rebuilding	X	33 529	N	N
00970099	All other materials and components, parts, containers, and supplies	X	1 016 967	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	1 753 266	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

336322 OTHER MOTOR VEHICLE ELECTRICAL AND ELECTRONIC EQUIPMENT MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing and/or rebuilding electrical and electronic equipment for motor vehicles and internal combustion engines.

The data published with NAICS code 336322 include the following SIC industries:

- 3679 Electronic components, n.e.c. (pt)
- 3694 Engine electrical equipment
- 3714 Motor vehicle parts and accessories (pt)

This definition comes from the 1997 NAICS Manual. However, for this industry, the 1997 Economic Census – Manufacturing implemented the conversion to NAICS differently. Data for NAICS industry 336322 include establishments primarily engaged in the manufacture of electronic control modular chips for motor vehicles. The NAICS definitions will be fully implemented with the 2002 Economic Census.

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
@336322C.....	For additional detail, see Current Industrial Reports MA334Q, Semiconductors and Electronic Components and MA335H, Motors and Generators.

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
3361110 pt.....	37110 pt.....	37110 pt	336211W pt.....	37110 pt.....	37110 pt	3363121.....	37142 pt.....	37142 pt
3361110 pt.....	37111 pt.....	37111 pt	336211W pt.....	37130.....	37130	3363121101.....	3714201.....	3714201
3361110 pt.....	37114 pt.....	37114 pt	336211W pt.....	37140 pt.....	37140 pt	3363121224.....	3714218.....	3714218
3361110100 pt.....	3711100 pt.....	3711100 pt	336211WYWW pt.....	3711000 pt.....	3711000 pt	3363121351.....	3714231.....	3714231
3361110100 pt.....	3711111.....	3711111 pt	336211WYWW pt.....	3713000.....	3713000	3363121354.....	3714232.....	3714232
3361110100 pt.....	3711151.....	3711151	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121457.....	3714234.....	3714234
3361110100 pt.....	3711400 pt.....	3711400 pt	336211WYWW pt.....	3711002 pt.....	3711002 pt	3363121467.....	3714237.....	3714237
3361110100 pt.....	3711403.....	3711400 pt	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121504.....	3714206.....	3714206
3361110YWW.....	3711000 pt.....	3711000 pt	336211WYWW pt.....	3713002.....	3713002	3363121507.....	3714207.....	3714207
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3714002 pt.....	3714002 pt	3363121511.....	3714208.....	3714208
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3715002.....	3715002	3363121514.....	3714209.....	3714209
3361120 pt.....	37110 pt.....	37110 pt	3362121.....	37151.....	37151	3363121517.....	3714215.....	3714215
3361120 pt.....	37114 pt.....	37114 pt	3362121000.....	3715100.....	3715100	3363121521.....	3714216.....	3714216
3361120 pt.....	37116.....	37116	336212123.....	37152.....	37152	3363121527.....	3714217.....	3714217
3361120100 pt.....	3711405.....	3711400 pt	33621213100.....	3715200.....	3715200	3363121531.....	3714222.....	3714222
3361120100 pt.....	3711400 pt.....	3711400 pt	33621213100.....	3715200.....	3715200	3363121534.....	3714224.....	3714224
3361120100 pt.....	3711600.....	3711600	33621213100.....	3715200.....	3715200	3363121537.....	3714225.....	3714225
3361120YWW.....	3711000 pt.....	3711000 pt	33621213100.....	3715200.....	3715200	3363121541.....	3714226.....	3714226
3361120YWW.....	3711000 pt.....	3711000 pt	33621213100.....	3715200.....	3715200	3363121544.....	3714227.....	3714227
3361120YWW.....	3711002 pt.....	3711002 pt	33621213100.....	3715200.....	3715200	3363121571.....	3714241.....	3714241
3361120YWW.....	3711002 pt.....	3711002 pt	33621213100.....	3715200.....	3715200	3363121574.....	3714249.....	3714249
3361201 pt.....	37114 pt.....	37114 pt	33621213100.....	3715200.....	3715200	3363121YVV.....	3714200 pt.....	3714200 pt
3361201 pt.....	37115 pt.....	37117	3362130.....	37160.....	37160	3363123.....	37144 pt.....	37144 pt
3361201 pt.....	37115 pt.....	37118	3362130101.....	3716001.....	3716001	3363123101.....	3714A02.....	3714A02
3361201100 pt.....	3711407.....	3711400 pt	3362130104.....	3716005.....	3716005	3363123104.....	3714A03.....	3714A03
3361201100 pt.....	3711400 pt.....	3711400 pt	3362130107.....	3716007.....	3716007	3363123107.....	3714A23.....	3714A23
3361201100 pt.....	3711400 pt.....	3711400 pt	3362130111.....	3716021.....	3716021	3363123111.....	3714A25.....	3714A25
3361201100 pt.....	3711500 pt.....	3711700	3362130YWW.....	3716000.....	3716000	3363123121.....	3714A43.....	3714A41 pt
3361201100 pt.....	3711500 pt.....	3711800	3362130YWW.....	3716002.....	3716002	3363123YVV.....	3714A00 pt.....	3714A00 pt
3361202 pt.....	37114 pt.....	37114 pt	3362141.....	37921.....	37921	336312W.....	37140 pt.....	37140 pt
3361202 pt.....	37119.....	37119	3362141101.....	3792112.....	3792112	336312WYWW.....	3714000 pt.....	3714000 pt
3361202100 pt.....	3711409.....	3711400 pt	3362141104.....	3792114.....	3792114	336312WYWW.....	3714002 pt.....	3714002 pt
3361202100 pt.....	3711400 pt.....	3711400 pt	3362141207.....	3792116.....	3792116	3363210.....	36470.....	36470
3361202100 pt.....	3711900.....	3711900	3362141311.....	3792118.....	3792118	3363210100.....	3647000 pt.....	3647000 pt
3361203.....	37113.....	37113	3362141311.....	3792118.....	3792118	3363210YWW.....	3647000 pt.....	3647000 pt
3361203101.....	3711304.....	3711304	3362141413.....	3792125.....	3792125	3363210YWW.....	3647002.....	3647002
3361203104.....	3711303.....	3711303	3362141516.....	3792128.....	3792128	3363221.....	36941.....	36941
3361203YVV.....	3711300.....	3711300	3362141YVV.....	3792100.....	3792100	3363221101.....	3694101.....	3694101
336120W.....	37110 pt.....	37110 pt	3362143.....	37996.....	37996	3363221104.....	3694102.....	3694102
336120WYWW.....	3711000 pt.....	3711000 pt	3362143101.....	3799611.....	3799601 pt	3363221201.....	3694103.....	3694103
336120WYWW.....	3711002 pt.....	3711002 pt	3362143105.....	3799613.....	3799602 pt	3363221204.....	3694104.....	3694104
3362111 pt.....	37111 pt.....	37111 pt	3362143108.....	3799615.....	3799604 pt	3363221YVV.....	3694100.....	3694100
3362111 pt.....	37131.....	37131	3362143111.....	3799617.....	3799607 pt	3363223.....	36942.....	36942
3362111 pt.....	37149 pt.....	37149 pt	3362143114.....	3799619.....	3799609 pt	3363223101.....	3694201.....	3694201
3362111101.....	3713101.....	3713101	3362143117 pt.....	3799651 pt.....	3799602 pt	3363223104.....	3694202.....	3694202
3362111204.....	3713102.....	3713102	3362143117 pt.....	3799651 pt.....	3799604 pt	3363223201.....	3694203.....	3694203
3362111307.....	3713112.....	3713112	3362143117 pt.....	3799651 pt.....	3799607 pt	3363223204.....	3694204.....	3694204
3362111411.....	3713115.....	3713115	3362143117 pt.....	3799651 pt.....	3799609 pt	3363223YVV.....	3694200.....	3694200
3362111413.....	3713116.....	3713116	3362143YVV.....	3799600.....	3799600	3363225.....	36943.....	36943
3362111416.....	3713117.....	3713117	3362145.....	37922.....	37922	3363225101.....	3694301.....	3694301
3362111519.....	3713121.....	3713121	3362145101.....	3792242.....	3792242	3363225104.....	3694302.....	3694302
3362111522.....	3713131.....	3713131	3362145204.....	3792244.....	3792244	3363225201.....	3694303.....	3694303
3362111525.....	3713132.....	3713132	3362145311 pt.....	3792247.....	3792247	3363225YVV.....	3694300.....	3694300
3362111528.....	3713135.....	3713135	3362145311 pt.....	3792268 pt.....	3792263	3363227.....	36944.....	36944
3362111531.....	3713139.....	3713139	3362145311 pt.....	3792268 pt.....	3792269	3363227100.....	3694400.....	3694400
3362111534.....	3713143.....	3713143	3362145YVV.....	3792200.....	3792200	3363229.....	36947.....	36947
3362111537.....	3713153.....	3713153	336214W pt.....	37920.....	37920	3363229101.....	3694701.....	3694701
3362111541.....	3713155.....	3713155	336214W pt.....	37990 pt.....	37990 pt	3363229201.....	3694711.....	3694711
3362111543.....	3713161.....	3713161	336214WYWW pt.....	3792000.....	3792000	3363229301.....	3694702.....	3694702
3362111546.....	3713162.....	3713162	336214WYWW pt.....	3792000 pt.....	3792000 pt	3363229304.....	3694704.....	3694704
3362111549.....	3713163.....	3713163	336214WYWW pt.....	3792002.....	3792002	3363229307.....	3694705.....	3694705
3362111552.....	3711171.....	3711171	336214WYWW pt.....	3799002 pt.....	3799002 pt	3363229309.....	3694719.....	3694719
3362111555.....	3711171.....	3711171	3363111.....	35921.....	35921	3363229YVV.....	3694700.....	3694700
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3362111571 pt.....	3713171.....	3713171	3363111103.....	3592102.....	3592102	336322A101.....	3694901.....	3694901
3362111YVV pt.....	3711100 pt.....	3711100 pt	3363111105.....	3592103.....	3592103	336322A204.....	3694907.....	3694907
3362111YVV pt.....	3713100.....	3713100	3363111207.....	3592105.....	3592105	336322A307.....	3694911.....	3694911
3362111YVV pt.....	3714900 pt.....	3714900 pt	3363111YVV.....	3592100.....	3592100	336322A409.....	3694912.....	3694912
3362113 pt.....	37114 pt.....	37114 pt	3363113.....	35922.....	35922	336322A512.....	3694913.....	3694913
3362113101.....	37132.....	37132	3363113101.....	3592201.....	3592201	336322A615.....	3694919.....	3694919
3362113219.....	3713225.....	3713225	3363113103.....	3592202.....	3592202	336322AYVV.....	3694900.....	3694900
3362113304.....	3713211.....	3713211	3363113205.....	3592203.....	3592203	336322C pt.....	36799 pt.....	36799 pt
3362113307.....	3713213.....	3713213	3363113207.....	3592204.....	3592204	336322C pt.....	37149 pt.....	37149 pt
3362113311.....	3713215.....	3713215	3363113209.....	3592205.....	3592205	336322C pt.....	37144 pt.....	37144 pt
3362113313.....	3713217.....	3713217	3363113211.....	3592206.....	3592206	336322C102.....	3714913.....	3714913
3362113316.....	3713218.....	3713218	3363113313.....	3592209.....	3592209	336322C104.....	3714914.....	3714914
3362113322.....	3713226.....	3713226	3363113YVV.....	3592200.....	3592200	336322C107.....	3714915.....	3714915
3362113325.....	3713227.....	3713227	3363115.....	35923.....	35923	336322C111 pt.....	3714921 pt.....	3714917
3362113328.....	3713241.....	3713239 pt	3363115101.....	3592301.....	3592301	336322C111 pt.....	3714921 pt.....	3714917
3362113331 pt.....	3711411.....	3711400 pt	3363115103.....	3592302.....	3592302	336322C114.....	3714942.....	3714904 pt
3362113331 pt.....	3713243.....	3713239 pt	3363115YVV.....	3592300.....	3592300	336322C117.....	3714944.....	3714904 pt
3362113YVV pt.....	3711400 pt.....	3711400 pt	336311W.....	35920.....	35920	336322C119.....	3679926.....	3679920 pt
3362113YVV pt.....	3713200.....	3713200	336311WYWW.....	3592000.....	3592000	336322C121.....	3714945.....	3714941 pt
3362113YVV pt.....	3713200.....	3713200	336311WYWW.....	3592002.....	3592002	336322C122.....	3714946.....	3714941 pt
						336322C124.....	3714A05.....	3714A41 pt
						336322C127.....	3714A40.....	3714A41 pt

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679900 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127307	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	3364127YVW	3724400	3724400
3363301YVW pt	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412W	37240	37240
3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	336391B000	3585B00	3585400 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131111	3728261	3728261
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585000 pt	3585000 pt	3364131YVW	3728200	3728200
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364133	37283	37283
3363401 pt	32922	32922	3363991	37144	37144	3364133101	3728313	3728313
3363401 pt	37148	37148	3363991101	3714401	3714401	3364133104	3728315	3728315
3363401 pt	37149 pt	37149 pt	3363991104	3714402	3714402	3364133YVW	3728300	3728300
3363401101	3714801	3714801	3363991107	3714404	3714404	3364135	37285	37285
3363401104	3714802	3714802	3363991111	3714405	3714405	3364135101	3728513	3728513
3363401211	3714807	3714807	3363991113	3714407	3714407	3364135104	3728515	3728515
3363401313	3714809	3714809	3363991116	3714408	3714408	3364135207	3728594	3728594
3363401416	3714811	3714811	3363991119	3714409	3714409	3364135211	3728595	3728595
3363401519	3714813	3714813	3363991YVW	3714400	3714400	3364135313	3728598	3728598
3363401625	3714817	3714817	3363993	37145	37145	3364135416	3728599	3728599
3363401707	3714803	3714803	3363993101	3714501	3714501	3364135YVW	3728500	3728500
3363401722	3714815	3714815	3363993104	3714502	3714502	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363993107	3714503	3714503	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363993YVW	3714500	3714500	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363995	37147	37147	3364141	37611	37611
3363401745	3714912	3714912	3363995101	3714701	3714701	3364141100	3761100	3761100
3363401747 pt	3292200 pt	3292200 pt	3363995104	3714705	3714705	3364143	37613	37613
3363401747 pt	3292200 pt	3292211	3363995107	3714707	3714707	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292221	3363995111	3714714	3714714	3364145	37616	37616
3363401747 pt	3292200 pt	3292258	3363995YVW	3714700	3714700	3364145100	3761600	3761600
3363401747 pt	3714827	3714827	3363997 pt	35199 pt	35199 pt	3364147	37612	37612
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	37142 pt	37142 pt	3364147101	3761201	3761201
3363401YVW pt	3714800	3714800	3363997 pt	37149 pt	37149 pt	3364147204	3761202	3761202
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403114	3714A35	3714A35	3363997101	3714901	3714901	336414A101	3761702	3761702
3363403117	3714A37	3714A37	3363997204	3714902	3714902	336414A104	3761703	3761703
3363403121	3714A44	3714A41 pt	3363997307	3714903	3714903	336414AYVW	3761700	3761700
3363403YVW	3714A00 pt	3714A00 pt	3363997401	3714235	3714235	336414W	37610	37610
336340W pt	32920 pt	32920 pt	3363997405	3714236	3714236	336414WYVW	3761000	3761000
336340W pt	37140 pt	37140 pt	3363997409	3519987	3519987	336414WYVW	3761002	3761002
336340WYVW pt	3292000 pt	3292000 pt	3363997514	3714909	3714909	3364151	37645	37645
336340WYVW pt	3714000 pt	3714000 pt	3363997524	3714916	3714916	3364151101	3764511	3764511
336340WYVW pt	3292002 pt	3292002 pt	3363997527	3714922	3714922	3364151204	3764513	3764513
336340WYVW pt	3714002 pt	3714002 pt	3363997531	3714923	3714923	3364151307	3764515	3764515
3363501	37146	37146	3363997534	3714931	3714931	3364151YVW	3764500	3764500
3363501101	3714603	3714603	3363997551	3714951	3714941 pt	3364153	37646	37646
3363501104	3714605	3714605	3363997554	3714A52	3714A41 pt	3364153101	3764611	3764611
3363501207	3714613	3714613	3363997YVW pt	3519900 pt	3519900 pt	3364153104	3764613	3764613
3363501211	3714615	3714615	3363997YVW pt	3714200 pt	3714200 pt	3364153107	3764615	3764615
3363501313	3714623	3714623	3363997YVW pt	3714900 pt	3714900 pt	3364153YVW	3764600	3764600
3363501316	3714625	3714625	336399W pt	35190 pt	35190 pt	3364155	37647	37647
3363501434	3714641	3714641	336399WYVW pt	3519000 pt	3519000 pt	3364155101	3764711	3764711
3363501519	3714628	3714628	336399WYVW pt	3714000 pt	3714000 pt	3364155104	3764713	3764713
3363501522	3714631	3714631	336399WYVW pt	3519002 pt	3519002 pt	3364155107	3764715	3764715
3363501525	3714633	3714633	3364111	37211	37211	3364155YVW	3764700	3764700
3363501528	3714635	3714635	3364111100	3721100	3721100	3364157	37648	37648
3363501531	3714637	3714637	3364113	37215	37215	3364157101	3764811	3764811
3363501537	3714643	3714643	3364113000	3721500	3721500	3364157104	3764813	3764813
3363501541	3714649	3714649	3364115	37217	37217	3364157107	3764815	3764815
3363501YVW	3714600	3714600	3364115101	3721711	3721711	3364157YVW	3764800	3764800
3363503	3714A pt	3714A pt	3364115104	3721751	3721751	336415W	37640	37640
3363503101	3714A04	3714A04	3364115YVW	3721700	3721700	336415WYVW	3764000	3764000
3363503104	3714A27	3714A27				336415WYVW	3764002	3764002

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3364191	37692	37692	3366115	37313	37313	3366127119	3732719	3732719
336419101	3769211	3769211	3366115101	3731315	3731315	3366127YVW	3732700	3732700
336419104	3769213	3769213	3366115107	3731335	3731335	336612W	37320 pt	37320 pt
3364191207	3769219	3769219	3366115111	3731343	3731343	336612WYVW	3732000 pt	3732000 pt
3364191311	3769225	3769225	3366115113	3731348	3731348	336612WYVWY	3732002 pt	3732002 pt
3364191413	3769235	3769235	3366115116	3731357	3731357	3369911 pt	37511	37511
3364191YVW	3769200	3769200	3366115119	3731321	3731321	3369911 pt	39443 pt	39443 pt
			3366115121	3731332	3731332	3369911101 pt	3751148 pt	3751139
3364193	37694	37694	3366115123	3731333	3731333	3369911101 pt	3751148 pt	3751141
3364193101	3769414	3769414	3366115124 pt	3731361 pt	3731324	3369911101 pt	3751148 pt	3751143
3364193104	3769419	3769419	3366115124 pt	3731361 pt	3731326	3369911101 pt	3751148 pt	3751145
3364193107	3769425	3769425	3366115124 pt	3731361 pt	3731328	3369911101 pt	3751148 pt	3751147
3364193111	3769435	3769435	3366115YVW	3731300	3731300	3369911101 pt	3751148 pt	3751149
3364193YVW	3769400	3769400				3369911101 pt	3751148 pt	3751155
			3366117	37314	37314	3369911104 pt	3751109	3751109
336419W	37690	37690	3366117101	3731441	3731441	3369911104 pt	3944336	3944346 pt
336419WYVW	3769000	3769000	3366117104	3731449	3731449	3369911109	3751110	3751110
336419WYVWY	3769002	3769002	3366117YVW	3731400	3731400	3369911113	3751112	3751112
						3369911116	3751115	3751115
3365101	37431 pt	37431 pt	3366119	37316	37316	3369911119	3751116	3751116
3365101101	3743101	3743101 pt	3366119101	3731601	3731601	3369911122 pt	3751124 pt	3751113
3365101104	3743104	3743101 pt	3366119104	3731602	3731602	3369911122 pt	3751124 pt	3751114
3365101107	3743105	3743101 pt	3366119YVW	3731600	3731600	3369911122 pt	3751124 pt	3751123
3365101111	3743113	3743103 pt				3369911YVW pt	3751100	3751100
3365101YVW	3743100 pt	3743100 pt	336611W	37310	37310	3369911YVWY pt	3944300 pt	3944300 pt
			336611WYVW	3731000	3731000			
3365103	37432	37432	336611WYVWY	3731002	3731002			
3365103100	3743200 pt	3743200				3369913	37512	37512
3365103100 pt	3743200 pt	3743211	3366121	37322	37322	3369913100 pt	3751200 pt	3751200
3365103100 pt	3743200 pt	3743215	3366121104	3732201	3732201	3369913100 pt	3751200 pt	3751201
3365103100 pt	3743200 pt	3743235	3366121107	3732211	3732211	3369913100 pt	3751200 pt	3751209
3365103100 pt	3743200 pt	3743241	3366121111	3732207	3732207			
3365103100 pt	3743200 pt	3743265	3366121113	3732209	3732219 pt	336991W pt	37510	37510
			3366121116	3732210	3732219 pt	336991W pt	39440 pt	39440 pt
3365105 pt	3531X pt	3531M pt	3366121119	3732220	3732219 pt	336991WYVWY pt	3751000	3751000
			3366121225	3732221	3732221	336991WYVWY pt	3944000 pt	3944000 pt
3365105 pt	3531X pt	3531P pt	3366121225	3732223	3732223	336991WYVWY pt	3751002	3751002
			3366121228	3732225	3732225	336991WYVWY pt	3944002 pt	3944002 pt
						3369920 pt	37110 pt	37110 pt
3365105 pt	37433	37433	3366121231	3732227	3732227	3369920 pt	37114 pt	37114 pt
3365105301	3743301	3743301	3366121234	3732226	3732229 pt			
3365105304	3743305	3743305	3366121239	3732222	3732229 pt	3369920 pt	37950	37950
3365105405	3531X21	3531P21	3366121243	3732224	3732229 pt	3369920111	3795001	3795001
3365105407	3743304	3743304	3366121246	3732231	3732228 pt	3369920214	3795051	3795051
3365105411	3743311	3743311	3366121246	3732228	3732228	3369920216	3711401	3711400 pt
3365105413	3743312	3743312	3366121337	3732228	3732228	3369920217	3795098	3795098
3365105416	3743314	3743314	3366121YVW	3732200	3732200	3369920YVW pt	3711000 pt	3711000 pt
3365105419 pt	3531X80	3531M21 pt				3369920YVWY pt	3711400 pt	3711400 pt
3365105419 pt	3743319	3743319	3366123	37323	37323	3369920YVWY pt	3795000	3795000
3365105YVW pt	3531X00 pt	3531M00 pt	3366123104	3732311	3732311	3369920YVWY pt	3711002 pt	3711002 pt
3365105YVW pt	3531X00 pt	3531P00 pt	3366123107	3732316	3732316	3369920YVWY pt	3795002	3795002
3365105YVW pt	3743300	3743300	3366123201	3732304	3732304			
			3366123211	3732321	3732321	3369991	37993	37993
336510W pt	35310 pt	35310 pt	3366123YVW	3732300	3732300	3369991101	3799382	3799382
						3369991104	3799384	3799384
336510W pt	37430 pt	37430 pt	3366125	37324	37324	3369991YVW	3799300	3799300
336510WYVW pt	3531000 pt	3531000 pt	3366125107	3732405	3732405			
336510WYVW pt	3743000 pt	3743000 pt	3366125201	3732401	3732401	3369993	37999 pt	37999 pt
336510WYVWY pt	3531002 pt	3531002 pt	3366125204	3732403	3732403	3369993101	3799903	3799903
336510WYVWY pt	3743002 pt	3743002 pt	3366125211	3732406	3732409 pt	3369993204	3799904	3799904
			3366125213 pt	3732408 pt	3732407	3369993307	3799905	3799905
3366111	37311	37311	3366125213 pt	3732408 pt	3732409 pt	3369993314	3799916	3799923 pt
3366111101	3731111	3731111	3366125YVW	3732400	3732400	3369993417	3799915	3799923 pt
3366111104	3731107	3731107				3369993421	3799920	3799923 pt
3366111107	3731119	3731119	3366127	37327	37327	3369993513	3799925	3799925
3366111YVW	3731100	3731100	3366127101	3732702	3732702	3369993YVW	3799900 pt	3799900 pt
			3366127104	3732704	3732704			
3366113	37312	37312	3366127107	3732706	3732706	336999W	37990 pt	37990 pt
3366113100	3731200	3731200	3366127111	3732708	3732708	336999WYVW	3799000 pt	3799000 pt
			3366127113	3732712	3732712	336999WYVWY	3799002 pt	3799002 pt
			3366127116	3732717	3732717			

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Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336330	Motor vehicle steering & suspension component (except spring) mfg	183	211	48 625	2 323 579	40 105	86 952	1 806 600	5 261 952	5 473 746	10 702 709	552 144
371440	Motor vehicle parts & accessories (pt)	N	211	48 625	2 323 579	40 105	86 952	1 806 600	5 261 952	5 473 746	10 702 709	552 144

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)				
336330, MOTOR VEHICLE STEERING & SUSPENSION COMPONENT (EXCEPT SPRING) MFG												
United States	-	211	108	48 625	2 323 579	40 105	86 952	1 806 600	5 261 952	5 473 746	10 702 709	552 144
California	4	21	6	355	10 055	270	477	5 704	26 241	27 614	53 787	1 628
Illinois	1	8	3	359	9 763	297	704	6 801	24 006	23 817	47 416	2 954
Indiana	-	15	13	7 387	402 246	6 158	15 305	326 585	858 908	1 016 572	1 896 990	135 298
Kentucky	-	4	3	1 198	36 924	840	1 595	21 957	49 720	279 783	327 224	23 649
Michigan	-	32	22	13 670	788 623	10 878	24 097	616 506	1 686 896	1 428 982	3 096 675	115 290
Missouri	-	10	5	959	24 801	855	1 766	19 705	140 770	107 527	247 025	7 486
Ohio	-	19	17	8 304	435 536	7 032	14 501	327 732	747 785	1 031 916	1 781 338	120 913
Tennessee	-	11	10	4 242	156 372	3 325	7 186	107 817	371 523	607 432	982 424	63 413
Texas	7	10	3	123	3 190	92	109	1 493	4 723	5 214	9 824	686

* 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
336330, MOTOR VEHICLE STEERING & SUSPENSION COMPONENT (EXCEPT SPRING) MFG		336330, MOTOR VEHICLE STEERING & SUSPENSION COMPONENT (EXCEPT SPRING) MFG—Con.	
Companies ¹	183	Coverage ratio	89
All establishments	211	Value added	5 261 952
Establishments with 1 to 19 employees	103	Total inventories, beginning of year	719 546
Establishments with 20 to 99 employees	39	Finished goods inventories, beginning of year	143 687
Establishments with 100 employees or more	69	Work-in-process inventories, beginning of year	206 721
All employees	48 625	Materials and supplies inventories, beginning of year	369 138
Total compensation ²	3 153 582	Total inventories, end of year	771 957
Annual payroll	2 323 579	Finished goods inventories, end of year	186 182
Total fringe benefits	830 003	Work-in-process inventories, end of year	197 215
Production workers, average for year	40 105	Materials and supplies inventories, end of year	388 560
Production workers on March 12	39 832	Gross book value of total assets at beginning of year	4 834 490
Production workers on May 12	40 170	Total capital expenditures (new and used)	552 144
Production workers on August 12	39 868	Capital expenditures for buildings and other structures (new and used)	30 856
Production workers on November 12	40 550	Capital expenditures for machinery and equipment (new and used)	521 288
Production-worker hours	86 952	Total retirements ²	222 432
Production-worker wages	1 806 600	Gross book value of total assets at end of year	5 164 202
Total cost of materials	5 473 746	Total depreciation during year ²	338 821
Cost of materials, parts, containers, etc., consumed	5 196 057	Total rental payments ²	61 591
Cost of resales	89 650	Buildings and other structures rental payments ²	9 819
Cost of fuels	31 220	Machinery and equipment rental payments ²	51 772
Cost of purchased electricity	94 614	Cost of purchased services for the repair of buildings and other structures ³	10 690
Cost of contract work	62 205	Response coverage ratio ⁴	95
Quantity of electricity purchased for heat and power	1 989 619	Cost of purchased services for the repair of machinery and equipment ³	105 390
Quantity of electricity generated less sold for heat and power	S	Response coverage ratio ⁴	95
Total value of shipments	10 702 709	Cost of purchased communications services ³	12 992
Primary products value of shipments	8 852 762	Response coverage ratio ⁴	95
Secondary products value of shipments	1 713 005	Cost of purchased legal services ³	3 579
Total miscellaneous receipts	136 942	Response coverage ratio ⁴	95
Value of resales	119 779	Cost of purchased accounting and bookkeeping services ³	2 496
Contract receipts	2 560	Response coverage ratio ⁴	95
Other miscellaneous receipts	14 603	Cost of purchased advertising services ³	4 605
Primary products specialization ratio	83	Response coverage ratio ⁴	95
Value of primary products shipments made in all industries	9 935 338	Cost of purchased software and other data processing services ³	40 051
Value of primary products shipments made in this industry	8 852 762	Response coverage ratio ⁴	95
Value of primary products shipments made in other industries	1 082 576	Cost of purchased refuse removal (including hazardous waste) services ³	17 896
		Response coverage ratio ⁴	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)				
336330. MOTOR VEHICLE STEERING & SUSPENSION COMPONENT (EXCEPT SPRING) MFG												
All establishments	-	211	108	48 625	2 323 579	40 105	86 952	1 806 600	5 261 952	5 473 746	10 702 709	552 144
Establishments with 1 to 4 employees	6	44	-	106	2 695	85	111	1 639	8 327	12 070	20 793	1 010
Establishments with 5 to 9 employees	3	30	-	199	4 755	148	201	2 797	16 282	45 683	61 658	1 352
Establishments with 10 to 19 employees	6	29	-	392	9 425	302	423	5 481	20 985	28 870	50 144	2 352
Establishments with 20 to 49 employees	1	26	26	804	20 461	577	918	10 487	53 005	54 322	106 800	4 834
Establishments with 50 to 99 employees	-	13	13	922	27 118	733	1 421	16 316	77 443	114 132	190 196	9 228
Establishments with 100 to 249 employees	1	20	20	3 779	114 177	2 928	6 439	76 822	427 355	375 506	796 622	70 961
Establishments with 250 to 499 employees	-	27	27	9 475	311 411	7 333	15 570	209 359	871 967	1 074 649	1 936 568	118 369
Establishments with 500 to 999 employees	-	14	14	9 854	306 963	8 348	16 423	224 742	796 239	1 075 133	1 840 517	81 602
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	-	4	4	D	D	D	D	D	D	D	D	D
Administrative records ²	9	75	-	560	12 102	449	529	7 352	27 628	38 978	66 860	3 643

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)				
336330	Motor vehicle steering & suspension component (except spring) mfg	211	48 625	2 323 579	40 105	86 952	1 806 600	5 261 952	5 473 746	10 702 709	552 144
3363301	Motor vehicle steering and suspension components, new	102	46 295	2 264 898	38 178	83 765	1 771 896	5 130 511	5 318 206	10 421 722	537 238
3363303	Motor vehicle steering and suspension components, rebuilt	11	1 573	41 812	1 319	2 457	24 368	94 731	103 621	191 994	9 827

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)
336330	Motor vehicle steering and suspension components, except springs	N	X	X	9 935 338	N	X	X	N
3363301	Motor vehicle steering and suspension components, new	N	X	X	9 563 993	N	X	X	N
33633011	Motor vehicle shock absorbers, new	N	X	X	838 751	N	X	X	N
3363301101	Motor vehicle shock absorbers, new	21	X	X	838 751	17	X	X	753 469
33633012	Motor vehicle tie rod ends, new	N	X	X	165 440	N	X	X	N
3363301204	Motor vehicle tie rod ends, new	14	X	X	165 440	13	X	X	185 090
33633013	Motor vehicle steering idler arms, drag links, and control arms, new	N	X	X	816 799	N	X	X	N
3363301307	Motor vehicle steering idler arms, drag links, and control arms, new	23	X	X	816 799	21	X	X	409 556
33633014	Motor vehicle steering wheels, columns, and gearboxes, new	N	X	X	2 218 943	N	X	X	N
3363301417	Motor vehicle steering wheels, columns, and gearboxes, new	27	X	X	2 218 943	24	X	X	1 330 437
33633015	Other motor vehicle steering and suspension components, including motor vehicle ball joints, new	N	X	X	5 524 060	N	X	X	N
3363301511	Motor vehicle ball joints, new	13	X	X	269 830	14	X	X	179 837
3363301514	Motor vehicle struts, new	13	X	X	685 459	N	X	X	N
3363301521	Motor vehicle rack and pinion steering gears, new	9	X	X	D	N	X	X	N
3363301524	Motor vehicle integral and manual steering gears, new	4	X	X	D	N	X	X	N
3363301526	Motor vehicle power steering pumps, new	11	X	X	D	5	X	X	D
3363301528	Motor vehicle power steering hose assemblies, new	9	X	X	238 141	10	X	X	91 519
3363301531	Other motor vehicle steering and suspension components, new	78	X	X	1 883 444	N	X	X	N
3363301Y	Motor vehicle steering and suspension components, new, nsk	N	X	X	-	N	X	X	N
3363301YWW	Motor vehicle steering and suspension components, new, nsk	N	X	X	-	N	X	X	N
3363303	Motor vehicle steering and suspension components, rebuilt	N	X	X	303 081	N	X	X	N
33633031	Motor vehicle steering and suspension components, rebuilt	N	X	X	303 081	N	X	X	N
3363303101	Motor vehicle power steering pumps, rebuilt	19	X	X	75 334	20	X	X	52 332
3363303104	Motor vehicle rack and pinion steering assemblies, rebuilt	19	X	X	58 550	20	X	X	55 679
3363303121	Other rebuilt steering and suspension components	10	X	X	169 197	N	X	X	N
3363303Y	Motor vehicle steering and suspension components, rebuilt, nsk	N	X	X	-	N	X	X	N
3363303YWW	Motor vehicle steering and suspension components, rebuilt, nsk	N	X	X	-	N	X	X	N
336330W	Motor vehicle steering and suspension components, nsk, total	N	X	X	68 264	N	X	X	N
336330WY	Motor vehicle steering and suspension components, nsk, total	N	X	X	68 264	N	X	X	N
336330WYWW	Motor vehicle steering and suspension components, nsk, for nonadministrative-record establishments	N	X	X	5 834	N	X	X	N
336330WYWY	Motor vehicle steering and suspension components, nsk, for administrative-record establishments	N	X	X	62 430	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
3363301	MOTOR VEHICLE STEERING AND SUSPENSION COMPONENTS, NEW		
	United States	9 563 993	N
	California	42 787	N
	Connecticut	49 159	N
	Illinois	81 027	N
	Indiana	1 859 526	N
	Kentucky	210 816	N
	Michigan	2 682 519	N
	Missouri	243 610	N
	New York	297 419	N
	Ohio	1 574 142	N
	South Carolina	28 844	N
	Tennessee	874 422	N
3363303	MOTOR VEHICLE STEERING AND SUSPENSION COMPONENTS, REBUILT		
	United States	303 081	N
	California	7 160	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)
336330	MOTOR VEHICLE STEERING & SUSPENSION COMPONENT (EXCEPT SPRING) MFG				
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	D	X	N
33291207	Fluid power valves (hydraulic and pneumatic)	X	D	X	N
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic)	X	D	X	N
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic)	X	D	X	N
33399901	Fluid power filters (hydraulic and pneumatic)	X	D	X	N
00190089	Other fluid power products (hydraulic and pneumatic)	X	D	X	N
33637000	Automotive stampings (including body parts, hubcaps, fenders, etc.)	X	280 394	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	122 078	X	N
33200019	Other fabricated metal products, except fluid power and forgings	X	393 765	X	N
33210001	Forgings	X	184 635	X	N
33151001	Iron and steel castings (rough and semifinished)	X	376 249	X	N
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	287 185	X	N
33152003	Other nonferrous castings (rough and semifinished)	X	D	X	N
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	551 509	X	N
33120017	Steel sheet and strip, including tin plate	X	171 893	X	N
33120033	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	236 717	X	N
33142111	Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	N
33100039	Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	N
33100083	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	33 887	X	N
33299105	Ball bearings (mounted or unmounted)	X	116 986	X	N
33299103	Roller bearings (mounted or unmounted)	X	77 122	X	N
32610011	Fabricated plastics products (except gaskets)	X	82 619	X	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	33 903	X	N
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	34 674	X	N
32600017	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	X	149 150	X	N
32622001	Rubber and plastics hose and belting	X	74 154	X	N
32500023	Ceramic raw materials, including powders, chemicals, and fibers (excluding refractory uses)	X	D	X	N
32700035	Ceramic and ceramic composite parts, components, and accessories	X	D	X	N
33999103	Gaskets (all types), and packing and sealing devices	X	26 421	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	39 037	X	N
32552003	Glues and adhesives	X	6 768	X	N
00190003	Flexible packaging materials	X	D	X	N
32220015	Paper and paperboard containers	X	38 393	X	N
33632200	Engine electrical equipment, including spark plugs, magnetos, generators, starters, etc.	X	D	X	N
001900B7	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	X	19 930	X	N
00999826	Core parts purchased for use in remanufacturing or rebuilding	X	130 276	X	N
00970099	All other materials and components, parts, containers, and supplies	X	670 131	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	270 499	X	N

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

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

336330 MOTOR VEHICLE STEERING AND SUSPENSION COMPONENT (EXCEPT SPRING) MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing and/or rebuilding motor vehicle steering mechanisms and suspension components (except springs).

The data published with NAICS code 336330 include the following SIC industry:

3714 Motor vehicle parts and accessories (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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121507	3714207	3714207
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3715002	3715002	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	336212123	37152	37152	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	336212123100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	336212123	37152	37152	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	336212123100	3715200	3715200	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	336212123	37152	37152	3363121547	3714227	3714227
3361201 pt.	37114 pt.	37114 pt.	336212123100	3715200	3715200	3363121571	3714241	3714241
3361201 pt.	37115 pt.	37117	336212123	37152	37152	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37118	336212123100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201100 pt.	3711407	3711400 pt.	336212130	37160	37160	336312123	37144 pt.	37144 pt.
3361201100 pt.	3711400 pt.	3711400 pt.	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711500 pt.	3711700	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711800	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361202 pt.	37114 pt.	37114 pt.	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361202 pt.	37119	37119	3362130YWW	3716002	3716002	3363123YWW	3714A00 pt.	3714A00 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711900	3711900	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361203	37113	37113	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361203101	3711304	3711304	3362141207	3792116	3792116	3363210	36470	36470
3361203104	3711303	3711303	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203YWW	3711300	3711300	3362141413	3792125	3792125	3363210YWW	3647000 pt.	3647000 pt.
336120W	37110 pt.	37110 pt.	3362141416	3792128	3792128	3363210YWW	3647002	3647002
336120WYWW	3711000 pt.	3711000 pt.	3362141YWW	3792100	3792100	3363221	36941	36941
336120WYWW	3711002 pt.	3711002 pt.	3362143	37996	37996	3363221101	3694101	3694101
3362111 pt.	37111 pt.	37111 pt.	3362143101	3799611	3799601 pt.	3363221104	3694102	3694102
3362111 pt.	37131	37131	3362143105	3799613	3799602 pt.	3363221201	3694103	3694103
3362111 pt.	37149 pt.	37149 pt.	3362143108	3799615	3799604 pt.	3363221204	3694104	3694104
3362111101	3713101	3713101	3362143111	3799617	3799607 pt.	3363221YWW	3694100	3694100
3362111204	3713102	3713102	3362143114	3799619	3799609 pt.	3363223	36942	36942
3362111307	3713112	3713112	3362143117	3799651 pt.	3799601 pt.	3363223101	3694201	3694201
3362111411	3713115	3713115	3362143117 pt.	3799651 pt.	3799602 pt.	3363223104	3694202	3694202
3362111413	3713116	3713116	3362143117 pt.	3799651 pt.	3799604 pt.	3363223201	3694203	3694203
3362111416	3713117	3713117	3362143117 pt.	3799651 pt.	3799607 pt.	3363223204	3694204	3694204
3362111519	3713121	3713121	3362143YWW	3799600	3799609 pt.	3363223YWW	3694200	3694200
3362111522	3713131	3713131	3362145	37922	37922	3363225	36943	36943
3362111525	3713132	3713132	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111528	3713135	3713135	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111531	3713139	3713139	3362145207	3792246	3792247	3363225201	3694303	3694303
3362111534	3713143	3713143	3362145311 pt.	3792268 pt.	3792261	3363225YWW	3694300	3694300
3362111537	3713153	3713153	3362145311 pt.	3792268 pt.	3792263	3363227	36944	36944
3362111541	3713155	3713155	3362145311 pt.	3792268 pt.	3792269	3363227100	3694400	3694400
3362111543	3713161	3713161	3362145YWW	3792200	3792200	3363229	36947	36947
3362111546	3713162	3713162	336214W pt.	37920	37920	3363229101	3694701	3694701
3362111549	3713163	3713163	336214W pt.	37990	37990	3363229201	3694711	3694711
3362111552	3711171	3711171	336214WYWW pt.	3792000	3792000	3363229301	3694702	3694702
3362111555	3711181	3711181 pt.	336214WYWW pt.	3792002	3792002	3363229304	3694704	3694704
3362111558	3714925	3714925	336214WYWW pt.	3799002 pt.	3799002 pt.	3363229307	3694705	3694705
3362111571 pt.	3713171	3713171	3363111	35921	35921	3363229309	3694719	3694719
3362111571 pt.	3714924	3714941 pt.	3363111101	3592101	3592101	3363229YWW	3694700	3694700
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111103	3592102	3592102	336322A	36949	36949
3362111YWW pt.	3713100	3713100	3363111105	3592103	3592103	336322A101	3694901	3694901
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111207	3592105	3592105	336322A204	3694907	3694907
3362113 pt.	37114 pt.	37114 pt.	3363111YWW	3592100	3592100	336322A307	3694911	3694911
3362113 pt.	37132	37132	3363113	35922	35922	336322A409	3694912	3694912
3362113101	3713201	3713201	3363113101	3592201	3592201	336322A512	3694913	3694913
3362113219	3713225	3713225	3363113103	3592202	3592202	336322A615	3694919	3694919
3362113304	3713211	3713211	3363113105	3592203	3592203	336322AYWW	3694900	3694900
3362113307	3713213	3713213	3363113107	3592204	3592204	336322C pt.	36799 pt.	36799 pt.
3362113311	3713215	3713215	3363113205	3592205	3592205	336322C pt.	37149 pt.	37149 pt.
3362113313	3713217	3713217	3363113207	3592206	3592206	336322C pt.	3714A pt.	3714A pt.
3362113316	3713218	3713218	3363113211	3592209	3592209	336322C102	3714913	3714913
3362113322	3713226	3713226	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113325	3713227	3713227	3363113YWW	3592200	3592200	336322C107	3714915	3714915
3362113328	3713241	3713239 pt.	3363115	35923	35923	336322C111 pt.	3714921 pt.	3714917
3362113331 pt.	3711411	3711400 pt.	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714941 pt.
3362113331 pt.	3713243	3713239 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	3363115YWW	3592300	3592300	336322C117	3714944	3714904 pt.
3362113YWW pt.	3713200	3713200	336311W	35920	35920	336322C119	3679926	3679920 pt.
			336311WYWW	3592000	3592000	336322C121	3714945	3714941 pt.
			336311WYWW	3592002	3592002	336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	3363505W	3714000 pt	3714000 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	3363505WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	3363505WYVY	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVY	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVY pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVY pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVY pt	3714002 pt	3714002 pt	3363606W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	3363606W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	3363606W pt	2396000 pt	2396000 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	3363606WYVW pt	2399000 pt	2399000 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	3363606WYVW pt	2531000 pt	2531000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	3363606WYVY pt	2396002 pt	2396002 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	3363606WYVY pt	2399002 pt	2399002 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	3363700	34650	34650	3364127	37244	37244
3363301514	3714943	3714941 pt	3363700100	3465000 pt	3465000 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	3363700YVW	3465000 pt	3465000 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700YVY	3465002 pt	3465002 pt	3364127307	3724405	3724405
3363301526	3714228	3714228	3363700YVY	3465002 pt	3465002 pt	3364127411	3724406	3724406
3363301528	3714911	3714911	3363700YVY	3465002 pt	3465002 pt	3364127YVW	3724400	3724400
3363301531	3714926	3714941 pt	3363917	35857	35851 pt	336412W	37240	37240
3363301YVW pt	3714200 pt	3714200 pt	3363917010	3585705	3585100 pt	336412WYVW	3724000	3724000
3363301YVW pt	3714900 pt	3714900 pt	3363917020	3585707	3585100 pt	336412WYVY	3724002	3724002
3363303	3714A pt	3714A pt	3363917030	3585719	3585100 pt	3364131	37282	37282
3363303101	3714A06	3714A06	3363917YVW	3585700	3585100 pt	3364131101	3728210	3728210
3363303104	3714A39	3714A39	336391B	3585B	35854 pt	3364131104	3728231	3728231
3363303121	3714A47	3714A41 pt	336391B000	3585B00	3585400 pt	3364131107	3728251	3728251
3363303YVW	3714A00 pt	3714A00 pt	336391W	35850 pt	35850 pt	3364131111	3728261	3728261
336330W	37140 pt	37140 pt	336391WYVW	3585000 pt	3585000 pt	3364131YVW	3728200	3728200
336330WYVW	3714000 pt	3714000 pt	336391WYVY	3585002 pt	3585002 pt	3364133	37283	37283
336330WYVY	3714002 pt	3714002 pt	3363991	37144	37144	3364133101	3728313	3728313
3363401 pt	32922	32922	3363991101	3714401	3714401	3364133104	3728315	3728315
3363401 pt	37148	37148	3363991104	3714402	3714402	3364133YVW	3728300	3728300
3363401 pt	37149 pt	37149 pt	3363991107	3714404	3714404	3364135	37285	37285
3363401101	3714801	3714801	3363991111	3714405	3714405	3364135101	3728513	3728513
3363401104	3714802	3714802	3363991113	3714407	3714407	3364135104	3728515	3728515
3363401211	3714807	3714807	3363991116	3714408	3714408	3364135207	3728594	3728594
3363401313	3714809	3714809	3363991119	3714409	3714409	3364135211	3728595	3728595
3363401416	3714811	3714811	3363991YVW	3714400	3714400	3364135313	3728598	3728598
3363401519	3714813	3714813	3363993	37145	37145	3364135416	3728599	3728599
3363401625	3714817	3714817	3363993101	3714501	3714501	3364135YVW	3728500	3728500
3363401707	3714803	3714803	3363993104	3714502	3714502	336413W	37280 pt	37280 pt
3363401722	3714815	3714815	3363993107	3714503	3714503	336413WYVW	3728000 pt	3728000 pt
3363401737	3714821	3714821	3363993YVW	3714500	3714500	336413WYVY	3728002 pt	3728002 pt
3363401741	3714823	3714823	3363995	37147	37147	3364141	37611	37611
3363401744	3714825	3714825	3363995101	3714701	3714701	3364141100	3761100	3761100
3363401745	3714912	3714912	3363995104	3714705	3714705	3364143	37613	37613
3363401747 pt	3292200 pt	3292200 pt	3363995107	3714707	3714707	3364143100	3761300	3761300
3363401747 pt	3292211	3292211	3363995111	3714714	3714714	3364145	37616	37616
3363401747 pt	3292215	3292215	3363995YVW	3714700	3714700	3364145100	3761600	3761600
3363401747 pt	3292221	3292221	3363997 pt	35199 pt	35199 pt	3364147	37612	37612
3363401747 pt	3292258	3292258	3363997 pt	37142 pt	37142 pt	3364147101	3761201	3761201
3363401747 pt	3292279	3292279	3363997 pt	37149 pt	37149 pt	3364147204	3761202	3761202
3363401747 pt	3292200 pt	3292200 pt	3363997 pt	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363401YVW pt	3714800	3714800	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	336414A101	3761702	3761702
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A104	3761703	3761703
3363403114	3714A35	3714A35	3363997 pt	37149 pt	37149 pt	336414AYVW	3761700	3761700
3363403117	3714A37	3714A37	3363997 pt	37149 pt	37149 pt	336414W	37610	37610
3363403121	3714A44	3714A41 pt	3363997 pt	37149 pt	37149 pt	336414WYVW	3761000	3761000
3363403YVW	3714A00 pt	3714A00 pt	3363997 pt	37149 pt	37149 pt	336414WYVY	3761002	3761002
336340W pt	32920 pt	32920 pt	3363997 pt	37149 pt	37149 pt	3364151	37645	37645
336340W pt	37140 pt	37140 pt	3363997 pt	37149 pt	37149 pt	3364151101	3764511	3764511
336340WYVW pt	3292000 pt	3292000 pt	3363997 pt	37149 pt	37149 pt	3364151204	3764513	3764513
336340WYVW pt	3714000 pt	3714000 pt	3363997 pt	37149 pt	37149 pt	3364151307	3764515	3764515
336340WYVY pt	3292002 pt	3292002 pt	3363997 pt	37149 pt	37149 pt	3364151YVW	3764500	3764500
336340WYVY pt	3714002 pt	3714002 pt	3363997 pt	37149 pt	37149 pt	3364153	37646	37646
3363501	37146	37146	3363997 pt	37149 pt	37149 pt	3364153101	3764611	3764611
3363501101	3714603	3714603	3363997 pt	37149 pt	37149 pt	3364153104	3764613	3764613
3363501104	3714605	3714605	3363997 pt	37149 pt	37149 pt	3364153107	3764615	3764615
3363501207	3714613	3714613	3363997 pt	37149 pt	37149 pt	3364153YVW	3764600	3764600
3363501211	3714615	3714615	3363997 pt	37149 pt	37149 pt	3364155	37647	37647
3363501313	3714623	3714623	3363997 pt	37149 pt	37149 pt	3364155101	3764711	3764711
3363501316	3714625	3714625	3363997 pt	37149 pt	37149 pt	3364155104	3764713	3764713
3363501434	3714641	3714641	3363997 pt	37149 pt	37149 pt	3364155107	3764715	3764715
3363501519	3714628	3714628	3363997 pt	37149 pt	37149 pt	3364155YVW	3764700	3764700
3363501522	3714631	3714631	3363997 pt	37149 pt	37149 pt	3364157	37648	37648
3363501525	3714633	3714633	3363997 pt	37149 pt	37149 pt	3364157101	3764811	3764811
3363501528	3714635	3714635	3363997 pt	37149 pt	37149 pt	3364157104	3764813	3764813
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3363501YVW	3714600	3714600	3363997 pt	37149 pt	37149 pt	336415WYVW	3764000	3764000
3363503	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	336415WYVY	3764002	3764002
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3366111104	3731107	3731107	3366127104	3732704	3732704			
3366111107	3731119	3731119	3366127107	3732706	3732706			
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			3366127113	3732712	3732712			
3366113	37312	37312	3366127116	3732717	3732717			
3366113100	3731200	3731200						

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1997 Economic Census

Manufacturing

Industry Series



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Industry Series



U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

**Economics
and Statistics
Administration**

Robert J. Shapiro,

Under Secretary for
Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336340	Motor vehicle brake system mfg	204	269	43 147	1 486 119	33 546	72 098	1 050 527	3 618 188	6 407 923	10 033 288	473 867
329220	Asbestos products (pt)	N	-	-	-	-	-	-	-	-	-	-
371450	Motor vehicle parts & accessories (pt)	N	269	43 147	1 486 119	33 546	72 098	1 050 527	3 618 188	6 407 923	10 033 288	473 867

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)				
336340, MOTOR VEHICLE BRAKE SYSTEM MFG												
United States	-	269	170	43 147	1 486 119	33 546	72 098	1 050 527	3 618 188	6 407 923	10 033 288	473 867
Alabama	-	6	4	728	20 330	571	1 096	13 001	44 945	54 288	100 842	4 964
California	-	22	9	1 175	29 382	949	1 958	19 502	36 411	126 574	166 381	3 637
Connecticut	-	5	3	1 014	34 610	765	1 310	18 160	72 813	132 194	202 842	8 423
Illinois	-	14	8	1 893	62 793	1 547	3 370	43 173	139 422	203 935	353 345	7 748
Indiana	-	11	9	1 635	48 147	1 230	2 617	33 678	186 061	155 378	340 811	6 730
Kentucky	-	12	12	3 497	112 009	2 748	5 346	77 060	279 438	409 944	692 250	32 522
Michigan	-	25	17	5 391	262 964	4 497	10 299	204 607	723 681	2 154 796	2 882 332	119 073
Missouri	1	15	11	2 665	56 553	2 134	3 696	39 594	148 977	133 406	281 982	12 450
New Jersey	1	6	3	158	3 896	116	186	1 948	8 013	11 535	20 049	205
New York	-	14	8	776	19 832	647	1 252	14 373	33 781	72 618	104 620	2 707
North Carolina	-	15	9	2 453	70 602	1 791	3 867	46 310	233 400	632 835	860 953	16 276
Ohio	-	27	19	7 581	354 625	6 093	13 672	276 920	599 881	1 251 103	1 849 384	111 984
Tennessee	-	14	11	2 924	90 095	2 238	4 913	59 190	273 724	343 589	613 113	56 346
Texas	1	9	6	628	17 085	499	886	10 379	40 524	27 725	68 774	3 407
Virginia	-	7	7	1 687	55 033	1 367	2 791	37 188	101 999	111 288	216 964	26 950

* 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
336340, MOTOR VEHICLE BRAKE SYSTEM MFG		336340, MOTOR VEHICLE BRAKE SYSTEM MFG— Con.	
Companies ¹	number.. 204	Value added	\$1,000.. 3 618 188
All establishments	number.. 269	Total inventories, beginning of year	\$1,000.. 785 669
Establishments with 1 to 19 employees	number.. 99	Finished goods inventories, beginning of year	\$1,000.. 288 086
Establishments with 20 to 99 employees	number.. 70	Work-in-process inventories, beginning of year	\$1,000.. 144 419
Establishments with 100 employees or more	number.. 100	Materials and supplies inventories, beginning of year	\$1,000.. 353 164
All employees	number.. 43 147	Total inventories, end of year	\$1,000.. 796 038
Total compensation ²	\$1,000.. 1 971 517	Finished goods inventories, end of year	\$1,000.. 283 788
Annual payroll	\$1,000.. 1 486 119	Work-in-process inventories, end of year	\$1,000.. 141 540
Total fringe benefits	\$1,000.. 485 398	Materials and supplies inventories, end of year	\$1,000.. 370 710
Production workers, average for year	number.. 33 546	Gross book value of total assets at beginning of year	\$1,000.. 4 340 432
Production workers on March 12	number.. 33 599	Total capital expenditures (new and used)	\$1,000.. 473 867
Production workers on May 12	number.. 33 848	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 56 089
Production workers on August 12	number.. 33 241	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 417 778
Production workers on November 12	number.. 33 496	Total retirements ²	\$1,000.. 174 721
Production-worker hours	\$1,000.. 72 098	Gross book value of total assets at end of year	\$1,000.. 4 639 578
Production-worker wages	\$1,000.. 1 050 527	Total depreciation during year ²	\$1,000.. 265 779
Total cost of materials	\$1,000.. 6 407 923	Total rental payments ²	\$1,000.. 85 837
Cost of materials, parts, containers, etc., consumed	\$1,000.. 6 034 875	Buildings and other structures rental payments ²	\$1,000.. 41 675
Cost of resales	\$1,000.. 205 795	Machinery and equipment rental payments ²	\$1,000.. 44 162
Cost of fuels	\$1,000.. 19 679	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 9 337
Cost of purchased electricity	\$1,000.. 70 986	Response coverage ratio ⁴	percent.. 89
Cost of contract work	\$1,000.. 76 588	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 80 827
Quantity of electricity purchased for heat and power	1,000 kWh.. 1 417 589	Response coverage ratio ⁴	percent.. 89
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 11 218
Total value of shipments	\$1,000.. 10 033 288	Response coverage ratio ⁴	percent.. 89
Primary products value of shipments	\$1,000.. 9 285 047	Cost of purchased legal services ³	\$1,000.. 4 992
Secondary products value of shipments	\$1,000.. 453 695	Response coverage ratio ⁴	percent.. 89
Total miscellaneous receipts	\$1,000.. 294 546	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 3 301
Value of resales	\$1,000.. 264 601	Response coverage ratio ⁴	percent.. 89
Contract receipts	\$1,000.. 3 705	Cost of purchased advertising services ³	\$1,000.. 9 449
Other miscellaneous receipts	\$1,000.. 26 240	Response coverage ratio ⁴	percent.. 89
Primary products specialization ratio	percent.. 95	Cost of purchased software and other data processing services ³	\$1,000.. 11 061
Value of primary products shipments made in all industries	\$1,000.. 10 448 819	Response coverage ratio ⁴	percent.. 89
Value of primary products shipments made in this industry	\$1,000.. 9 285 047	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 13 903
Value of primary products shipments made in other industries	\$1,000.. 1 163 772	Response coverage ratio ⁴	percent.. 89
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)				
336340. MOTOR VEHICLE BRAKE SYSTEM MFG												
All establishments	-	269	170	43 147	1 486 119	33 546	72 098	1 050 527	3 618 188	6 407 923	10 033 288	473 867
Establishments with 1 to 4 employees	9	44	-	99	2 555	83	107	1 582	5 785	8 173	14 003	774
Establishments with 5 to 9 employees	6	29	-	203	4 951	154	206	2 941	10 335	13 134	23 849	1 051
Establishments with 10 to 19 employees	7	26	-	366	8 702	290	415	5 012	19 793	25 668	45 638	1 851
Establishments with 20 to 49 employees	2	43	43	1 379	35 258	1 052	1 720	19 414	92 332	99 232	192 456	13 913
Establishments with 50 to 99 employees	-	27	27	2 046	54 807	1 625	3 228	35 714	137 908	183 444	317 208	15 838
Establishments with 100 to 249 employees	-	46	46	7 937	231 588	6 187	13 131	153 488	619 765	899 157	1 500 401	108 645
Establishments with 250 to 499 employees	-	39	39	13 684	433 905	10 918	22 679	297 450	1 414 077	2 056 641	3 488 113	131 156
Establishments with 500 to 999 employees	-	11	11	8 237	249 597	6 463	12 688	174 119	615 304	1 201 908	1 824 937	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	-	2	2	D	D	D	D	D	D	D	D	D
Administrative records ²	9	72	-	505	10 929	413	478	6 636	24 948	35 197	60 378	3 294

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)				
336340	Motor vehicle brake system mfg	269	43 147	1 486 119	33 546	72 098	1 050 527	3 618 188	6 407 923	10 033 288	473 867
3363401	Motor vehicle brake parts and assemblies, new	149	37 043	1 331 553	29 367	62 016	957 023	3 185 411	6 105 152	9 310 870	451 979
3363403	Motor vehicle brake parts and assemblies, rebuilt	26	5 249	136 337	3 478	9 262	82 258	391 849	244 379	622 728	16 396

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)
336340	Motor vehicle brake systems	N	X	X	10 448 819	N	X	X	N
3363401	Motor vehicle brake parts and assemblies, new	N	X	X	9 884 154	N	X	X	N
33634011	Motor vehicle wheel brake and master brake cylinders, sold separately, new	N	X	X	315 509	N	X	X	N
3363401101	Motor vehicle wheel brake cylinders, sold separately, new	9	X	X	74 823	8	X	X	94 717
3363401104	Motor vehicle master brake cylinders, sold separately, new	13	X	X	240 686	8	X	X	315 567
33634012	Motor vehicle brake assemblies (drum), including backing plates, shoes, linings (except asbestos), cylinders, etc., if sold together	N	X	X	1 154 743	N	X	X	N
3363401211	Motor vehicle brake assemblies (drum), including backing plates, shoes, linings (except asbestos), cylinders, etc., if sold together	29	X	X	1 154 743	25	X	X	436 110
33634013	Motor vehicle brake assemblies (disc-caliper), including rotors, calipers, pads (except asbestos), cylinders, etc., if sold together	N	X	X	2 149 645	N	X	X	N
3363401313	Motor vehicle brake assemblies (disc-caliper), including rotors, calipers, pads (except asbestos), cylinders, etc., if sold together	25	X	X	2 149 645	29	X	X	1 345 574
33634014	Motor vehicle brake drums (with or without hub), sold separately, new	N	X	X	363 224	N	X	X	N
3363401416	Motor vehicle brake drums (with or without hub), sold separately, new	14	X	X	363 224	15	X	X	358 486
33634015	Motor vehicle brake rotors-discs (with or without hub), sold separately, new	N	X	X	594 435	N	X	X	N
3363401519	Motor vehicle brake rotors-discs (with or without hub), sold separately, new	15	X	X	594 435	19	X	X	347 423
33634016	Motor vehicle metallic or semimetallic brake linings, except asbestos, new	N	X	X	545 716	N	X	X	N
3363401625	Motor vehicle metallic or semimetallic brake linings, except asbestos, new	26	X	X	545 716	25	X	X	417 321
33634017	Other motor vehicle brake parts and assemblies, new	N	X	X	4 732 290	N	X	X	N
3363401707	Motor vehicle brake valves, new	12	X	X	638 445	7	X	X	D
3363401722	Motor vehicle brake shoes (with or without lining), sold separately, new	21	X	X	266 875	19	X	X	161 104
3363401737	Motor vehicle air brake power actuation units, new	7	X	X	226 671	6	X	X	101 931
3363401741	Motor vehicle hydraulic brake power actuation units, new	10	X	X	D	6	X	X	D
3363401744	Motor vehicle vacuum brake power actuation units, new	6	X	X	D	5	X	X	D
3363401745	Automotive brake hose assemblies, new	13	X	X	325 166	4	X	X	73 734
3363401747	Other motor vehicle brake parts, new	65	X	X	2 530 418	N	X	X	N
3363401Y	Motor vehicle brake parts and assemblies, new, nsk	N	X	X	28 592	N	X	X	N
3363401YWV	Motor vehicle brake parts and assemblies, new, nsk	N	X	X	28 592	N	X	X	N
3363403	Motor vehicle brake parts and assemblies, rebuilt	N	X	X	480 905	N	X	X	N
33634031	Motor vehicle brake parts and assemblies, rebuilt	N	X	X	480 905	N	X	X	N
3363403101	Motor vehicle brake shoe assemblies (drum brake), rebuilt	14	X	X	94 960	22	X	X	107 688
3363403104	Motor vehicle brake caliper assemblies (disc brake), rebuilt	26	X	X	180 241	27	X	X	101 776
3363403107	Motor vehicle brake master cylinders, rebuilt	11	X	X	52 378	12	X	X	44 386
3363403111	Motor vehicle air brake power actuation units, rebuilt	6	X	X	D	5	X	X	D
3363403114	Motor vehicle vacuum brake power actuation units, rebuilt	2	X	X	D	5	X	X	D
3363403117	Motor vehicle hydraulic brake power actuation units, rebuilt	1	X	X	D	3	X	X	2 826
3363403121	Other rebuilt brake systems and parts	11	X	X	49 804	N	X	X	N
3363403Y	Motor vehicle brake parts and assemblies, rebuilt, nsk	N	X	X	-	N	X	X	N
3363403YWV	Motor vehicle brake parts and assemblies, rebuilt, nsk	N	X	X	-	N	X	X	N
336340W	Motor vehicle brake systems, nsk, total	N	X	X	83 760	N	X	X	N
336340WY	Motor vehicle brake system manufacturing, nsk, total	N	X	X	83 760	N	X	X	N
336340WYWV	Motor vehicle brake system manufacturing, nsk, for nonadministrative-record establishments	N	X	X	27 364	N	X	X	N
336340WYWY	Motor vehicle brake system manufacturing, nsk, for administrative-record establishments	N	X	X	56 396	N	X	X	N

See footnotes at end of table.

Table 6a. Products Statistics: 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.

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
3363401	MOTOR VEHICLE BRAKE PARTS AND ASSEMBLIES, NEW		
	United States	9 884 154	N
	Alabama	127 784	N
	Arkansas	40 512	N
	California	69 024	N
	Georgia	48 175	N
	Illinois	322 044	N
	Indiana	369 861	N
	Kentucky	768 333	N
	Michigan	2 885 855	N
	Missouri	253 650	N
	New York	95 760	N
	North Carolina	801 943	N
	Ohio	1 904 846	N
	Pennsylvania	40 863	N
	Tennessee	604 949	N
	Texas	35 691	N
	Virginia	163 092	N
3363403	MOTOR VEHICLE BRAKE PARTS AND ASSEMBLIES, REBUILT		
	United States	480 905	N
	Kentucky	24 721	N
	Massachusetts	15 146	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)
336340	MOTOR VEHICLE BRAKE SYSTEM MFG				
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	D	X	N
33291207	Fluid power valves (hydraulic and pneumatic)	X	D	X	N
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic)	X	D	X	N
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic)	X	D	X	N
33399901	Fluid power filters (hydraulic and pneumatic)	X	D	X	N
00190089	Other fluid power products (hydraulic and pneumatic)	X	D	X	N
33637000	Automotive stampings (including body parts, hubcaps, fenders, etc.)	X	290 282	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	383 123	X	N
33200019	Other fabricated metal products, except fluid power and forgings	X	241 409	X	N
33210001	Forgings	X	85 011	X	N
33151001	Iron and steel castings (rough and semifinished)	X	937 764	X	N
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	170 334	X	N
33152003	Other nonferrous castings (rough and semifinished)	X	D	X	N
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	65 592	X	N
33120017	Steel sheet and strip, including tin plate	X	118 545	X	N
33120033	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	23 217	X	N
33142111	Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	7 064	X	N
33100039	Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	10 583	X	N
33100083	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	24 211	X	N
33299105	Ball bearings (mounted or unmounted)	X	D	X	N
33299103	Roller bearings (mounted or unmounted)	X	D	X	N
32610011	Fabricated plastics products (except gaskets)	X	184 644	X	N
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	23 426	X	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	1 876	X	N
32600017	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	X	152 983	X	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)
336340	MOTOR VEHICLE BRAKE SYSTEM MFG—Con.				
32622001	Rubber and plastics hose and belting	X	21 122	X	N
32500023	Ceramic raw materials, including powders, chemicals, and fibers (excluding refractory uses)	X	101 091	X	N
32700035	Ceramic and ceramic composite parts, components, and accessories	X	D	X	N
33999103	Gaskets (all types), and packing and sealing devices	X	10 863	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	12 335	X	N
32552003	Glues and adhesives	X	3 199	X	N
00190003	Flexible packaging materials	X	10 076	X	N
32220015	Paper and paperboard containers	X	30 396	X	N
33632200	Engine electrical equipment, including spark plugs, magnetos, generators, starters, etc.	X	D	X	N
001900B7	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	X	D	X	N
00999826	Core parts purchased for use in remanufacturing or rebuilding	X	140 339	X	N
00970099	All other materials and components, parts, containers, and supplies	X	884 414	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	373 964	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

336340 MOTOR VEHICLE BRAKE SYSTEM MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing and/or rebuilding motor vehicle brake systems and related components.

The data published with NAICS code 336340 include the following SIC industries:

3292 Asbestos products (pt)

3714 Motor vehicle parts and accessories (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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3713002	3713002	3363121504	3714206	3714206
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121507	3714207	3714207
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	336212W	37150	37150	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	336212WYWW	3715000	3715000	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	336212WYWW	3715002	3715002	3363121571	3714241	3714241
3361201 pt.	37114 pt.	37114 pt.	336212WYWW	3715002	3715002	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37117	3362130	37160	37160	3363121YVW	3714200 pt.	3714200 pt.
3361201 pt.	37115 pt.	37118	3362130101	3716001	3716001	3363123	37144 pt.	37144 pt.
3361201100 pt.	3711407	3711400 pt.	3362130104	3716005	3716005	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130107	3716007	3716007	3363123104	3714A03	3714A03
3361201100 pt.	3711400 pt.	3711400 pt.	3362130111	3716021	3716021	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711700	3362130YVW	3716000	3716000	3363123111	3714A25	3714A25
3361201100 pt.	3711500 pt.	3711800	3362130YVW	3716002	3716002	3363123121	3714A43	3714A41 pt.
3361202 pt.	37114 pt.	37114 pt.	3362141	37921	37921	3363123YVW	3714A00 pt.	3714A00 pt.
3361202 pt.	37119	37119	3362141101	3792112	3792112	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711409	3711400 pt.	3362141104	3792114	3792114	336312WYVW	3714000 pt.	3714000 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141207	3792116	3792116	336312WYVW	3714002 pt.	3714002 pt.
3361202100 pt.	3711900	3711900	3362141311	3792118	3792118	3363210	36470	36470
3361203	37113	37113	3362141413	3792125	3792125	3363210100	3647000 pt.	3647000 pt.
3361203101	3711304	3711304	3362141516	3792128	3792128	3363210YVW	3647000 pt.	3647000 pt.
3361203104	3711303	3711303	3362141YVW	3792100	3792100	3363210YVW	3647002	3647002
3361203YVW	3711300	3711300	3362143	37996	37996	3363221	36941	36941
336120W	37110 pt.	37110 pt.	3362143101	3799611	3799601 pt.	3363221101	3694101	3694101
336120WYVW	3711000 pt.	3711000 pt.	3362143105	3799613	3799602 pt.	3363221104	3694102	3694102
336120WYVW	3711002 pt.	3711002 pt.	3362143108	3799615	3799604 pt.	3363221201	3694103	3694103
3362111 pt.	37111 pt.	37111 pt.	3362143111	3799617	3799607 pt.	3363221204	3694104	3694104
3362111 pt.	37131	37131	3362143114	3799619	3799609 pt.	3363221YVW	3694100	3694100
3362111 pt.	37149 pt.	37149 pt.	3362143117 pt.	3799651 pt.	3799601 pt.	3363223	36942	36942
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363223101	3694201	3694201
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799604 pt.	3363223104	3694202	3694202
3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223201	3694203	3694203
3362111411	3713115	3713115	3362143117 pt.	3799651 pt.	3799609 pt.	3363223204	3694204	3694204
3362111413	3713116	3713116	3362143YVW	3799600	3799600	3363223YVW	3694200	3694200
3362111416	3713117	3713117	3362145	37922	37922	3363225	36943	36943
3362111519	3713121	3713121	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111522	3713131	3713131	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111525	3713132	3713132	3362145207	3792247	3792247	3363225201	3694303	3694303
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792261	3363225YVW	3694300	3694300
3362111531	3713139	3713139	3362145311 pt.	3792268 pt.	3792263	3363227	36944	36944
3362111534	3713143	3713143	3362145311 pt.	3792268 pt.	3792269	3363227100	3694400	3694400
3362111537	3713153	3713153	3362145YVW	3792200	3792200	3363229	36947	36947
3362111541	3713155	3713155	336214W pt.	37920	37920	3363229101	3694701	3694701
3362111543	3713161	3713161	336214W pt.	37990 pt.	37990 pt.	3363229201	3694711	3694711
3362111546	3713162	3713162	336214WYVW pt.	3792000	3792000	3363229301	3694702	3694702
3362111549	3713163	3713163	336214WYVW pt.	3792000 pt.	3799000 pt.	3363229304	3694704	3694704
3362111552	3711171	3711171	336214WYVW pt.	3792002	3792002	3363229307	3694705	3694705
3362111555	3711171	3711171	336214WYVW pt.	3799002 pt.	3799002 pt.	3363229309	3694719	3694719
3362111558	3711181	3711181 pt.	3363111	35921	35921	3363229YVW	3694700	3694700
3362111558	3714925	3714925	3363111101	3592101	3592101	336322A	36949	36949
3362111571 pt.	3713171	3713171	3363111103	3592102	3592102	336322A101	3694901	3694901
3362111YVW pt.	3711100 pt.	3711100 pt.	3363111105	3592103	3592103	336322A204	3694907	3694907
3362111YVW pt.	3713100	3713100	3363111207	3592105	3592105	336322A307	3694911	3694911
3362111YVW pt.	3714900 pt.	3714900 pt.	3363111YVW	3592100	3592100	336322A409	3694912	3694912
3362113 pt.	37114 pt.	37114 pt.	3363113	35922	35922	336322A512	3694913	3694913
3362113 pt.	37132	37132	3363113101	3592201	3592201	336322A615	3694919	3694919
3362113101	3713201	3713201	3363113103	3592202	3592202	336322AYVW	3694900	3694900
3362113219	3713225	3713225	3363113205	3592203	3592203	336322C pt.	36799 pt.	36799 pt.
3362113304	3713211	3713211	3363113207	3592204	3592204	336322C pt.	37149 pt.	37149 pt.
3362113307	3713213	3713213	3363113209	3592205	3592205	336322C pt.	3714A pt.	3714A pt.
3362113311	3713215	3713215	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113313	3713217	3713217	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113316	3713218	3713218	3363113YVW	3592200	3592200	336322C107	3714915	3714915
3362113322	3713226	3713226	3363115	35923	35923	336322C111 pt.	3714921 pt.	3714917
3362113325	3713227	3713227	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714917
3362113328	3713241	3713239 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113331 pt.	3711411	3711400 pt.	3363115YVW	3592300	3592300	336322C117	3714944	3714904 pt.
3362113331 pt.	3713243	3713239 pt.	336311W	35920	35920	336322C119	3679926	3679920 pt.
3362113YVW pt.	3711400 pt.	3711400 pt.	336311WYVW	3592000	3592000	336322C121	3714945	3714941 pt.
3362113YVW pt.	3713200	3713200	336311WYVW	3592002	3592002	336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt.	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt.	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt.	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt.	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt.	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt.	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt.	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt.	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt.	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
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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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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336350	Motor vehicle transmission & power train parts mfg	429	524	111 955	5 516 801	88 944	196 952	4 235 711	13 711 113	19 567 915	33 288 093	1 902 483
371460	Motor vehicle parts & accessories (pt)	N	524	111 955	5 516 801	88 944	196 952	4 235 711	13 711 113	19 567 915	33 288 093	1 902 483

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)				
336350, MOTOR VEHICLE TRANSMISSION & POWER TRAIN PARTS MFG												
United States	-	524	258	111 955	5 516 801	88 944	196 952	4 235 711	13 711 113	19 567 915	33 288 093	1 902 483
Alabama	-	14	4	602	16 998	430	977	11 121	82 133	62 802	145 031	753
California	3	74	17	1 447	44 753	1 027	1 906	22 355	100 844	102 924	204 020	7 604
Florida	5	16	1	138	3 204	104	167	1 960	8 131	7 408	15 811	667
Georgia	3	15	6	974	29 359	652	1 126	14 066	49 417	106 941	166 037	11 567
Illinois	-	22	8	2 296	80 862	1 820	3 286	56 106	214 799	165 182	387 216	16 059
Indiana	-	45	36	31 875	1 746 090	22 575	50 684	1 215 114	3 992 339	4 404 973	8 403 241	429 202
Kentucky	-	7	4	785	23 650	595	1 289	16 071	223 273	234 416	457 989	7 098
Massachusetts	1	5	1	127	5 691	99	150	3 817	4 879	10 801	15 379	778
Michigan	-	59	44	30 730	1 755 816	26 309	61 215	1 464 671	3 403 251	6 387 644	9 826 004	789 376
Mississippi	5	9	4	393	9 085	298	500	5 514	24 649	22 655	47 319	2 289
Missouri	-	17	6	2 455	59 309	1 917	3 655	39 396	253 059	402 457	651 785	9 464
New York	-	16	7	6 753	343 137	5 843	14 563	291 855	972 826	1 050 197	2 006 903	104 531
North Carolina	-	28	21	5 514	209 480	4 397	8 888	150 085	872 850	1 002 920	1 836 188	70 170
Ohio	-	36	23	13 004	702 708	11 165	25 293	585 768	1 725 537	3 143 213	4 892 262	323 483
Oklahoma	-	10	6	1 224	27 770	867	1 570	18 667	79 699	107 372	194 968	2 243
Oregon	-	9	4	642	23 669	428	809	12 272	54 780	47 717	108 876	5 557
Pennsylvania	1	11	6	1 391	55 445	1 036	2 036	42 105	198 687	114 002	313 631	10 463
South Carolina	-	10	9	3 621	129 455	2 881	6 229	96 299	526 266	745 949	1 258 968	43 676
Tennessee	-	16	8	1 371	41 699	1 027	2 094	29 662	160 546	278 412	436 395	12 652
Texas	4	35	10	730	15 284	583	1 019	9 965	43 372	40 748	82 074	2 675
Wisconsin	-	11	6	1 428	39 654	1 200	2 157	30 056	128 262	232 640	355 351	8 197

* 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
336350, MOTOR VEHICLE TRANSMISSION & POWER TRAIN PARTS MFG		336350, MOTOR VEHICLE TRANSMISSION & POWER TRAIN PARTS MFG—Con.	
Companies ¹	number.. 429	Value added	\$1,000.. 13 711 113
All establishments	number.. 524	Total inventories, beginning of year	\$1,000.. 2 509 612
Establishments with 1 to 19 employees	number.. 266	Finished goods inventories, beginning of year	\$1,000.. 425 504
Establishments with 20 to 99 employees	number.. 124	Work-in-process inventories, beginning of year	\$1,000.. 1 079 199
Establishments with 100 employees or more	number.. 134	Materials and supplies inventories, beginning of year	\$1,000.. 1 004 909
All employees	number.. 111 955	Total inventories, end of year	\$1,000.. 2 386 196
Total compensation ²	\$1,000.. 7 392 642	Finished goods inventories, end of year	\$1,000.. 506 289
Annual payroll	\$1,000.. 5 516 801	Work-in-process inventories, end of year	\$1,000.. 989 349
Total fringe benefits	\$1,000.. 1 875 841	Materials and supplies inventories, end of year	\$1,000.. 890 558
Production workers, average for year	number.. 88 944	Gross book value of total assets at beginning of year	\$1,000.. 13 872 619
Production workers on March 12	number.. 90 100	Total capital expenditures (new and used)	\$1,000.. 1 902 483
Production workers on May 12	number.. 89 072	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 108 572
Production workers on August 12	number.. 87 876	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 1 793 911
Production workers on November 12	number.. 88 728	Total retirements ²	\$1,000.. 759 749
Production-worker hours	1,000.. 196 952	Gross book value of total assets at end of year	\$1,000.. 15 015 353
Production-worker wages	\$1,000.. 4 235 711	Total depreciation during year ²	\$1,000.. 820 097
Total cost of materials	\$1,000.. 19 567 915	Total rental payments ²	\$1,000.. 87 705
Cost of materials, parts, containers, etc., consumed	\$1,000.. 18 045 209	Buildings and other structures rental payments ²	\$1,000.. 34 306
Cost of resales	\$1,000.. 1 045 658	Machinery and equipment rental payments ²	\$1,000.. 53 399
Cost of fuels	\$1,000.. 80 611	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 31 128
Cost of purchased electricity	\$1,000.. 241 958	Response coverage ratio ⁴	percent.. 80
Cost of contract work	\$1,000.. 154 479	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 213 741
Quantity of electricity purchased for heat and power	1,000 kWh.. 4 849 214	Response coverage ratio ⁴	percent.. 80
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 34 217
Total value of shipments	\$1,000.. 33 288 093	Response coverage ratio ⁴	percent.. 80
Primary products value of shipments	\$1,000.. 28 869 760	Cost of purchased legal services ³	\$1,000.. 13 977
Secondary products value of shipments	\$1,000.. 3 005 057	Response coverage ratio ⁴	percent.. 80
Total miscellaneous receipts	\$1,000.. 1 413 276	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 29 988
Value of resales	\$1,000.. 1 256 439	Response coverage ratio ⁴	percent.. 80
Contract receipts	\$1,000.. 6 926	Cost of purchased advertising services ³	\$1,000.. 44 048
Other miscellaneous receipts	\$1,000.. 149 911	Response coverage ratio ⁴	percent.. 80
Primary products specialization ratio	percent.. 90	Cost of purchased software and other data processing services ³	\$1,000.. 115 057
Value of primary products shipments made in all industries	\$1,000.. 31 406 873	Response coverage ratio ⁴	percent.. 80
Value of primary products shipments made in this industry	\$1,000.. 28 869 760	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 24 202
Value of primary products shipments made in other industries	\$1,000.. 2 537 113	Response coverage ratio ⁴	percent.. 80
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)				
336350. MOTOR VEHICLE TRANSMISSION & POWER TRAIN PARTS MFG												
All establishments	-	524	258	111 955	5 516 801	88 944	196 952	4 235 711	13 711 113	19 567 915	33 288 093	1 902 483
Establishments with 1 to 4 employees	9	131	-	287	9 633	230	298	5 810	21 443	30 085	51 738	2 846
Establishments with 5 to 9 employees	8	76	-	501	11 795	389	498	7 144	26 720	33 736	60 670	3 077
Establishments with 10 to 19 employees	6	59	-	835	21 710	657	932	12 745	46 520	59 477	105 579	5 533
Establishments with 20 to 49 employees	2	72	72	2 248	61 833	1 723	3 045	35 653	176 450	185 068	356 671	16 234
Establishments with 50 to 99 employees	2	52	52	3 814	121 674	2 847	5 726	77 973	353 894	552 516	906 587	39 899
Establishments with 100 to 249 employees	-	52	52	9 105	258 579	6 983	14 031	170 525	858 491	1 539 217	2 400 702	117 430
Establishments with 250 to 499 employees	-	33	33	11 365	416 933	8 807	18 607	289 862	1 580 761	1 990 304	3 580 647	115 552
Establishments with 500 to 999 employees	-	28	28	18 991	797 505	15 305	31 626	613 277	2 233 692	2 867 923	5 050 401	190 664
Establishments with 1,000 to 2,499 employees	-	11	11	18 265	1 034 590	14 879	34 638	836 969	2 515 446	3 278 815	5 758 595	449 533
Establishments with 2,500 employees or more	-	10	10	46 544	2 782 549	37 124	87 551	2 185 753	5 897 696	9 030 774	15 016 503	961 715
Administrative records ²	9	184	-	1 021	22 822	823	978	13 849	52 088	73 509	126 080	6 871

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)				
336350	Motor vehicle transmission & power train parts mfg	524	111 955	5 516 801	88 944	196 952	4 235 711	13 711 113	19 567 915	33 288 093	1 902 483
3363501	Motor vehicle drive train components, except wheels and brakes, new	224	102 599	5 262 736	81 612	183 159	4 062 269	12 891 340	18 573 402	31 477 976	1 857 046
3363503	Motor vehicle drive train components, rebuilt	43	5 520	130 502	4 282	8 413	85 363	272 383	264 420	546 898	13 259

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)
336350	Motor vehicle transmissions and power train parts	N	X	X	31 406 873	N	X	X	N
3363501	Motor vehicle drive train components, except wheels and brakes, new	N	X	X	30 655 886	N	X	X	19 647 584
33635011	Car and light truck transmissions (except auxiliary and parts), new	N	X	X	8 860 582	N	X	X	N
3363501101	Car and light truck manual transmissions (except auxiliary and parts), new	17	X	X	417 879	11	X	X	329 077
3363501104	Car and light truck automatic transmissions (except auxiliary and parts), new	17	X	X	8 442 703	16	X	X	4 435 346
33635012	Heavy truck and bus transmissions, new	N	X	X	2 235 656	N	X	X	N
3363501207	Heavy truck and bus manual transmissions (except auxiliary and parts), new	11	X	X	D	10	X	X	560 047
3363501211	Heavy truck and bus automatic transmissions (except auxiliary and parts), new	7	X	X	D	6	X	X	D
33635013	Parts for manual and automatic transmissions, new	N	X	X	1 921 152	N	X	X	N
3363501313	Parts for manual transmissions, new	23	X	X	271 240	23	X	X	198 595
3363501316	Parts for automatic transmissions, new	36	X	X	1 649 912	34	X	X	1 811 633
33635014	Motor vehicle axles and axle parts, new	N	X	X	9 507 755	N	X	X	N
3363501434	Motor vehicle axles and axle parts, new	53	X	X	9 507 755	43	X	X	5 828 256
33635015	Other motor vehicle drive train components, except wheels and brakes, new	N	X	X	8 031 526	N	X	X	N
3363501519	Motor vehicle transaxles, new	9	X	X	1 421 567	14	X	X	D
3363501522	Motor vehicle clutch disc and facing assemblies, new	28	X	X	778 212	22	X	X	389 631
3363501525	Motor vehicle gear shifters, new	16	X	X	106 781	13	X	X	268 550
3363501528	Motor vehicle drive shafts, new	20	X	X	1 512 203	19	X	X	851 514
3363501531	Motor vehicle universal joints, new	11	X	X	464 926	10	X	X	D
3363501537	Motor vehicle wheel hubs, sold separately, new	16	X	X	260 762	11	X	X	128 456
3363501541	Other motor vehicle drive train components, except wheels and brakes, new	56	X	X	3 487 075	58	X	X	1 939 518
3363501Y	Motor vehicle drive train components, new, nsk	N	X	X	99 215	N	X	X	N
3363501YWV	Motor vehicle drive train components, new, nsk	N	X	X	99 215	N	X	X	113 228
3363503	Motor vehicle drive train components, rebuilt	N	X	X	527 624	N	X	X	N
33635031	Motor vehicle drive train components, rebuilt	N	X	X	527 624	N	X	X	N
3363503101	Motor vehicle clutch discs and pressure plates, rebuilt	15	X	X	84 118	31	X	X	119 644
3363503104	Car and light truck automatic transmissions, including drive lines and axles, rebuilt	21	X	X	277 263	21	X	X	65 234
3363503107	Car and light truck manual (standard) transmissions, including drive lines and axles, rebuilt	5	X	X	10 130	5	X	X	4 930
3363503111	Heavy truck and bus transmissions, including drive lines and axles, rebuilt	5	X	X	32 537	6	X	X	3 832
3363503114	Other rebuilt transmission parts including clutch and facing assemblies, gear shifters, universal joints, and wheel hubs	10	X	X	46 751	N	X	X	N
3363503117	Other rebuilt drive train parts and components	17	X	X	76 825	N	X	X	N
3363503Y	Motor vehicle drive train components, rebuilt, nsk	N	X	X	-	N	X	X	N
3363503YWV	Motor vehicle drive train components, rebuilt, nsk	N	X	X	-	N	X	X	N
336350W	Motor vehicle transmission and drive train part manufacturing, nsk, total	N	X	X	223 363	N	X	X	N
336350WY	Motor vehicle transmission and drive train part manufacturing, nsk, total	N	X	X	223 363	N	X	X	N
336350WYWW	Motor vehicle transmission and drive train part manufacturing, nsk, for nonadministrative-record establishments	N	X	X	105 638	N	X	X	N
336350WYWY	Motor vehicle transmission and drive train part manufacturing, nsk, for administrative-record establishments	N	X	X	117 725	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
3363501	MOTOR VEHICLE DRIVE TRAIN COMPONENTS, EXCEPT WHEELS AND BRAKES, NEW		
	United States	30 655 886	19 647 584
	Alabama	417 235	N
	California	123 485	48 248
	Florida	9 000	N
	Georgia	126 759	84 143
	Illinois	347 365	266 021
	Indiana	7 081 115	4 206 607
	Michigan	9 943 993	7 242 039
	New York	1 801 048	990 287
	North Carolina	1 706 948	828 565
	Ohio	5 166 033	3 510 298
	Oklahoma	149 665	42 660
	Pennsylvania	279 265	258 580
	South Carolina	118 069	34 366
	Tennessee	450 794	425 918
	Texas	64 676	N
	Wisconsin	165 534	N
3363503	MOTOR VEHICLE DRIVE TRAIN COMPONENTS, REBUILT		
	United States	527 624	N
	California	28 024	N
	Michigan	48 267	N
	North Carolina	47 967	N
	Texas	14 944	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)
336350	MOTOR VEHICLE TRANSMISSION & POWER TRAIN PARTS MFG				
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	D	X	N
33291207	Fluid power valves (hydraulic and pneumatic)	X	D	X	N
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic)	X	D	X	N
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic)	X	D	X	N
33399901	Fluid power filters (hydraulic and pneumatic)	X	D	X	N
00190089	Other fluid power products (hydraulic and pneumatic)	X	D	X	N
33637000	Automotive stampings (including body parts, hubcaps, fenders, etc.)	X	617 750	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	461 259	X	N
33200019	Other fabricated metal products, except fluid power and forgings	X	3 173 241	X	N
33210001	Forgings	X	1 352 117	X	N
33151001	Iron and steel castings (rough and semifinished)	X	2 595 380	X	N
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	1 558 123	X	N
33152003	Other nonferrous castings (rough and semifinished)	X	267 904	X	N
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	587 917	X	N
33120017	Steel sheet and strip, including tin plate	X	410 248	X	N
33120033	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	736 574	X	N
33142111	Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	12 908	X	N
33100039	Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	455 385	X	N
33100083	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	48 202	X	N
33299105	Ball bearings (mounted or unmounted)	X	224 132	X	N
33299103	Roller bearings (mounted or unmounted)	X	368 526	X	N
32610011	Fabricated plastics products (except gaskets)	X	84 996	X	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	27 947	X	N
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	34 245	X	N
32600017	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	X	27 288	X	N
32622001	Rubber and plastics hose and belting	X	21 779	X	N
32500023	Ceramic raw materials, including powders, chemicals, and fibers (excluding refractory uses)	X	D	X	N
32700035	Ceramic and ceramic composite parts, components, and accessories	X	D	X	N
33999103	Gaskets (all types), and packing and sealing devices	X	128 166	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	17 132	X	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)
336350	MOTOR VEHICLE TRANSMISSION & POWER TRAIN PARTS MFG—Con.				
32552003	Glues and adhesives	X	32 466	X	N
00190003	Flexible packaging materials	X	5 130	X	N
32220015	Paper and paperboard containers	X	44 016	X	N
33632200	Engine electrical equipment, including spark plugs, magnetos, generators, starters, etc.	X	142 892	X	N
001900B7	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	X	465 918	X	N
00999826	Core parts purchased for use in remanufacturing or rebuilding	X	632 526	X	N
00970099	All other materials and components, parts, containers, and supplies	X	2 078 998	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	841 917	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

336350 MOTOR VEHICLE TRANSMISSION AND POWER TRAIN PARTS MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing and/or rebuilding motor vehicle transmission and power train parts.

The data published with NAICS code 336350 include the following SIC industry:

3714 Motor vehicle parts and accessories (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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121571	3714241	3714241
3361201 pt.	37114 pt.	37114 pt.	33621213100	3715200	3715200	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37117	33621213100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201 pt.	37115 pt.	37118	3362130	37160	37160	3363123	37144 pt.	37144 pt.
3361201100 pt.	3711407	3711400 pt.	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711400 pt.	3711400 pt.	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711700	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361201100 pt.	3711500 pt.	3711800	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361202 pt.	37114 pt.	37114 pt.	3362130YWW	3716002	3716002	3363123YWW	3714A00 pt.	3714A00 pt.
3361202 pt.	37119	37119	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711409	3711400 pt.	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361202100 pt.	3711900	3711900	3362141207	3792116	3792116	3363210	36470	36470
3361203	37113	37113	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203101	3711304	3711304	3362141311	3792118	3792118	3363210YWW	3647000 pt.	3647000 pt.
3361203104	3711303	3711303	3362141413	3792125	3792125	3363210YWW	3647002	3647002
3361203YWW	3711300	3711300	3362141516	3792128	3792128	3363221	36941	36941
336120W	37110 pt.	37110 pt.	3362141YWW	3792100	3792100	3363221101	3694101	3694101
336120WYWW	3711000 pt.	3711000 pt.	3362143	37996	37996	3363221104	3694102	3694102
336120WYWW	3711002 pt.	3711002 pt.	3362143101	3799611	3799601 pt.	3363221201	3694103	3694103
3362111 pt.	37111 pt.	37111 pt.	3362143108	3799615	3799604 pt.	3363221204	3694104	3694104
3362111 pt.	37131	37131	3362143111	3799617	3799607 pt.	3363221YWW	3694100	3694100
3362111 pt.	37149 pt.	37149 pt.	3362143114	3799619	3799609 pt.	3363223	36942	36942
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363223101	3694201	3694201
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799604 pt.	3363223104	3694202	3694202
3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223201	3694203	3694203
3362111411	3713115	3713115	3362143117 pt.	3799651 pt.	3799609 pt.	3363223204	3694204	3694204
3362111413	3713116	3713116	3362143YWW	3799600	3799600	3363223YWW	3694200	3694200
3362111416	3713117	3713117	3362145	37922	37922	3363225	36943	36943
3362111519	3713121	3713121	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111522	3713131	3713131	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111525	3713132	3713132	3362145207	3792247	3792247	3363225201	3694303	3694303
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792261	3363225YWW	3694300	3694300
3362111531	3713139	3713139	3362145311 pt.	3792268 pt.	3792263	3363227	36944	36944
3362111534	3713143	3713143	3362145311 pt.	3792268 pt.	3792269	3363227100	3694400	3694400
3362111537	3713153	3713153	3362145YWW	3792200	3792200	3363229	36947	36947
3362111541	3713155	3713155	336214W pt.	37920	37920	3363229101	3694701	3694701
3362111543	3713161	3713161	336214W pt.	37990	37990	3363229201	3694711	3694711
3362111546	3713162	3713162	336214WYWW pt.	3792000	3792000	3363229301	3694702	3694702
3362111549	3713163	3713163	336214WYWW pt.	3792000 pt.	3792000 pt.	3363229304	3694704	3694704
3362111552	3711171	3711171	336214WYWW pt.	3792002	3792002	3363229307	3694705	3694705
3362111555	3711181	3711181 pt.	336214WYWW pt.	3799002 pt.	3799002 pt.	3363229309	3694719	3694719
3362111558	3714925	3714925	3363111	35921	35921	3363229YWW	3694700	3694700
3362111571 pt.	3713171	3713171	3363111101	3592101	3592101	336322A	36949	36949
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111103	3592102	3592102	336322A101	3694901	3694901
3362111YWW pt.	3713100	3713100	3363111105	3592103	3592103	336322A204	3694907	3694907
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111207	3592105	3592105	336322A307	3694911	3694911
3362113 pt.	37114 pt.	37114 pt.	3363111YWW	3592100	3592100	336322A409	3694912	3694912
3362113 pt.	37132	37132	3363113	35922	35922	336322A512	3694913	3694913
3362113101	3713201	3713201	3363113101	3592201	3592201	336322A615	3694919	3694919
3362113219	3713225	3713225	3363113103	3592202	3592202	336322AYWW	3694900	3694900
3362113304	3713211	3713211	3363113205	3592203	3592203	336322C pt.	36799 pt.	36799 pt.
3362113307	3713213	3713213	3363113207	3592204	3592204	336322C pt.	37149 pt.	37149 pt.
3362113311	3713215	3713215	3363113209	3592205	3592205	336322C pt.	37144 pt.	37144 pt.
3362113313	3713217	3713217	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113316	3713218	3713218	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113322	3713226	3713226	3363113YWW	3592200	3592200	336322C107	3714915	3714915
3362113325	3713227	3713227	3363115	35923	35923	336322C111 pt.	3714921	3714921
3362113328	3713241	3713239 pt.	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714921 pt.
3362113331 pt.	3711411	3711400 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113331 pt.	3713243	3713239 pt.	3363115YWW	3592300	3592300	336322C117	3714944	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	336311W	35920	35920	336322C119	3679926	3679920 pt.
3362113YWW pt.	3713200	3713200	336311WYWW	3592000	3592000	336322C121	3714945	3714941 pt.
			336311WYWW	3592002	3592002	336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

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336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	3363505W	3714000 pt	3714000 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	3363506WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	3363507WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
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336322WYVW pt	3714002 pt	3714002 pt	3363606W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	3363606W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	3363606W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	3363606W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	3363606WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	3363606WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	3363606WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	3363606WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	3363606WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	3363606WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127YVW	3724400	3724400
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	336412W	37240	37240
3363301YVW pt	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412WYVW	3724000	3724000
3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724002	3724002
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	3364131	37282	37282
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131101	3728210	3728210
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131104	3728231	3728231
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131107	3728251	3728251
3363303YVW	3714A00 pt	3714A00 pt	336391B000	3585B00	3585400 pt	3364131111	3728261	3728261
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131YVW	3728200	3728200
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585000 pt	3585000 pt	3364133	37283	37283
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364133101	3728313	3728313
3363401 pt	32922	32922	3363991	37144	37144	3364133104	3728315	3728315
3363401 pt	37148	37148	3363991101	3714401	3714401	3364133YVW	3728300	3728300
3363401 pt	37149 pt	37149 pt	3363991104	3714402	3714402	3364135	37285	37285
3363401101	3714801	3714801	3363991107	3714403	3714403	3364135101	3728513	3728513
3363401104	3714802	3714802	3363991111	3714405	3714405	3364135104	3728515	3728515
3363401211	3714807	3714807	3363991113	3714407	3714407	3364135207	3728594	3728594
3363401313	3714809	3714809	3363991116	3714408	3714408	3364135211	3728595	3728595
3363401416	3714811	3714811	3363991119	3714409	3714409	3364135313	3728598	3728598
3363401519	3714813	3714813	3363991YVW	3714400	3714400	3364135416	3728599	3728599
3363401625	3714817	3714817	3363993	37145	37145	3364135YVW	3728500	3728500
3363401707	3714803	3714803	3363993101	3714501	3714501	336413W	37280 pt	37280 pt
3363401722	3714815	3714815	3363993104	3714502	3714502	336413WYVW	3728000 pt	3728000 pt
3363401737	3714821	3714821	3363993107	3714503	3714503	336413WYVW	3728002 pt	3728002 pt
3363401741	3714823	3714823	3363993YVW	3714500	3714500	3364141	37611	37611
3363401744	3714825	3714825	3363995	37147	37147	3364141100	3761100	3761100
3363401745	3714912	3714912	3363995101	3714701	3714701	3364143	37613	37613
3363401747 pt	3292200 pt	3292200 pt	3363995104	3714705	3714705	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292211 pt	3363995107	3714707	3714707	3364145	37616	37616
3363401747 pt	3292200 pt	3292211 pt	3363995111	3714714	3714714	3364145100	3761600	3761600
3363401747 pt	3292200 pt	3292258 pt	3363995YVW	3714700	3714700	3364147	37612	37612
3363401747 pt	3714827	3714827	3363997 pt	35199 pt	35199 pt	3364147101	3761201	3761201
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	37142 pt	37142 pt	3364147204	3761202	3761202
3363401YVW pt	3714800	3714800	3363997 pt	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A101	3761702	3761702
3363403114	3714A35	3714A35	3363997101	3714901	3714901	336414A104	3761703	3761703
3363403117	3714A37	3714A37	3363997204	3714902	3714902	336414AYVW	3761700	3761700
3363403119	3714A37	3714A37	3363997307	3714903	3714903	336414W	37610	37610
3363403121	3714A44	3714A41 pt	3363997401	3714235	3714235	336414WYVW	3761000	3761000
3363403YVW	3714A00 pt	3714A00 pt	3363997405	3714236	3714236	336414WYVW	3761002	3761002
336340W pt	32920 pt	32920 pt	3363997409	3519987	3519987	3364151	37645	37645
336340W pt	37140 pt	37140 pt	3363997514	3714909	3714909	3364151101	3764511	3764511
336340WYVW pt	3292000 pt	3292000 pt	3363997524	3714916	3714916	3364151204	3764513	3764513
336340WYVW pt	3714000 pt	3714000 pt	3363997527	3714922	3714922	3364151307	3764515	3764515
336340WYVW pt	3292002 pt	3292002 pt	3363997531	3714923	3714923	3364151YVW	3764500	3764500
336340WYVW pt	3714002 pt	3714002 pt	3363997534	3714931	3714931	3364153	37646	37646
3363501	37146	37146	3363997551	3714951	3714941 pt	3364153101	3764611	3764611
3363501101	3714603	3714603	3363997554	3714A52	3714A41 pt	3364153104	3764613	3764613
3363501104	3714605	3714605	3363997YVW pt	3519900 pt	3519900 pt	3364153107	3764615	3764615
3363501207	3714613	3714613	3363997YVW pt	3714200 pt	3714200 pt	3364153YVW	3764600	3764600
3363501211	3714615	3714615	3363997YVW pt	3714900 pt	3714900 pt	3364155	37647	37647
3363501313	3714623	3714623	3363997YVW pt	3714A00 pt	3714A00 pt	3364155101	3764711	3764711
3363501316	3714625	3714625	3363999W pt	35190 pt	35190 pt	3364155104	3764713	3764713
3363501434	3714641	3714641	3363999WYVW pt	3519002 pt	3519002 pt	3364155107	3764715	3764715
3363501519	3714628	3714628	3364111	37211	37211	3364155YVW	3764700	3764700
3363501522	3714631	3714631	3364111100	3721100	3721100	3364157	37648	37648
3363501525	3714633	3714633	3364113	37215	37215	3364157101	3764811	3764811
3363501528	3714635	3714635	3364113000	3721500	3721500	3364157104	3764813	3764813
3363501531	3714637	3714637	3364115	37217	37217	3364157107	3764815	3764815
3363501537	3714643	3714643	3364115101	3721711	3721711	3364157YVW	3764800	3764800
3363501541	3714649	3714649	3364115104	3721751	3721751	336415W	37640	37640
3363501YVW	3714600	3714600	3364115YVW	3721700	3721700	336415WYVW	3764000	3764000
3363503	3714A pt	3714A pt				336415WYVW	3764002	3764002
3363503101	3714A04	3714A04						
3363503104	3714A27	371						

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3364191	37692	37692	3366115	37313	37313	3366127119	3732719	3732719
336419101	3769211	3769211	3366115101	3731315	3731315	3366127YVW	3732700	3732700
336419104	3769213	3769213	3366115107	3731335	3731335	336612W	37320 pt	37320 pt
3364191207	3769219	3769219	3366115111	3731343	3731343	336612WYVW	3732000 pt	3732000 pt
3364191311	3769225	3769225	3366115113	3731348	3731348	336612WYVWY	3732002 pt	3732002 pt
3364191413	3769235	3769235	3366115116	3731357	3731357	3369911 pt	37511	37511
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			3366115121	3731332	3731332	3369911101 pt	3751148 pt	3751139
3364193	37694	37694	3366115123	3731333	3731333	3369911101 pt	3751148 pt	3751141
3364193101	3769414	3769414	3366115124 pt	3731361 pt	3731324	3369911101 pt	3751148 pt	3751143
3364193104	3769419	3769419	3366115124 pt	3731361 pt	3731326	3369911101 pt	3751148 pt	3751145
3364193107	3769425	3769425	3366115124 pt	3731361 pt	3731328	3369911101 pt	3751148 pt	3751147
3364193111	3769435	3769435	3366115YVW	3731300	3731300	3369911101 pt	3751148 pt	3751149
3364193YVW	3769400	3769400				3369911101 pt	3751148 pt	3751155
			3366117	37314	37314	3369911104 pt	3751109	3751109
336419W	37690	37690	3366117101	3731441	3731441	3369911104 pt	3944336	3944346 pt
336419WYVW	3769000	3769000	3366117104	3731449	3731449	3369911109	3751110	3751110
336419WYVWY	3769002	3769002	3366117YVW	3731400	3731400	3369911113	3751112	3751112
						3369911116	3751115	3751115
3365101	37431 pt	37431 pt	3366119	37316	37316	3369911119	3751116	3751116
3365101101	3743102	3743101 pt	3366119101	3731601	3731601	3369911122 pt	3751124 pt	3751113
3365101104	3743104	3743101 pt	3366119104	3731602	3731602	3369911122 pt	3751124 pt	3751114
3365101107	3743105	3743101 pt	3366119YVW	3731600	3731600	3369911122 pt	3751124 pt	3751123
3365101111	3743113	3743103 pt				3369911YVW pt	3751100	3751100
3365101YVW	3743100 pt	3743100 pt	336611W	37310	37310	3369911YVWY pt	3944300 pt	3944300 pt
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3365103	37432	37432	336611WYVWY	3731002	3731002	3369913100 pt	3751200 pt	3751200
3365103100	3743200 pt	3743200				3369913100 pt	3751200 pt	3751201
3365103100 pt	3743200 pt	3743211	3366121	37322	37322	3369913100 pt	3751200 pt	3751209
3365103100 pt	3743200 pt	3743215	3366121101	3732201	3732201	3369919 pt	37510	37510
3365103100 pt	3743200 pt	3743235	3366121104	3732202	3732202	3369919 pt	39440 pt	39440 pt
3365103100 pt	3743200 pt	3743241	3366121107	3732211	3732211	3369919YVW pt	3751000	3751000
3365103100 pt	3743200 pt	3743265	3366121111	3732207	3732207	3369919YVWY pt	3944002 pt	3944002 pt
			3366121113	3732209	3732219 pt	3369920 pt	37110 pt	37110 pt
3365105 pt	3531X pt	3531M pt	3366121116	3732210	3732219 pt	3369920111	37950	37950
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3365105 pt	3531X pt	3531P pt	3366121225	3732221	3732221	3369920214	3795051	3795051
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			3366121228	3732225	3732225	3369920217	3795098	3795098
						3369920YVW pt	3711000 pt	3711000 pt
3365105 pt	37433	37433	3366121231	3732227	3732227	3369920YVW pt	3711400 pt	3711400 pt
3365105301	3743301	3743301	3366121234	3732226	3732229 pt	3369920YVW pt	3795000	3795000
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3365105405	3531X21	3531P21	3366121243	3732224	3732229 pt	3369920YVWY pt	3795002	3795002
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3365105411	3743311	3743311	3366121248	3732228	3732228	3369991101	3799382	3799382
3365105413	3743312	3743312	3366121337	3732228	3732228	3369991104	3799384	3799384
3365105416	3743314	3743314	3366121YVW	3732200	3732200	3369991YVW	3799300	3799300
3365105419 pt	3531X80	3531M21 pt				3369993	37999 pt	37999 pt
3365105419 pt	3743319	3743319	3366123	37323	37323	3369993101	3799903	3799903
3365105YVW pt	3531X00 pt	3531M00 pt	3366123104	3732311	3732311	3369993204	3799904	3799904
3365105YVW pt	3531X00 pt	3531P00 pt	3366123107	3732316	3732316	3369993307	3799905	3799905
3365105YVW pt	3743300	3743300	3366123201	3732304	3732304	3369993414	3799916	3799923 pt
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			3366123YVW	3732300	3732300	3369993421	3799920	3799923 pt
336510W pt	35310 pt	35310 pt				3369993513	3799925	3799925
			3366125	37324	37324	3369993YVW	3799900 pt	3799900 pt
336510W pt	37430 pt	37430 pt	3366125107	3732405	3732405	3369999W	37990 pt	37990 pt
336510WYVW pt	3531000 pt	3531000 pt	3366125201	3732401	3732401	3369999YVW	3799000 pt	3799000 pt
336510WYVW pt	3743000 pt	3743000 pt	3366125204	3732403	3732403			
336510WYVWY pt	3531002 pt	3531002 pt	3366125211	3732406	3732409 pt			
336510WYVWY pt	3743002 pt	3743002 pt	3366125213 pt	3732408 pt	3732407			
			3366125213 pt	3732408 pt	3732409 pt			
			3366125YVW	3732400	3732400			
3366111	37311	37311						
3366111101	3731111	3731111	3366127	37327	37327			
3366111104	3731107	3731107	3366127101	3732702	3732702			
3366111107	3731119	3731119	3366127104	3732704	3732704			
3366111YVW	3731100	3731100	3366127107	3732706	3732706			
			3366127111	3732708	3732708			
			3366127113	3732712	3732712			
3366113	37312	37312	3366127116	3732717	3732717			
3366113100	3731200	3731200						

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1997 Economic Census

Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

**Economics
and Statistics
Administration**

Robert J. Shapiro,

Under Secretary for
Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336360	Motor vehicle seating & interior trim mfg	281	355	43 927	1 429 221	35 289	72 652	1 024 186	3 669 761	6 651 989	10 326 724	280 989
239640	Automotive & apparel trimmings (pt)	N	117	21 367	776 412	16 994	35 284	570 277	1 687 510	2 297 579	3 987 748	175 312
239930	Fabricated textile products, n.e.c. (pt)	N	54	1 804	42 766	1 407	2 330	22 728	149 842	134 307	282 324	11 276
253110	Public building & related furniture (pt)	N	184	20 756	610 043	16 888	35 038	431 181	1 832 409	4 220 103	6 056 652	94 401

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)				
336360, MOTOR VEHICLE SEATING & INTERIOR TRIM MFG												
United States	-	355	186	43 927	1 429 221	35 289	72 652	1 024 186	3 669 761	6 651 989	10 326 724	280 989
Arizona	3	5	4	588	15 245	472	858	7 916	38 954	35 955	75 302	2 192
California	-	54	17	2 157	53 674	1 723	3 412	35 563	113 460	180 390	294 621	7 066
Florida	2	16	3	259	5 615	225	468	4 301	13 355	10 663	24 486	358
Illinois	-	10	6	875	24 775	681	1 523	15 888	79 643	176 319	256 677	3 847
Indiana	-	30	22	2 911	77 865	2 266	4 382	49 008	190 735	407 175	601 475	10 594
Kentucky	-	8	8	2 204	54 847	1 889	4 058	41 675	241 194	503 114	743 795	8 890
Michigan	-	50	41	18 129	747 330	14 012	29 348	539 468	1 665 870	2 567 968	4 237 245	146 381
Missouri	-	13	9	1 718	49 194	1 493	2 318	39 534	230 435	459 118	690 050	2 912
New York	5	8	3	153	2 886	112	221	1 823	8 007	7 238	15 008	331
North Carolina	-	10	7	1 094	37 762	837	2 031	22 180	93 356	86 352	166 921	11 488
Ohio	-	28	22	4 750	116 916	3 989	8 398	85 407	393 712	955 546	1 348 939	35 455
Tennessee	-	10	6	2 019	55 277	1 672	3 669	41 429	128 989	302 527	434 034	12 302
Texas	-	20	9	1 551	36 289	1 408	2 865	29 943	79 074	127 511	202 065	11 810

* 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
336360, MOTOR VEHICLE SEATING & INTERIOR TRIM MFG		336360, MOTOR VEHICLE SEATING & INTERIOR TRIM MFG—Con.	
Companies ¹	number.. 281	Value added	\$1,000.. 3 669 761
All establishments	number.. 355	Total inventories, beginning of year	\$1,000.. 419 120
Establishments with 1 to 19 employees	number.. 169	Finished goods inventories, beginning of year	\$1,000.. 89 566
Establishments with 20 to 99 employees	number.. 76	Work-in-process inventories, beginning of year	\$1,000.. 99 645
Establishments with 100 employees or more	number.. 110	Materials and supplies inventories, beginning of year	\$1,000.. 229 909
All employees	number.. 43 927	Total inventories, end of year	\$1,000.. 436 528
Total compensation ²	\$1,000.. 1 871 618	Finished goods inventories, end of year	\$1,000.. 73 467
Annual payroll	\$1,000.. 1 429 221	Work-in-process inventories, end of year	\$1,000.. 110 770
Total fringe benefits	\$1,000.. 442 397	Materials and supplies inventories, end of year	\$1,000.. 252 291
Production workers, average for year	number.. 35 289	Gross book value of total assets at beginning of year	\$1,000.. 1 874 048
Production workers on March 12	number.. 35 072	Total capital expenditures (new and used)	\$1,000.. 280 989
Production workers on May 12	number.. 35 410	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 30 107
Production workers on August 12	number.. 35 336	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 250 882
Production workers on November 12	number.. 35 338	Total retirements ²	\$1,000.. 106 604
Production-worker hours	1,000.. 72 652	Gross book value of total assets at end of year	\$1,000.. 2 048 433
Production-worker wages	\$1,000.. 1 024 186	Total depreciation during year ²	\$1,000.. 167 467
Total cost of materials	\$1,000.. 6 651 989	Total rental payments ²	\$1,000.. 49 954
Cost of materials, parts, containers, etc., consumed	\$1,000.. 6 498 546	Buildings and other structures rental payments ²	\$1,000.. 27 216
Cost of resales	\$1,000.. 37 096	Machinery and equipment rental payments ²	\$1,000.. 22 738
Cost of fuels	\$1,000.. 12 684	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 10 592
Cost of purchased electricity	\$1,000.. 38 640	Response coverage ratio ⁴	percent.. 83
Cost of contract work	\$1,000.. 65 023	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 32 721
Quantity of electricity purchased for heat and power	1,000 kWh.. 712 137	Response coverage ratio ⁴	percent.. 83
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 11 039
Total value of shipments	\$1,000.. 10 326 724	Response coverage ratio ⁴	percent.. 83
Primary products value of shipments	\$1,000.. 10 034 723	Cost of purchased legal services ³	\$1,000.. 5 857
Secondary products value of shipments	\$1,000.. 219 134	Response coverage ratio ⁴	percent.. 83
Total miscellaneous receipts	\$1,000.. 72 867	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 3 511
Value of resales	\$1,000.. 50 999	Response coverage ratio ⁴	percent.. 83
Contract receipts	\$1,000.. 8 167	Cost of purchased advertising services ³	\$1,000.. 2 212
Other miscellaneous receipts	\$1,000.. 13 701	Response coverage ratio ⁴	percent.. 83
Primary products specialization ratio	percent.. 97	Cost of purchased software and other data processing services ³	\$1,000.. 6 137
Value of primary products shipments made in all industries	\$1,000.. 10 179 095	Response coverage ratio ⁴	percent.. 83
Value of primary products shipments made in this industry	\$1,000.. 10 034 723	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 13 551
Value of primary products shipments made in other industries	\$1,000.. 144 372	Response coverage ratio ⁴	percent.. 83
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)				
336360. MOTOR VEHICLE SEATING & INTERIOR TRIM MFG												
All establishments	-	355	186	43 927	1 429 221	35 289	72 652	1 024 186	3 669 761	6 651 989	10 326 724	280 989
Establishments with 1 to 4 employees	8	88	-	192	4 102	157	230	2 778	8 789	8 294	15 356	641
Establishments with 5 to 9 employees	7	48	-	299	5 915	238	372	3 925	11 228	14 272	25 578	1 007
Establishments with 10 to 19 employees	3	33	-	487	10 581	355	615	5 919	21 360	60 797	82 185	1 961
Establishments with 20 to 49 employees	2	48	48	1 488	33 918	1 174	2 297	22 133	74 029	113 263	187 295	4 886
Establishments with 50 to 99 employees	1	28	28	1 978	46 509	1 488	3 147	28 378	107 041	144 236	251 490	8 767
Establishments with 100 to 249 employees	-	63	63	10 679	278 302	8 517	17 203	182 965	894 286	1 885 255	2 781 685	46 254
Establishments with 250 to 499 employees	-	28	28	9 379	257 907	7 868	16 800	191 987	807 602	2 000 238	2 816 212	58 717
Establishments with 500 to 999 employees	-	16	16	10 726	365 220	9 022	18 425	278 960	799 530	1 421 511	2 203 531	46 538
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	-	1	1	D	D	D	D	D	D	D	D	D
Administrative records ²	9	87	-	407	7 079	320	462	4 739	14 263	18 630	33 027	1 100

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)				
336360	Motor vehicle seating & interior trim mfg	355	43 927	1 429 221	35 289	72 652	1 024 186	3 669 761	6 651 989	10 326 724	280 989
3363601	Automobile trimmings	73	21 026	770 043	16 720	34 796	566 781	1 673 767	2 281 295	3 957 706	173 885
3363602	Fabricated seat or safety belts (including shoulder harnesses, except leather)	16	1 447	36 330	1 119	1 899	18 272	134 283	118 674	251 183	10 557
3363603	Seats for public conveyance and aircraft	100	19 771	589 090	16 084	33 665	416 526	1 799 876	4 137 095	5 940 752	91 235

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)
336360	Motor vehicle fabric accessories and seats	N	X	X	10 179 095	N	X	X	N
3363601	Automobile trimmings	N	X	X	3 899 584	N	X	X	2 547 747
33636011	Automobile trimmings	N	X	X	3 899 584	N	X	X	N
3363601100	Automobile trimmings	56	X	X	3 899 584	51	X	X	2 547 747
3363602	Fabricated seat or safety belts, including shoulder harnesses (except leather)	N	X	X	258 974	N	X	X	N
33636021	Fabricated seat or safety belts, including shoulder harnesses (except leather)	N	X	X	258 974	N	X	X	N
3363602100	Fabricated seat or safety belts, including shoulder harnesses (except leather)	1,000 units	X	S	258 974	29	X	27 214.5	479 521
3363603	Seats for public conveyance and aircraft	N	X	X	5 861 909	N	X	X	N
33636031	Seats for public conveyance and aircraft	N	X	X	5 844 257	N	X	X	N
3363603101	Seats for public conveyances (except aircraft), including automobiles, trucks, buses, and van conversions	70	X	X	5 539 983	75	X	X	2 631 706
3363603104	Seats for aircraft	9	X	X	304 274	13	X	X	355 589
3363603Y	Seats for public conveyance and aircraft, nsk	N	X	X	17 652	N	X	X	N
3363603YWV	Seats for public conveyance and aircraft, nsk	N	X	X	17 652	N	X	X	N
336360W	Motor vehicle fabric accessories and seats, nsk	N	X	X	158 628	N	X	X	N
336360WY	Motor vehicle fabric accessories and seats, nsk	N	X	X	158 628	N	X	X	N
336360WYWW	Motor vehicle fabric accessories and seats, nsk, for nonadministrative-record establishments	N	X	X	136 827	N	X	X	N
336360WYWY	Motor vehicle fabric accessories and seats, nsk, for administrative-record establishments	N	X	X	21 801	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
3363601	AUTOMOBILE TRIMMINGS		
	United States	3 899 584	2 547 747
	California	56 822	40 188
	Michigan	2 705 569	1 782 312
	Ohio	601 095	437 270
3363602	FABRICATED SEAT OR SAFETY BELTS, INCLUDING SHOULDER HARNESSSES (EXCEPT LEATHER)		
	United States	258 974	N
3363603	SEATS FOR PUBLIC CONVEYANCE AND AIRCRAFT		
	United States	5 861 909	N
	California	204 966	N
	Illinois	227 249	N
	Indiana	500 896	N
	Kentucky	586 449	N
	Michigan	1 368 700	N
	Missouri	668 368	N
	Ohio	743 644	N
	Pennsylvania	4 091	N
	Wisconsin	365 532	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)
336360	MOTOR VEHICLE SEATING & INTERIOR TRIM MFG				
31321013	Polyester broadwoven fabrics (piece goods) mil sq yd..	95.4	198 270	N	N
31321003	Cotton broadwoven fabrics (piece goods) mil sq yd..	D	D	N	N
31321009	Rayon and acetate broadwoven fabrics (piece goods) mil sq yd..	D	D	N	N
31321021	Other broadwoven fabrics (piece goods) mil sq yd..	S	713 536	N	N
31322103	Narrow fabrics (12 inches or less in width) mil sq yd..	D	D	N	N
31311003	Yarn, all fibers mil lb..	S	10 604	N	N
31332001	Plastics coated, impregnated, or laminated fabrics mil sq yd..	S	773 140	N	N
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. mil lb..	S	362 586	N	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	160 379	X	N
332000AC	Metal stampings	X	408 174	X	N
33200043	All other fabricated metal products (except castings and forgings)	X	496 138	X	N
33210001	Forgings	X	D	X	N
33100035	Castings (rough and semifinished)	X	9 756	X	N
33120017	Steel sheet and strip, including tin plate	X	18 743	X	N
33120083	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	117 524	X	N
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing	X	17 629	X	N
33100055	All other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	738	X	N
33100077	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	N
32100025	Hardwood lumber, rough and dressed	X	8 632	X	N
32100031	Softwood lumber, rough and dressed	X	D	X	N
00190097	Hardwood dimension and parts, including wood furniture frames	X	D	X	N
32121105	Hardwood veneer	X	D	X	N
32121101	Hardwood plywood	X	836	X	N
32121201	Softwood plywood	X	2 688	X	N
32121903	Particleboard (wood)	X	538	X	N
32121907	Medium density fiberboard (MDF)	X	D	X	N
32121909	Hardboard	X	D	X	N
32613001	Plastics laminated sheets	X	D	X	N
32619909	Plastics furniture parts and components	X	101 782	X	N
32615000	Formed and slab stock for pillows, cushions, seating, etc. (urethane)	X	357 047	X	N
32552001	Adhesives and sealants	X	D	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	3 411	X	N
33251001	Furniture and builders' hardware, including cabinet hardware, casters, glides, handles, hinges, locks, etc.	X	62 543	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard	X	79 440	X	N
00970099	All other materials and components, parts, containers, and supplies	X	1 901 116	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	555 504	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

336360 MOTOR VEHICLE SEATING AND INTERIOR TRIM MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing motor vehicle seating, seats, seat frames, seat belts, and interior trimmings.

The data published with NAICS code 336360 include the following SIC industries:

2396 Automotive and apparel trimmings (pt)

2399 Fabricated textile products, n.e.c. (pt)

2531 Public building and related furniture (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 336360 do not include establishments primarily engaged in the manufacture of metal motor vehicle seat frames. The NAICS definitions will be fully implemented with the 2002 Economic Census.

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
3361110 pt.....	37110 pt.....	37110 pt	336211W pt.....	37110 pt.....	37110 pt	3363121.....	37142 pt.....	37142 pt
3361110 pt.....	37111 pt.....	37111 pt	336211W pt.....	37130.....	37130	3363121101.....	3714201.....	3714201
3361110 pt.....	37114 pt.....	37114 pt	336211W pt.....	37140 pt.....	37140 pt	3363121224.....	3714218.....	3714218
3361110100 pt.....	3711100 pt.....	3711100 pt	336211WYWW pt.....	3711000 pt.....	3711000 pt	3363121351.....	3714231.....	3714231
3361110100 pt.....	3711111.....	3711111 pt	336211WYWW pt.....	3713000.....	3713000	3363121354.....	3714232.....	3714232
3361110100 pt.....	3711151.....	3711151	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121457.....	3714234.....	3714234
3361110100 pt.....	3711400 pt.....	3711400 pt	336211WYWW pt.....	3711002 pt.....	3711002 pt	3363121467.....	3714237.....	3714237
3361110100 pt.....	3711403.....	3711400 pt	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121504.....	3714206.....	3714206
3361110YWW.....	3711000 pt.....	3711000 pt	336211WYWW pt.....	3713002.....	3713002	3363121507.....	3714207.....	3714207
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3714002 pt.....	3714002 pt	3363121511.....	3714208.....	3714208
3361120 pt.....	37110 pt.....	37110 pt	3362121.....	37151.....	37151	3363121514.....	3714209.....	3714209
3361120 pt.....	37114 pt.....	37114 pt	3362121000.....	3715100.....	3715100	3363121517.....	3714215.....	3714215
3361120 pt.....	37116.....	37116	3362121000.....	3715100.....	3715100	3363121521.....	3714216.....	3714216
3361120100 pt.....	3711405.....	3711400 pt	336212123.....	37152.....	37152	3363121527.....	3714217.....	3714217
3361120100 pt.....	3711400 pt.....	3711400 pt	33621213100.....	3715200.....	3715200	3363121531.....	3714222.....	3714222
3361120100 pt.....	3711600.....	3711600	33621213100.....	3715200.....	3715200	3363121534.....	3714224.....	3714224
3361120YWW.....	3711000 pt.....	3711000 pt	33621213100.....	3715200.....	3715200	3363121537.....	3714225.....	3714225
3361120YWW.....	3711002 pt.....	3711002 pt	33621213100.....	3715200.....	3715200	3363121541.....	3714226.....	3714226
3361201 pt.....	37114 pt.....	37114 pt	33621213100.....	3715200.....	3715200	3363121544.....	3714227.....	3714227
3361201 pt.....	37115 pt.....	37117	33621213100.....	3715200.....	3715200	3363121547.....	3714227.....	3714227
3361201 pt.....	37115 pt.....	37118	33621213100.....	3715200.....	3715200	3363121571.....	3714241.....	3714241
3361201100 pt.....	3711407.....	3711400 pt	33621213100.....	3715200.....	3715200	3363121574.....	3714249.....	3714249
3361201100 pt.....	3711400 pt.....	3711400 pt	33621213100.....	3715200.....	3715200	3363121YVW.....	3714200 pt.....	3714200 pt
3361201100 pt.....	3711500 pt.....	3711700	33621213100.....	3715200.....	3715200	33631213.....	37144 pt.....	37144 pt
3361201100 pt.....	3711500 pt.....	3711800	33621213100.....	3715200.....	3715200	3363123101.....	3714A02.....	3714A02
3361202 pt.....	37114 pt.....	37114 pt	33621213100.....	3715200.....	3715200	3363123104.....	3714A03.....	3714A03
3361202 pt.....	37119.....	37119	33621213100.....	3715200.....	3715200	3363123107.....	3714A23.....	3714A23
3361202100 pt.....	3711409.....	3711400 pt	33621213100.....	3715200.....	3715200	3363123111.....	3714A25.....	3714A25
3361202100 pt.....	3711400 pt.....	3711400 pt	33621213100.....	3715200.....	3715200	3363123121.....	3714A43.....	3714A41 pt
3361202100 pt.....	3711900.....	3711900	33621213100.....	3715200.....	3715200	3363123YVW.....	3714A00 pt.....	3714A00 pt
3361203.....	37113.....	37113	336212141.....	37921.....	37921	336312W.....	37140 pt.....	37140 pt
3361203101.....	3711304.....	3711304	336212141101.....	3792112.....	3792112	336312WYWW.....	3714000 pt.....	3714000 pt
3361203104.....	3711303.....	3711303	336212141104.....	3792114.....	3792114	336312WYVW.....	3714002 pt.....	3714002 pt
3361203YVW.....	3711300.....	3711300	336212141207.....	3792116.....	3792116	3363210.....	36470.....	36470
336120W.....	37110 pt.....	37110 pt	336212141311.....	3792118.....	3792118	3363210100.....	3647000 pt.....	3647000 pt
336120WYWW.....	3711000 pt.....	3711000 pt	336212141311.....	3792118.....	3792118	3363210YVW.....	3647000 pt.....	3647000 pt
336120WYVW.....	3711002 pt.....	3711002 pt	336212141413.....	3792125.....	3792125	3363210YVW.....	3647002.....	3647002
3362111 pt.....	37111 pt.....	37111 pt	336212141516.....	3792128.....	3792128	3363221.....	36941.....	36941
3362111 pt.....	37131.....	37131	336212141YVW.....	3792100.....	3792100	3363221101.....	3694101.....	3694101
3362111 pt.....	37149 pt.....	37149 pt	336212143.....	37996.....	37996	3363221104.....	3694102.....	3694102
3362111101.....	3713101.....	3713101	336212143101.....	3799611.....	3799601 pt	3363221201.....	3694103.....	3694103
3362111204.....	3713102.....	3713102	336212143105.....	3799613.....	3799602 pt	3363221204.....	3694104.....	3694104
3362111307.....	3713112.....	3713112	336212143108.....	3799615.....	3799604 pt	3363221YVW.....	3694100.....	3694100
3362111411.....	3713115.....	3713115	336212143111.....	3799617.....	3799607 pt	3363223.....	36942.....	36942
3362111413.....	3713116.....	3713116	336212143114.....	3799619.....	3799609 pt	3363223101.....	3694201.....	3694201
3362111416.....	3713117.....	3713117	336212143117.....	3799651 pt.....	3799601 pt	3363223104.....	3694202.....	3694202
3362111519.....	3713121.....	3713121	336212143117 pt.....	3799651 pt.....	3799602 pt	3363223201.....	3694203.....	3694203
3362111522.....	3713131.....	3713131	336212143117 pt.....	3799651 pt.....	3799604 pt	3363223204.....	3694204.....	3694204
3362111525.....	3713132.....	3713132	336212143YVW.....	3799600.....	3799609 pt	3363223YVW.....	3694200.....	3694200
3362111528.....	3713135.....	3713135	336212145.....	37922.....	37922	3363225.....	36943.....	36943
3362111531.....	3713139.....	3713139	336212145101.....	3792242.....	3792242	3363225101.....	3694301.....	3694301
3362111534.....	3713143.....	3713143	336212145204.....	3792244.....	3792244	3363225104.....	3694302.....	3694302
3362111537.....	3713153.....	3713153	336212145207.....	3792247.....	3792247	3363225201.....	3694303.....	3694303
3362111541.....	3713155.....	3713155	336212145311 pt.....	3792268 pt.....	3792261	3363225YVW.....	3694300.....	3694300
3362111543.....	3713161.....	3713161	336212145311 pt.....	3792268 pt.....	3792263	3363227.....	36944.....	36944
3362111546.....	3713162.....	3713162	336212145311 pt.....	3792268 pt.....	3792269	3363227100.....	3694400.....	3694400
3362111549.....	3713163.....	3713163	336212145YVW.....	3792200.....	3792200	3363229.....	36947.....	36947
3362111552.....	3711171.....	3711171	33621214W pt.....	37920.....	37920	3363229101.....	3694701.....	3694701
3362111555.....	3711181.....	3711181 pt	33621214W pt.....	37990 pt.....	37990 pt	3363229201.....	3694711.....	3694711
3362111558.....	3714925.....	3714925	33621214WYWW pt.....	3792000.....	3792000	3363229301.....	3694702.....	3694702
3362111571 pt.....	3713171.....	3713171	33621214WYWW pt.....	3792000.....	3792000	3363229304.....	3694704.....	3694704
3362111571 pt.....	3714924.....	3714941 pt	33621214WYVW pt.....	3792002.....	3792002	3363229307.....	3694705.....	3694705
3362111YVW pt.....	3711100 pt.....	3711100 pt	33621214WYVW pt.....	3792002.....	3792002	3363229309.....	3694719.....	3694719
3362111YVW pt.....	3713100.....	3713100	3363111.....	35921.....	35921	3363229YVW.....	3694700.....	3694700
3362111YVW pt.....	3714900 pt.....	3714900 pt	3363111101.....	3592101.....	3592101	336322A.....	36949.....	36949
3362113 pt.....	37114 pt.....	37114 pt	3363111103.....	3592102.....	3592102	336322A101.....	3694901.....	3694901
3362113 pt.....	37132.....	37132	3363111105.....	3592103.....	3592103	336322A204.....	3694907.....	3694907
3362113101.....	3713201.....	3713201	3363111207.....	3592105.....	3592105	336322A307.....	3694911.....	3694911
3362113129.....	3713225.....	3713225	3363111YVW.....	3592100.....	3592100	336322A409.....	3694912.....	3694912
3362113304.....	3713211.....	3713211	3363113.....	35922.....	35922	336322A512.....	3694913.....	3694913
3362113307.....	3713213.....	3713213	3363113101.....	3592201.....	3592201	336322A615.....	3694919.....	3694919
3362113311.....	3713215.....	3713215	3363113103.....	3592202.....	3592202	336322AYVW.....	3694900.....	3694900
3362113313.....	3713217.....	3713217	3363113105.....	3592203.....	3592203	336322C pt.....	36799 pt.....	36799 pt
3362113316.....	3713218.....	3713218	3363113205.....	3592204.....	3592204	336322C pt.....	37149 pt.....	37149 pt
3362113322.....	3713226.....	3713226	3363113207.....	3592204.....	3592204	336322C pt.....	3714A pt.....	3714A pt
3362113325.....	3713227.....	3713227	3363113209.....	3592205.....	3592205	336322C102.....	3714913.....	3714913
3362113328.....	3713241.....	3713239 pt	3363113211.....	3592206.....	3592206	336322C104.....	3714914.....	3714914
3362113331 pt.....	3711411.....	3711400 pt	3363113313.....	3592209.....	3592209	336322C107.....	3714915.....	3714915
3362113331 pt.....	3713243.....	3713239 pt	3363113313YVW.....	3592200.....	3592200	336322C111 pt.....	3714921.....	3714921
3362113YVW pt.....	3711400 pt.....	3711400 pt	3363115.....	35923.....	35923	336322C111 pt.....	3714921 pt.....	3714921 pt
3362113YVW pt.....	3713200.....	3713200	3363115101.....	3592301.....	3592301	336322C114.....	3714942.....	3714942
			3363115103.....	3592302.....	3592302	336322C117.....	3714944.....	3714944
			3363115YVW.....	3592300.....	3592300	336322C119.....	3679926.....	3679926
			336311W.....	35920.....	35920	336322C121.....	3714945.....	3714945
			336311WYVW.....	3592000.....	3592000	336322C122.....	3714946.....	3714946
			336311WYVW.....	3592002.....	3592002	336322C124.....	3714A05.....	3714A41 pt
						336322C127.....	3714A40.....	3714A41 pt

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127307	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	3364127YVW	3724400	3724400
3363301YVW pt	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412W	37240	37240
3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	336391B000	3585B00	3585400 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131111	3728261	3728261
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585000 pt	3585000 pt	3364131YVW	3728200	3728200
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364133	37283	37283
3363401 pt	32922	32922	336391WYVW	3585000 pt	3585000 pt	3364133101	3728313	3728313
3363401 pt	37148	37148	336391WYVW	3585002 pt	3585002 pt	3364133104	3728315	3728315
3363401 pt	37149 pt	37149 pt	3363991	37144	37144	3364133YVW	3728300	3728300
3363401101	3714801	3714801	3363991101	3714401	3714401	3364135	37285	37285
3363401104	3714802	3714802	3363991104	3714402	3714402	3364135101	3728513	3728513
3363401211	3714807	3714807	3363991107	3714404	3714404	3364135104	3728515	3728515
3363401313	3714809	3714809	3363991111	3714405	3714405	3364135207	3728594	3728594
3363401416	3714811	3714811	3363991113	3714407	3714407	3364135211	3728595	3728595
3363401519	3714813	3714813	3363991116	3714408	3714408	3364135313	3728598	3728598
3363401625	3714817	3714817	3363991119	3714409	3714409	3364135416	3728599	3728599
3363401707	3714803	3714803	3363991YVW	3714400	3714400	3364135YVW	3728500	3728500
3363401722	3714815	3714815	3363993	37145	37145	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363993101	3714501	3714501	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363993104	3714502	3714502	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363993107	3714503	3714503	3364141	37611	37611
3363401745	3714912	3714912	3363993YVW	3714500	3714500	3364141100	3761100	3761100
3363401747 pt	3292200 pt	3292200 pt	3363995	37147	37147	3364143	37613	37613
3363401747 pt	3292200 pt	3292211 pt	3363995101	3714701	3714701	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292215 pt	3363995104	3714705	3714705	3364145	37616	37616
3363401747 pt	3292200 pt	3292221 pt	3363995107	3714707	3714707	3364145100	3761600	3761600
3363401747 pt	3292200 pt	3292258 pt	3363995111	3714714	3714714	3364147	37612	37612
3363401747 pt	3714827	3714827	3363995YVW	3714700	3714700	3364147101	3761201	3761201
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	35199 pt	35199 pt	3364147204	3761202	3761202
3363401YVW pt	3714800	3714800	3363997 pt	37142 pt	37142 pt	3364147YVW	3761200	3761200
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
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			3366127107	3732706	3732706			
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			3366127116	3732717	3732717	336999WYVWY	3799002 pt	3799002 pt

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1997 Economic Census

Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336370	Motor vehicle metal stamping ..	663	809	126 522	5 640 188	105 133	226 389	4 418 263	10 907 021	12 674 199	23 624 728	1 516 366
346500	Automotive stampings	N	809	126 522	5 640 188	105 133	226 389	4 418 263	10 907 021	12 674 199	23 624 728	1 516 366

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)				
336370, MOTOR VEHICLE METAL STAMPING												
United States	-	809	581	126 522	5 640 188	105 133	226 389	4 418 263	10 907 021	12 674 199	23 624 728	1 516 366
Arizona	2	4	3	177	8 439	133	309	4 405	13 546	17 363	30 977	2 018
California	4	30	13	1 902	50 086	1 551	3 711	34 493	101 708	101 332	201 563	10 577
Connecticut	4	8	5	531	21 635	371	832	8 961	39 765	35 424	75 687	3 375
Florida	-	14	7	837	21 914	741	1 577	13 352	48 741	44 008	90 885	5 907
Georgia	-	7	6	1 156	29 017	815	1 570	20 448	70 381	98 024	172 973	9 037
Illinois	-	48	38	5 177	245 834	4 263	8 686	182 973	565 888	624 025	1 195 667	136 895
Indiana	-	54	45	12 934	536 206	10 791	23 438	427 478	1 116 958	1 238 842	2 364 426	141 451
Kentucky	-	18	18	3 442	112 597	2 664	5 833	79 108	372 020	450 500	819 261	55 376
Massachusetts	-	9	5	472	19 085	288	745	9 830	33 835	25 200	59 856	2 297
Michigan	-	315	235	52 581	2 477 988	43 782	92 568	1 938 766	4 488 128	5 340 190	9 865 584	610 201
Missouri	-	10	10	1 362	49 707	1 139	2 531	36 287	103 643	185 177	288 805	9 665
Ohio	-	146	109	30 311	1 471 618	25 947	57 273	1 210 990	2 588 349	3 071 805	5 668 852	365 210
Oklahoma	6	5	3	221	3 767	186	153	2 041	9 104	6 953	15 874	667
Pennsylvania	-	16	11	2 702	140 454	2 236	5 539	113 450	246 816	212 077	444 671	18 188
South Carolina	-	11	7	1 568	50 793	1 308	2 934	36 806	135 373	154 640	289 416	11 037
Tennessee	-	19	13	2 061	62 737	1 715	3 248	48 292	136 277	193 484	328 970	8 138
Texas	1	13	5	375	8 610	301	577	7 061	25 518	37 079	62 843	1 757
Wisconsin	-	18	13	2 089	57 171	1 506	3 192	36 224	152 849	115 287	266 282	11 180

* 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
336370, MOTOR VEHICLE METAL STAMPING		336370, MOTOR VEHICLE METAL STAMPING— Con.	
Companies ¹	number.. 663	Value added .....	..\$1,000.. 10 907 021
All establishments	number.. 809	Total inventories, beginning of year .....	..\$1,000.. 1 397 235
Establishments with 1 to 19 employees	number.. 228	Finished goods inventories, beginning of year .....	..\$1,000.. 255 977
Establishments with 20 to 99 employees	number.. 310	Work-in-process inventories, beginning of year .....	..\$1,000.. 595 036
Establishments with 100 employees or more	number.. 271	Materials and supplies inventories, beginning of year .....	..\$1,000.. 546 222
All employees	number.. 126 522	Total inventories, end of year .....	..\$1,000.. 1 305 999
Total compensation ² .....	..\$1,000.. 7 570 204	Finished goods inventories, end of year .....	..\$1,000.. 253 968
Annual payroll .....	..\$1,000.. 5 640 188	Work-in-process inventories, end of year .....	..\$1,000.. 553 537
Total fringe benefits .....	..\$1,000.. 1 930 016	Materials and supplies inventories, end of year .....	..\$1,000.. 498 494
Production workers, average for year	number.. 105 133	Gross book value of total assets at beginning of year .....	..\$1,000.. 13 216 254
Production workers on March 12	number.. 104 940	Total capital expenditures (new and used) .....	..\$1,000.. 1 516 366
Production workers on May 12	number.. 106 260	Capital expenditures for buildings and other structures (new and used) .....	..\$1,000.. 141 723
Production workers on August 12	number.. 103 601	Capital expenditures for machinery and equipment (new and used) .....	..\$1,000.. 1 374 643
Production workers on November 12	number.. 105 731	Total retirements ² .....	..\$1,000.. 654 253
Production-worker hours .....	..1,000.. 226 389	Gross book value of total assets at end of year .....	..\$1,000.. 14 078 367
Production-worker wages .....	..\$1,000.. 4 418 263	Total depreciation during year ² .....	..\$1,000.. 733 988
Total cost of materials .....	..\$1,000.. 12 674 199	Total rental payments ² .....	..\$1,000.. 179 507
Cost of materials, parts, containers, etc., consumed .....	..\$1,000.. 11 436 109	Buildings and other structures rental payments ² .....	..\$1,000.. 62 189
Cost of resales .....	..\$1,000.. 338 018	Machinery and equipment rental payments ² .....	..\$1,000.. 117 318
Cost of fuels .....	..\$1,000.. 70 007	Cost of purchased services for the repair of buildings and other structures ³ .....	..\$1,000.. 57 025
Cost of purchased electricity .....	..\$1,000.. 270 918	Response coverage ratio ⁴	percent.. 87
Cost of contract work .....	..\$1,000.. 559 147	Cost of purchased services for the repair of machinery and equipment ³ .....	..\$1,000.. 171 876
Quantity of electricity purchased for heat and power .....	..1,000 kWh.. 4 785 389	Response coverage ratio ⁴	percent.. 87
Quantity of electricity generated less sold for heat and power .....	..1,000 kWh.. —	Cost of purchased communications services ³ .....	..\$1,000.. 822 530
Total value of shipments .....	..\$1,000.. 23 624 728	Response coverage ratio ⁴	percent.. 87
Primary products value of shipments .....	..\$1,000.. 21 193 086	Cost of purchased legal services ³ .....	..\$1,000.. 13 014
Secondary products value of shipments .....	..\$1,000.. 1 535 164	Response coverage ratio ⁴	percent.. 87
Total miscellaneous receipts .....	..\$1,000.. 896 478	Cost of purchased accounting and bookkeeping services ³ .....	..\$1,000.. 13 178
Value of resales .....	..\$1,000.. 393 887	Response coverage ratio ⁴	percent.. 87
Contract receipts .....	..\$1,000.. 34 339	Cost of purchased advertising services ³ .....	..\$1,000.. 5 425
Other miscellaneous receipts .....	..\$1,000.. 468 252	Response coverage ratio ⁴	percent.. 87
Primary products specialization ratio	percent.. 93	Cost of purchased software and other data processing services ³ .....	..\$1,000.. 51 661
Value of primary products shipments made in all industries .....	..\$1,000.. 22 657 086	Response coverage ratio ⁴	percent.. 87
Value of primary products shipments made in this industry .....	..\$1,000.. 21 193 086	Cost of purchased refuse removal (including hazardous waste) services ³ .....	..\$1,000.. 32 594
Value of primary products shipments made in other industries .....	..\$1,000.. 1 464 000	Response coverage ratio ⁴	percent.. 87
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)				
336370, MOTOR VEHICLE METAL STAMPING												
All establishments	-	809	581	126 522	5 640 188	105 133	226 389	4 418 263	10 907 021	12 674 199	23 624 728	1 516 366
Establishments with 1 to 4 employees	9	78	-	154	4 222	130	211	3 210	8 039	9 735	17 864	11 437
Establishments with 5 to 9 employees	3	59	-	408	12 403	337	601	8 921	52 265	46 733	98 819	6 759
Establishments with 10 to 19 employees	3	91	-	1 272	40 029	1 007	1 942	27 196	132 680	98 623	232 073	8 797
Establishments with 20 to 49 employees	1	173	173	5 784	203 291	4 227	8 449	114 016	434 803	443 710	879 045	37 391
Establishments with 50 to 99 employees	1	137	137	9 829	325 654	7 581	15 652	207 411	771 548	841 504	1 613 494	70 511
Establishments with 100 to 249 employees	-	166	166	26 615	867 522	20 364	44 096	552 736	2 094 209	2 297 688	4 401 938	214 274
Establishments with 250 to 499 employees	-	64	64	22 202	692 476	18 158	37 463	502 860	1 603 734	1 963 277	3 565 200	226 309
Establishments with 500 to 999 employees	-	19	19	12 878	549 709	10 670	24 088	430 665	1 177 130	1 480 981	2 645 805	105 587
Establishments with 1,000 to 2,499 employees	-	14	14	23 412	1 372 047	20 859	45 609	1 183 196	2 158 361	2 520 320	4 704 015	542 178
Establishments with 2,500 employees or more	-	8	8	23 968	1 572 835	21 800	48 278	1 388 052	2 474 252	2 971 628	5 466 475	293 123
Administrative records ²	9	157	-	1 413	35 581	1 194	1 931	27 149	67 284	83 277	151 409	9 923

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)				
336370	Motor vehicle metal stamping	809	126 522	5 640 188	105 133	226 389	4 418 263	10 907 021	12 674 199	23 624 728	1 516 366

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)
336370	Motor vehicle metal stampings	N	X	X	22 657 086	N	X	X	15 866 513
3363700	Automotive job stampings (truck, bus, and passenger car)	N	X	X	22 657 086	N	X	X	15 866 513
33637001	Automotive job stampings (truck, bus, and passenger car)	N	X	X	22 512 891	N	X	X	N
3363700100	Automotive job stampings (truck, bus, and passenger car)	783	X	X	22 512 891	N	X	X	N
3363700Y	Automotive job stampings (truck, bus, and passenger car)	N	X	X	144 195	N	X	X	N
3363700YWW	Automotive stampings, nsk, for nonadministrative-record establishments	N	X	X	-	N	X	X	N
3363700YWY	Automotive stampings, nsk, for administrative-record establishments	N	X	X	144 195	N	X	X	34 424

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)
336370	MOTOR VEHICLE METAL STAMPING				
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	354 957	X	210 676
33200095	Other fabricated metal products (except forgings)	X	847 533	X	845 289
33151001	Iron and steel castings (rough and semifinished)	X	107 703	X	31 778
33152011	Nonferrous (aluminum, copper, etc.) castings (rough and semifinished)	X	4 658	X	10 001
33210001	Forgings	X	D	X	N
33120071	Steel bars and bar shapes (except castings, forgings, and fabricated metal products)	X	28 276	X	67 696
33120017	Steel sheet and strip, including tin plate	Q8 997.1	6 105 405	P6 831.4	4 313 752
33120079	Steel plate	X	15 459	X	8 367
33120025	Steel wire and wire products	X	34 353	X	32 438
33120013	Steel tinplate, tin free steel, terneplate, and blackplate	Q41.1	27 123	S	11 210
33120027	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	1 231 941	X	326 224
33142111	Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	74 861	X	25 505
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing	X	120 991	X	85 167
33131600	Aluminum and aluminum-base alloy extruded shapes, including extruded rod, bar, pipe, tube, etc.	X	34 365	X	4 049
33100049	Other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	24 677	X	13 446
33100083	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	20 208	X	16 493
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	37 341	X	31 791
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	23 976	X	16 322
32500051	All other chemicals and allied products	X	32 378	X	20 075
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	39 620	X	32 157
32221001	Paperboard containers, boxes, and corrugated paperboard	X	65 827	X	46 471
32200007	Other paper and paperboard products	X	1 972	X	9 420
33510000	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	X	211 519	X	287 628
00970099	All other materials and components, parts, containers, and supplies	X	1 278 096	X	904 858
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	704 486	X	380 265

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

336370 MOTOR VEHICLE METAL STAMPING

This U.S. industry comprises establishments primarily engaged in manufacturing motor vehicle stampings, such as fenders, tops, body parts, trim, and molding.

The data published with NAICS code 336370 include the following SIC industry:

3465 Automotive stampings

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
3361110 pt.....	37110 pt.....	37110 pt	336211W pt.....	37110 pt.....	37110 pt	3363121.....	37142 pt.....	37142 pt
3361110 pt.....	37111 pt.....	37111 pt	336211W pt.....	37130.....	37130	3363121101.....	3714201.....	3714201
3361110 pt.....	37114 pt.....	37114 pt	336211W pt.....	37140 pt.....	37140 pt	3363121224.....	3714218.....	3714218
3361110100 pt.....	3711100 pt.....	3711100 pt	336211WYWW pt.....	3711000 pt.....	3711000 pt	3363121351.....	3714231.....	3714231
3361110100 pt.....	3711111.....	3711111 pt	336211WYWW pt.....	3713000.....	3713000	3363121354.....	3714232.....	3714232
3361110100 pt.....	3711151.....	3711151	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121457.....	3714234.....	3714234
3361110100 pt.....	3711400 pt.....	3711400 pt	336211WYWW pt.....	3711002 pt.....	3711002 pt	3363121467.....	3714237.....	3714237
3361110100 pt.....	3711403.....	3711400 pt	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121504.....	3714206.....	3714206
3361110YWW.....	3711000 pt.....	3711000 pt	336211WYWW pt.....	3713002.....	3713002	3363121507.....	3714207.....	3714207
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3714002 pt.....	3714002 pt	3363121511.....	3714208.....	3714208
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3715000.....	3715000	3363121514.....	3714209.....	3714209
3361120 pt.....	37110 pt.....	37110 pt	3362121.....	37151.....	37151	3363121517.....	3714215.....	3714215
3361120 pt.....	37114 pt.....	37114 pt	3362121000.....	3715100.....	3715100	3363121521.....	3714216.....	3714216
3361120 pt.....	37116.....	37116	336212123.....	37152.....	37152	3363121527.....	3714217.....	3714217
3361120100 pt.....	3711405.....	3711400 pt	33621213100.....	3715200.....	3715200	3363121531.....	3714222.....	3714222
3361120100 pt.....	3711400 pt.....	3711400 pt	33621213100.....	3715200.....	3715200	3363121534.....	3714224.....	3714224
3361120100 pt.....	3711600.....	3711600	33621213100.....	3715200.....	3715200	3363121537.....	3714225.....	3714225
3361120YWW.....	3711000 pt.....	3711000 pt	33621213100.....	3715200.....	3715200	3363121541.....	3714226.....	3714226
3361120YWW.....	3711002 pt.....	3711002 pt	33621213100.....	3715200.....	3715200	3363121544.....	3714227.....	3714227
3361120YWW.....	3711002 pt.....	3711002 pt	33621213100.....	3715200.....	3715200	3363121571.....	3714241.....	3714241
3361201 pt.....	37114 pt.....	37114 pt	33621213100.....	3715200.....	3715200	3363121574.....	3714249.....	3714249
3361201 pt.....	37115 pt.....	37117	33621213100.....	3715200.....	3715200	3363121YWW.....	3714200 pt.....	3714200 pt
3361201 pt.....	37115 pt.....	37118	3362130.....	37160.....	37160	3363123.....	37144 pt.....	37144 pt
3361201100 pt.....	3711407.....	3711400 pt	3362130101.....	3716001.....	3716001	3363123101.....	3714A02.....	3714A02
3361201100 pt.....	3711400 pt.....	3711400 pt	3362130104.....	3716005.....	3716005	3363123104.....	3714A03.....	3714A03
3361201100 pt.....	3711400 pt.....	3711400 pt	3362130107.....	3716007.....	3716007	3363123107.....	3714A23.....	3714A23
3361201100 pt.....	3711500 pt.....	3711700	3362130111.....	3716021.....	3716021	3363123111.....	3714A25.....	3714A25
3361201100 pt.....	3711500 pt.....	3711800	3362130YWW.....	3716000.....	3716000	3363123121.....	3714A43.....	3714A41 pt
3361202 pt.....	37114 pt.....	37114 pt	3362130YWW.....	3716002.....	3716002	3363123YWW.....	3714A00 pt.....	3714A00 pt
3361202 pt.....	37119.....	37119	3362141.....	37921.....	37921	336312W.....	37140 pt.....	37140 pt
3361202100 pt.....	3711409.....	3711400 pt	3362141101.....	3792112.....	3792112	336312WYWW.....	3714000 pt.....	3714000 pt
3361202100 pt.....	3711400 pt.....	3711400 pt	3362141104.....	3792114.....	3792114	336312WYWW.....	3714002 pt.....	3714002 pt
3361202100 pt.....	3711900.....	3711900	3362141207.....	3792116.....	3792116	3363210.....	36470.....	36470
3361203.....	37113.....	37113	3362141311.....	3792118.....	3792118	3363210100.....	3647000 pt.....	3647000 pt
3361203101.....	3711304.....	3711304	3362141413.....	3792125.....	3792125	3363210YWW.....	3647000 pt.....	3647000 pt
3361203104.....	3711303.....	3711303	3362141516.....	3792128.....	3792128	3363210YWW.....	3647002.....	3647002
3361203YWW.....	3711300.....	3711300	3362141YWW.....	3792100.....	3792100	3363221.....	36941.....	36941
336120W.....	37110 pt.....	37110 pt	3362143.....	37996.....	37996	3363221101.....	3694101.....	3694101
336120WYWW.....	3711000 pt.....	3711000 pt	3362143101.....	3799611.....	3799601 pt	3363221104.....	3694102.....	3694102
336120WYWW.....	3711002 pt.....	3711002 pt	3362143105.....	3799613.....	3799602 pt	3363221201.....	3694103.....	3694103
3362111 pt.....	37111 pt.....	37111 pt	3362143108.....	3799615.....	3799604 pt	3363221204.....	3694104.....	3694104
3362111 pt.....	37131.....	37131	3362143111.....	3799617.....	3799607 pt	3363221YWW.....	3694100.....	3694100
3362111 pt.....	37149 pt.....	37149 pt	3362143114.....	3799619.....	3799609 pt	3363223.....	36942.....	36942
3362111101.....	3713101.....	3713101	3362143117 pt.....	3799651 pt.....	3799601 pt	3363223101.....	3694201.....	3694201
3362111204.....	3713102.....	3713102	3362143117 pt.....	3799651 pt.....	3799602 pt	3363223104.....	3694202.....	3694202
3362111307.....	3713112.....	3713112	3362143117 pt.....	3799651 pt.....	3799604 pt	3363223201.....	3694203.....	3694203
3362111411.....	3713115.....	3713115	3362143117 pt.....	3799651 pt.....	3799607 pt	3363223204.....	3694204.....	3694204
3362111413.....	3713116.....	3713116	3362143YWW.....	3799600.....	3799609 pt	3363223YWW.....	3694200.....	3694200
3362111416.....	3713117.....	3713117	3362145.....	37922.....	37922	3363225.....	36943.....	36943
3362111519.....	3713121.....	3713121	3362145101.....	3792242.....	3792242	3363225101.....	3694301.....	3694301
3362111522.....	3713131.....	3713131	3362145204.....	3792244.....	3792244	3363225104.....	3694302.....	3694302
3362111525.....	3713132.....	3713132	3362145207.....	3792247.....	3792247	3363225201.....	3694303.....	3694303
3362111528.....	3713135.....	3713135	3362145311 pt.....	3792268 pt.....	3792261	3363225YWW.....	3694300.....	3694300
3362111531.....	3713139.....	3713139	3362145311 pt.....	3792268 pt.....	3792263	3363227.....	36944.....	36944
3362111534.....	3713143.....	3713143	3362145311 pt.....	3792268 pt.....	3792269	3363227100.....	3694400.....	3694400
3362111537.....	3713153.....	3713153	3362145YWW.....	3792200.....	3792200	3363229.....	36947.....	36947
3362111541.....	3713155.....	3713155	336214W pt.....	37920.....	37920	3363229101.....	3694701.....	3694701
3362111543.....	3713161.....	3713161	336214W pt.....	37990.....	37990	3363229201.....	3694711.....	3694711
3362111546.....	3713162.....	3713162	336214WYWW pt.....	3792000.....	3792000	3363229301.....	3694702.....	3694702
3362111549.....	3713163.....	3713163	336214WYWW pt.....	3792000 pt.....	3792000 pt	3363229304.....	3694704.....	3694704
3362111552.....	3711171.....	3711171	336214WYWW pt.....	3792002.....	3792002	3363229307.....	3694705.....	3694705
3362111555.....	3711181.....	3711181 pt	336214WYWW pt.....	3799002 pt.....	3799002 pt	3363229309.....	3694719.....	3694719
3362111558.....	3714925.....	3714925	3363111.....	35921.....	35921	3363229YWW.....	3694700.....	3694700
3362111571 pt.....	3713171.....	3713171	3363111101.....	3592101.....	3592101	336322A.....	36949.....	36949
3362111YWW pt.....	3711100 pt.....	3711100 pt	3363111103.....	3592102.....	3592102	336322A101.....	3694901.....	3694901
3362111YWW pt.....	3713100.....	3713100	3363111105.....	3592103.....	3592103	336322A204.....	3694907.....	3694907
3362111YWW pt.....	3714900 pt.....	3714900 pt	3363111207.....	3592105.....	3592105	336322A307.....	3694911.....	3694911
3362113 pt.....	37114 pt.....	37114 pt	3363111YWW.....	3592100.....	3592100	336322A409.....	3694912.....	3694912
3362113 pt.....	37132.....	37132	3363113.....	35922.....	35922	336322A512.....	3694913.....	3694913
3362113101.....	3713201.....	3713201	3363113101.....	3592201.....	3592201	336322A615.....	3694919.....	3694919
3362113219.....	3713225.....	3713225	3363113103.....	3592202.....	3592202	336322AYWW.....	3694900.....	3694900
3362113304.....	3713211.....	3713211	3363113205.....	3592203.....	3592203	336322C pt.....	36799 pt.....	36799 pt
3362113307.....	3713213.....	3713213	3363113207.....	3592204.....	3592204	336322C pt.....	37149 pt.....	37149 pt
3362113311.....	3713215.....	3713215	3363113209.....	3592205.....	3592205	336322C pt.....	37144 pt.....	37144 pt
3362113313.....	3713217.....	3713217	3363113211.....	3592206.....	3592206	336322C102.....	3714913.....	3714913
3362113316.....	3713218.....	3713218	3363113313.....	3592209.....	3592209	336322C104.....	3714914.....	3714914
3362113322.....	3713226.....	3713226	3363113YWW.....	3592200.....	3592200	336322C107.....	3714915.....	3714915
3362113325.....	3713227.....	3713227	3363115.....	35923.....	35923	336322C111 pt.....	3714921.....	3714917
3362113328.....	3713241.....	3713239 pt	3363115101.....	3592301.....	3592301	336322C111 pt.....	3714921 pt.....	3714917
3362113331 pt.....	3711411.....	3711400 pt	3363115103.....	3592302.....	3592302	336322C114.....	3714942.....	3714904 pt
3362113331 pt.....	3713243.....	3713239 pt	3363115YWW.....	3592300.....	3592300	336322C117.....	3714944.....	3714904 pt
3362113YWW pt.....	3711400 pt.....	3711400 pt	336311W.....	35920.....	35920	336322C119.....	3679926.....	3679920 pt
3362113YWW pt.....	3713200.....	3713200	336311WYWW.....	3592000.....	3592000	336322C121.....	3714945.....	3714941 pt
			336311WYWW.....	3592002.....	3592002	336322C122.....	3714946.....	3714941 pt
						336322C124.....	3714A05.....	3714A41 pt
						336322C127.....	3714A40.....	3714A41 pt

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127307	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	3364127YVW	3724400	3724400
3363301YVW pt	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412W	37240	37240
3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	336391B000	3585B00	3585400 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131111	3728261	3728261
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3366113	37312	37312	3366127113	3732712	3732712	336999WYVW	3799000 pt	3799000 pt
3366113100	3731200	3731200	3366127116	3732717	3732717	336999WYVWY	3799002 pt	3799002 pt

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1997 Economic Census

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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336391	Motor vehicle air-conditioning mfg	60	62	22 123	1 067 120	17 927	39 635	828 434	2 720 016	2 895 636	5 664 972	191 906
358520	Refrigeration & heating equipment (pt)	N	62	22 123	1 067 120	17 927	39 635	828 434	2 720 016	2 895 636	5 664 972	191 906

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)				
336391, MOTOR VEHICLE AIR-CONDITIONING MFG												
United States	-	62	38	22 123	1 067 120	17 927	39 635	828 434	2 720 016	2 895 636	5 664 972	191 906
Ohio	-	6	6	5 912	297 989	5 328	12 036	256 903	633 394	750 788	1 376 299	21 937
Pennsylvania	-	3	2	197	7 123	98	180	2 292	20 076	28 876	49 258	227
Texas	-	18	9	2 290	61 049	1 482	3 483	31 123	212 527	402 327	641 107	7 676

* 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
336391, MOTOR VEHICLE AIR-CONDITIONING MFG		336391, MOTOR VEHICLE AIR-CONDITIONING MFG—Con.	
Companies ¹	number.. 60	Value added	\$1,000.. 2 720 016
All establishments	number.. 62	Total inventories, beginning of year	\$1,000.. 402 122
Establishments with 1 to 19 employees	number.. 24	Finished goods inventories, beginning of year	\$1,000.. 122 281
Establishments with 20 to 99 employees	number.. 16	Work-in-process inventories, beginning of year	\$1,000.. 85 328
Establishments with 100 employees or more	number.. 22	Materials and supplies inventories, beginning of year	\$1,000.. 194 513
All employees	number.. 22 123	Total inventories, end of year	\$1,000.. 363 225
Total compensation ²	\$1,000.. 1 497 128	Finished goods inventories, end of year	\$1,000.. 86 566
Annual payroll	\$1,000.. 1 067 120	Work-in-process inventories, end of year	\$1,000.. 71 723
Total fringe benefits	\$1,000.. 430 008	Materials and supplies inventories, end of year	\$1,000.. 204 936
Production workers, average for year	number.. 17 927	Gross book value of total assets at beginning of year	\$1,000.. 2 180 586
Production workers on March 12	number.. 17 988	Total capital expenditures (new and used)	\$1,000.. 191 906
Production workers on May 12	number.. 17 794	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 15 357
Production workers on August 12	number.. 17 585	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 176 549
Production workers on November 12	number.. 18 341	Total retirements ²	\$1,000.. 34 731
Production-worker hours	1,000.. 39 635	Gross book value of total assets at end of year	\$1,000.. 2 337 761
Production-worker wages	\$1,000.. 828 434	Total depreciation during year ²	\$1,000.. 130 773
Total cost of materials	\$1,000.. 2 895 636	Total rental payments ²	\$1,000.. 28 670
Cost of materials, parts, containers, etc., consumed	\$1,000.. 2 647 659	Buildings and other structures rental payments ²	\$1,000.. 4 396
Cost of resales	\$1,000.. 175 377	Machinery and equipment rental payments ²	\$1,000.. 24 274
Cost of fuels	\$1,000.. 12 862	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 38 175
Cost of purchased electricity	\$1,000.. 44 635	Response coverage ratio ⁴	percent.. 100
Cost of contract work	\$1,000.. 15 103	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 92 967
Quantity of electricity purchased for heat and power	1,000 kWh.. 1 054 314	Response coverage ratio ⁴	percent.. 100
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 252 723
Total value of shipments	\$1,000.. 5 664 972	Response coverage ratio ⁴	percent.. 100
Primary products value of shipments	\$1,000.. 4 065 868	Cost of purchased legal services ³	\$1,000.. 1 453
Secondary products value of shipments	\$1,000.. 1 331 875	Response coverage ratio ⁴	percent.. 100
Total miscellaneous receipts	\$1,000.. 267 229	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 852
Value of resales	\$1,000.. 208 356	Response coverage ratio ⁴	percent.. 100
Contract receipts	\$1,000.. D	Cost of purchased advertising services ³	\$1,000.. 1 519
Other miscellaneous receipts	\$1,000.. D	Response coverage ratio ⁴	percent.. 100
Primary products specialization ratio	percent.. 75	Cost of purchased software and other data processing services ³	\$1,000.. 30 825
Value of primary products shipments made in all industries	\$1,000.. 4 269 212	Response coverage ratio ⁴	percent.. 100
Value of primary products shipments made in this industry	\$1,000.. 4 065 868	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 6 109
Value of primary products shipments made in other industries	\$1,000.. 203 344	Response coverage ratio ⁴	percent.. 100
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)				
336391, MOTOR VEHICLE AIR-CONDITIONING MFG												
All establishments	-	62	38	22 123	1 067 120	17 927	39 635	828 434	2 720 016	2 895 636	5 664 972	191 906
Establishments with 1 to 4 employees	9	12	-	29	670	23	32	441	1 417	1 851	3 318	77
Establishments with 5 to 9 employees	9	5	-	33	647	25	32	426	1 366	1 788	3 203	84
Establishments with 10 to 19 employees	9	7	-	93	2 237	71	113	1 474	4 667	6 102	10 936	285
Establishments with 20 to 49 employees	1	12	12	369	8 561	274	490	4 712	24 690	22 829	46 547	972
Establishments with 50 to 99 employees	-	4	4	309	9 723	179	341	3 931	28 426	29 650	58 030	D
Establishments with 100 to 249 employees	-	7	7	1 216	34 322	958	1 894	23 472	79 409	162 780	257 890	4 469
Establishments with 250 to 499 employees	-	7	7	2 570	98 601	2 003	3 854	66 508	210 835	352 205	572 918	19 795
Establishments with 500 to 999 employees	-	4	4	2 848	81 134	1 922	4 600	46 212	309 625	576 890	912 261	20 117
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	-	3	3	D	D	D	D	D	D	D	D	D
Administrative records ²	9	23	-	223	4 483	170	225	2 954	9 472	12 383	22 193	577

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)				
336391	Motor vehicle air-conditioning mfg	62	22 123	1 067 120	17 927	39 635	828 434	2 720 016	2 895 636	5 664 972	191 906
3363917	Motor vehicle mechanical air-conditioning systems	27	12 502	613 469	10 181	22 173	468 808	1 441 713	1 483 061	2 945 527	79 768
336391B	Automotive air-conditioning compressors (open-type, with or without motor)	11	9 396	449 128	7 574	17 235	356 646	1 268 747	1 400 082	2 697 054	111 556

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)
336391	Motor vehicle air-conditioning units and systems	N	X	X	4 269 212	N	X	X	N
3363917	Motor vehicle mechanical air-conditioning systems	N	X	X	2 309 749	N	X	X	N
33639170	Motor vehicle mechanical air-conditioning systems	N	X	X	2 309 749	N	X	X	N
3363917010	Motor vehicle mechanical air-conditioning systems for passenger automobiles	22	X	X	1 612 219	N	X	X	N
3363917020	Motor vehicle mechanical air-conditioning systems for buses	9	X	X	143 004	N	X	X	N
3363917030	Other motor vehicle mechanical air-conditioning systems	13	X	X	554 526	N	X	X	N
3363917Y	Motor vehicle mechanical air-conditioning systems, nsk	N	X	X	-	N	X	X	N
3363917YWW	Motor vehicle mechanical air-conditioning systems, nsk	N	X	X	-	N	X	X	N
336391B	Automotive air-conditioning compressors (open-type, with or without motor)	N	X	X	1 937 805	N	X	X	N
336391B0	Automotive air-conditioning compressors (open-type, with or without motor)	N	X	X	1 937 805	N	X	X	N
336391B000	Automotive air-conditioning compressors (open-type, with or without motor)	13	X	X	1 937 805	N	X	X	N
336391W	Refrigeration and heating equipment, nsk, total	N	X	X	21 658	N	X	X	N
336391WY	Refrigeration and heating equipment, nsk, total	N	X	X	21 658	N	X	X	N
336391WYWW	Refrigeration and heating equipment, nsk, for nonadministrative-record establishments	N	X	X	160	N	X	X	N
336391WYWY	Refrigeration and heating equipment, nsk, for administrative-record establishments	N	X	X	21 498	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
3363917	MOTOR VEHICLE MECHANICAL AIR-CONDITIONING SYSTEMS		
	United States	2 309 749	N
	Florida	24 519	N
	Illinois	141 502	N
	Texas	61 200	N
336391B	AUTOMOTIVE AIR-CONDITIONING COMPRESSORS (OPEN-TYPE, WITH OR WITHOUT MOTOR)		
	United States	1 937 805	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)
336391	MOTOR VEHICLE AIR-CONDITIONING MFG				
001900A6	Refrigeration compressors, compressor units, condensing units, and other heat transfer equipment	X	465 873	X	N
33531209	Fractional horsepower electric timing motors, synchronous and subsynchronous (less than 1 hp)	X	D	X	N
33531223	Fractional horsepower electric motors (less than 1 hp), except timing motors	X	D	X	N
33531221	Integral horsepower electric motors and generators (1 hp or more)	X	10 246	X	N
33341200	Fans and blowers	X	8 182	X	N
001900B1	Electrical transmission, distribution, and control equipment	X	37 078	X	N
33593101	Current-carrying wiring devices	X	58 811	X	N
33451200	Automatic temperature controls (thermostats, regulators, etc.)	X	170 392	X	N
33299101	Ball and roller bearings (mounted or unmounted)	X	47 646	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	88 770	X	N
332000AC	Metal stampings	X	92 728	X	N
33251005	Metal hardware, including hinges, handles, locks, casters, etc.	X	D	X	N
33291901	Metal pipe, valves, and pipe fittings (except forgings)	X	9 738	X	N
33200053	All other fabricated metal products (except forgings)	X	D	X	N
33210001	Forgings	X	D	X	N
33151001	Iron and steel castings (rough and semifinished)	X	D	X	N
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	182 477	X	N
33152003	Other nonferrous castings (rough and semifinished)	X	D	X	N
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	13 767	X	N
33120017	Steel sheet and strip, including tin plate	X	22 964	X	N
33120025	Steel wire and wire products	X	D	X	N
33120035	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	8 837	X	N
33142135	Copper and copper-base alloy pipe and tube (except castings, forgings, and fabricated metal products)	X	5 155	X	N
33142143	All other copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	21 534	X	N
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing	X	D	X	N
33100055	All other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	N
33100083	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	N
32220017	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	X	10 182	X	N
32192003	Wooden containers, complete (including combination wood and paperboard)	X	723	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	6 039	X	N
32510027	Refrigerant gases and other synthetic organic chemicals	X	D	X	N
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	D	X	N
32610007	Fabricated plastics products (except gaskets, hoses, and belting)	X	65 925	X	N
32622001	Rubber and plastics hose and belting	X	53 117	X	N
33999101	Gaskets (all types) and asbestos packing	X	D	X	N
32799301	Mineral wool insulation (fibrous glass, rock wool, etc.)	X	-	X	N
00970099	All other materials and components, parts, containers, and supplies	X	441 859	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	22 730	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

336391 MOTOR VEHICLE AIR-CONDITIONING MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing air-conditioning systems and compressors for motor vehicles, such as automobiles, trucks, buses, aircraft, farm machinery, construction machinery, and other related vehicles.

The data published with NAICS code 336391 include the following SIC industry:

3585 Refrigeration and heating equipment (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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3713002	3713002	3363121504	3714206	3714206
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121507	3714207	3714207
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3715002	3715002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3715002	3715002	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	336212123	37152	37152	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	336212123100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	336212W	37150	37150	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	336212WYWW	3715000	3715000	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	336212WYWW	3715002	3715002	3363121571	3714241	3714241
3361201 pt.	37114 pt.	37114 pt.	336212130	37160	37160	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37117	3362130100	3716001	3716001	3363121YWW	3714200 pt.	3714200 pt.
3361201 pt.	37115 pt.	37118	3362130104	3716005	3716005	3363123	37144 pt.	37144 pt.
3361201100 pt.	3711407	3711400 pt.	3362130107	3716007	3716007	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130111	3716021	3716021	3363123104	3714A03	3714A03
3361201100 pt.	3711500 pt.	3711700	3362130YWW	3716000	3716000	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711800	3362130YWW	3716002	3716002	3363123111	3714A25	3714A25
3361202 pt.	37114 pt.	37114 pt.	3362141	37921	37921	3363123121	3714A43	3714A41 pt.
3361202 pt.	37119	37119	3362141101	3792112	3792112	3363123YWW	3714A00 pt.	3714A00 pt.
3361202100 pt.	3711409	3711400 pt.	3362141104	3792114	3792114	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141207	3792116	3792116	336312WYWW	3714000 pt.	3714000 pt.
3361202100 pt.	3711900	3711900	3362141311	3792118	3792118	336312WYWW	3714002 pt.	3714002 pt.
3361203	37113	37113	3362141413	3792125	3792125	3363210	36470	36470
3361203101	3711304	3711304	3362141516	3792128	3792128	3363210100	3647000 pt.	3647000 pt.
3361203104	3711303	3711303	3362141YWW	3792100	3792100	3363210YWW	3647000 pt.	3647000 pt.
3361203YWW	3711300	3711300	3362143	37996	37996	3363210YWW	3647002	3647002
336120W	37110 pt.	37110 pt.	3362143101	3799611	3799601 pt.	3363221	36941	36941
336120WYWW	3711000 pt.	3711000 pt.	3362143105	3799613	3799602 pt.	3363221101	3694101	3694101
336120WYWW	3711002 pt.	3711002 pt.	3362143108	3799615	3799604 pt.	3363221104	3694102	3694102
3362111 pt.	37111 pt.	37111 pt.	3362143111	3799617	3799607 pt.	3363221201	3694103	3694103
3362111 pt.	37131	37131	3362143114	3799619	3799609 pt.	3363221204	3694104	3694104
3362111 pt.	37149 pt.	37149 pt.	3362143117	3799651 pt.	3799601 pt.	3363221YWW	3694100	3694100
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363223	36942	36942
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799604 pt.	3363223101	3694201	3694201
3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223104	3694202	3694202
3362111411	3713115	3713115	3362143117 pt.	3799651 pt.	3799609 pt.	3363223201	3694203	3694203
3362111413	3713116	3713116	3362143117 pt.	3799651 pt.	3799609 pt.	3363223204	3694204	3694204
3362111416	3713117	3713117	3362143YWW	3799600	3799600	3363223YWW	3694200	3694200
3362111519	3713121	3713121	3362145	37922	37922	3363225	36943	36943
3362111522	3713131	3713131	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111525	3713132	3713132	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111528	3713135	3713135	3362145207	3792247	3792247	3363225201	3694303	3694303
3362111531	3713139	3713139	3362145311 pt.	3792268 pt.	3792261	3363225YWW	3694300	3694300
3362111534	3713143	3713143	3362145311 pt.	3792268 pt.	3792263	3363227	36944	36944
3362111537	3713153	3713153	3362145311 pt.	3792268 pt.	3792269	3363227100	3694400	3694400
3362111541	3713155	3713155	3362145YWW	3792200	3792200	3363229	36947	36947
3362111543	3713161	3713161	336214W pt.	37920	37920	3363229101	3694701	3694701
3362111546	3713162	3713162	336214WYWW pt.	3792000	3792000	3363229201	3694711	3694711
3362111549	3713163	3713163	336214WYWW pt.	3792002	3792002	3363229301	3694702	3694702
3362111552	3711171	3711171	336214WYWW pt.	3799002 pt.	3799002 pt.	3363229304	3694704	3694704
3362111555	3711181	3711181 pt.	3363111	35921	35921	3363229307	3694705	3694705
3362111558	3714925	3714925	3363111101	3592101	3592101	3363229309	3694719	3694719
3362111571 pt.	3713171	3713171	3363111103	3592102	3592102	3363229YWW	3694700	3694700
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111105	3592103	3592103	336322A	36949	36949
3362111YWW pt.	3713100	3713100	3363111207	3592105	3592105	336322A101	3694901	3694901
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111YWW	3592100	3592100	336322A204	3694907	3694907
3362113 pt.	37114 pt.	37114 pt.	3363113	35922	35922	336322A307	3694911	3694911
3362113 pt.	37132	37132	3363113101	3592201	3592201	336322A409	3694912	3694912
3362113101	3713201	3713201	3363113103	3592202	3592202	336322A512	3694913	3694913
3362113219	3713225	3713225	3363113205	3592203	3592203	336322A615	3694919	3694919
3362113304	3713211	3713211	3363113207	3592204	3592204	336322AYWW	3694900	3694900
3362113307	3713213	3713213	3363113209	3592205	3592205	336322C pt.	36799 pt.	36799 pt.
3362113311	3713215	3713215	3363113211	3592206	3592206	336322C pt.	37149 pt.	37149 pt.
3362113313	3713217	3713217	3363113313	3592209	3592209	336322C pt.	3714A pt.	3714A pt.
3362113316	3713218	3713218	3363113YWW	3592200	3592200	336322C102	3714913	3714913
3362113322	3713226	3713226	3363115	35923	35923	336322C104	3714914	3714914
3362113325	3713227	3713227	3363115101	3592301	3592301	336322C107	3714915	3714915
3362113328	3713241	3713239 pt.	3363115103	3592302	3592302	336322C111 pt.	3714921 pt.	3714917
3362113331 pt.	3711411	3711400 pt.	3363115YWW	3592300	3592300	336322C111 pt.	3714921 pt.	3714917
3362113331 pt.	3713243	3713239 pt.	336311W	35920	35920	336322C114	3714942	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	336311WYWW	3592000	3592000	336322C117	3714944	3714904 pt.
3362113YWW pt.	3713200	3713200	336311WYWW	3592002	3592002	336322C119	3679926	3679920 pt.
						336322C121	3714945	3714941 pt.
						336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
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336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
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336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
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3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	336412WYVW	3724002	3724002
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3363501313	3714623	3714623	3363997YVW pt	3714900 pt	3714900 pt	3364155	37647	37647
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3363503111	3714A31	3714A31	3364115YVW	3721700	3721700			
3363503114	3714A32	3714A41 pt						
3363503117	3714A30	3714A41 pt						

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
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3365105405	3531X21	3531P21	3366121243	3732224	3732229 pt	3369920111	3795001	3795001
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			3366127113	3732712	3732712	336999WYVWY	3799002 pt	3799002 pt
			3366127116	3732717	3732717			

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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336399	All other motor vehicle parts mfg	1 272	1 507	174 508	5 485 023	139 517	274 330	3 859 729	15 116 497	18 958 354	34 067 609	1 625 442
351920	Internal combustion engines, n.e.c. (pt)	N	6	530	14 536	381	795	8 450	36 482	34 618	70 444	1 909
371470	Motor vehicle parts & accessories (pt)	N	1 500	173 229	5 442 190	138 449	272 070	3 827 526	14 990 442	18 656 740	33 640 110	1 600 988
999482	All other manufacturing industries	N	1	749	28 297	687	1 465	23 753	89 573	266 996	357 055	22 545

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)				
336399, ALL OTHER MOTOR VEHICLE PARTS MFG												
United States	1	1 507	787	174 508	5 485 023	139 517	274 330	3 859 729	15 116 497	18 958 354	34 067 609	1 625 442
Arizona	-	30	8	4 051	136 430	2 551	4 935	58 261	438 676	503 490	945 222	44 560
Arkansas	1	18	11	3 292	78 005	2 655	5 568	58 308	235 338	284 685	522 851	13 916
Iowa	-	22	17	3 429	100 523	2 982	6 085	79 518	316 102	297 204	613 047	42 174
Kansas	-	11	4	1 261	34 864	1 148	2 498	28 563	112 123	126 833	239 469	6 031
Kentucky	3	30	21	6 019	184 863	4 572	9 653	121 346	519 094	717 362	1 210 972	65 339
Minnesota	1	20	9	911	21 439	725	1 570	13 640	95 946	54 595	150 075	6 229
Mississippi	-	12	9	2 696	51 183	2 259	3 886	37 169	162 078	138 449	302 146	15 152
Missouri	1	34	24	6 489	161 985	5 255	10 991	116 477	458 689	596 575	1 048 275	61 262
New Jersey	4	28	7	405	13 125	270	469	6 999	48 692	47 360	94 215	3 181
Ohio	-	122	83	14 636	434 497	12 176	24 612	316 343	1 462 040	1 899 475	3 372 004	204 395
Oklahoma	1	18	8	1 051	33 001	705	1 386	17 715	84 175	110 350	193 845	6 794
Oregon	-	21	6	1 044	41 438	791	1 258	29 493	112 009	113 097	218 614	5 170
Pennsylvania	-	43	21	5 206	232 937	4 360	8 245	179 159	501 331	610 771	1 109 463	26 854
Texas	1	69	22	2 657	76 105	1 850	3 633	40 516	255 254	262 382	516 906	16 542
Virginia	6	14	8	1 430	43 566	1 125	2 187	30 257	124 229	89 794	214 509	11 486
Wisconsin	-	38	28	5 805	188 486	4 882	9 598	153 722	539 869	940 535	1 505 481	87 145

* 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
336399, ALL OTHER MOTOR VEHICLE PARTS MFG		336399, ALL OTHER MOTOR VEHICLE PARTS MFG—Con.	
Companies ¹	number.. 1 272	Value added	\$1,000.. 15 116 497
All establishments	number.. 1 507	Total inventories, beginning of year	\$1,000.. 2 644 846
Establishments with 1 to 19 employees	number.. 720	Finished goods inventories, beginning of year	\$1,000.. 791 116
Establishments with 20 to 99 employees	number.. 419	Work-in-process inventories, beginning of year	\$1,000.. 835 595
Establishments with 100 employees or more	number.. 368	Materials and supplies inventories, beginning of year	\$1,000.. 1 018 135
All employees	number.. 174 508	Total inventories, end of year	\$1,000.. 2 710 848
Total compensation ²	\$1,000.. 7 147 304	Finished goods inventories, end of year	\$1,000.. 776 891
Annual payroll	\$1,000.. 5 485 023	Work-in-process inventories, end of year	\$1,000.. 857 062
Total fringe benefits	\$1,000.. 1 662 281	Materials and supplies inventories, end of year	\$1,000.. 1 076 895
Production workers, average for year	number.. 139 517	Gross book value of total assets at beginning of year	\$1,000.. 13 070 253
Production workers on March 12	number.. 140 119	Total capital expenditures (new and used)	\$1,000.. 1 625 442
Production workers on May 12	number.. 138 267	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 238 932
Production workers on August 12	number.. 138 863	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 1 386 510
Production workers on November 12	number.. 140 819	Total retirements ²	\$1,000.. 690 083
Production-worker hours	1,000.. 274 330	Gross book value of total assets at end of year	\$1,000.. 14 005 612
Production-worker wages	\$1,000.. 3 859 729	Total depreciation during year ²	\$1,000.. 991 354
Total cost of materials	\$1,000.. 18 958 354	Total rental payments ²	\$1,000.. 236 965
Cost of materials, parts, containers, etc., consumed	\$1,000.. 17 383 116	Buildings and other structures rental payments ²	\$1,000.. 89 109
Cost of resales	\$1,000.. 791 095	Machinery and equipment rental payments ²	\$1,000.. 147 856
Cost of fuels	\$1,000.. 109 914	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 42 689
Cost of purchased electricity	\$1,000.. 281 702	Response coverage ratio ⁴	percent.. 78
Cost of contract work	\$1,000.. 392 527	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 202 892
Quantity of electricity purchased for heat and power	1,000 kWh.. 5 095 596	Response coverage ratio ⁴	percent.. 78
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 46 624
Total value of shipments	\$1,000.. 34 067 609	Response coverage ratio ⁴	percent.. 78
Primary products value of shipments	\$1,000.. 30 006 319	Cost of purchased legal services ³	\$1,000.. 23 458
Secondary products value of shipments	\$1,000.. 2 902 336	Response coverage ratio ⁴	percent.. 78
Total miscellaneous receipts	\$1,000.. 1 158 954	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 77 331
Value of resales	\$1,000.. 989 767	Response coverage ratio ⁴	percent.. 78
Contract receipts	\$1,000.. 58 740	Cost of purchased advertising services ³	\$1,000.. 47 943
Other miscellaneous receipts	\$1,000.. 110 447	Response coverage ratio ⁴	percent.. 78
Primary products specialization ratio	percent.. 91	Cost of purchased software and other data processing services ³	\$1,000.. 29 117
Value of primary products shipments made in all industries	\$1,000.. 34 086 475	Response coverage ratio ⁴	percent.. 78
Value of primary products shipments made in this industry	\$1,000.. 30 006 319	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 35 978
Value of primary products shipments made in other industries	\$1,000.. 4 080 156	Response coverage ratio ⁴	percent.. 78
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	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)
336399, ALL OTHER MOTOR VEHICLE PARTS MFG												
All establishments	1	1 507	787	174 508	5 485 023	139 517	274 330	3 859 729	15 116 497	18 958 354	34 067 609	1 625 442
Establishments with 1 to 4 employees	8	345	—	690	16 637	561	722	9 759	38 949	54 653	93 715	4 974
Establishments with 5 to 9 employees	8	180	—	1 204	29 751	955	1 211	17 551	74 179	89 177	163 109	8 321
Establishments with 10 to 19 employees	5	195	—	2 730	72 362	2 124	3 057	42 471	193 653	231 279	425 887	26 675
Establishments with 20 to 49 employees	4	259	259	8 153	231 671	6 182	10 535	133 485	584 178	603 181	1 184 973	56 464
Establishments with 50 to 99 employees	3	160	160	11 148	303 339	8 565	15 711	186 563	754 719	821 649	1 568 316	74 239
Establishments with 100 to 249 employees	2	168	168	26 718	748 489	21 179	41 661	501 336	1 991 633	2 604 238	4 587 245	231 804
Establishments with 250 to 499 employees	—	124	124	43 302	1 235 795	34 430	68 183	834 263	3 448 078	4 095 179	7 546 823	427 192
Establishments with 500 to 999 employees	—	57	57	39 938	1 116 946	32 530	68 594	825 341	3 436 225	4 461 794	7 886 534	334 695
Establishments with 1,000 to 2,499 employees	—	15	15	23 415	985 149	18 855	39 082	751 150	3 227 768	4 151 891	7 415 208	357 298
Establishments with 2,500 employees or more	—	4	4	17 210	744 884	14 136	25 574	557 810	1 367 115	1 845 313	3 195 799	103 780
Administrative records ²	9	412	—	2 590	56 299	2 096	2 485	34 195	128 483	181 075	310 729	16 912

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)				
336399	All other motor vehicle parts mfg	1 507	174 508	5 485 023	139 517	274 330	3 859 729	15 116 497	18 958 354	34 067 609	1 625 442
3363991	Filters for internal combustion engines and motor vehicles, new ...	45	14 770	427 744	11 915	24 996	310 962	1 424 209	1 176 084	2 614 171	83 996
3363993	Exhaust system parts, new	78	21 433	672 898	18 333	37 289	513 593	2 327 998	3 478 323	5 843 362	276 577
3363995	Motor vehicle wheels, new	70	18 149	544 683	14 737	31 160	391 467	1 634 892	1 714 707	3 339 805	176 628
3363997	Other motor vehicle parts and accessories, new and rebuilt	458	103 267	3 419 751	81 030	158 447	2 376 375	8 776 747	11 571 461	20 301 870	976 839

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)
336399	Motor vehicle parts, nec	N	X	X	34 086 475	N	X	X	N
3363991	Filters for internal combustion engines and motor vehicles, new	N	X	X	2 418 724	N	X	X	2 155 545
33639911	Filters for internal combustion engines and motor vehicles, new	N	X	X	2 396 361	N	X	X	N
3363991101	Oil filters for internal combustion engines and motor vehicles, new, light-duty (car and light truck)	11	X	X	602 347	13	X	X	664 776
3363991104	Oil filters for internal combustion engines and motor vehicles, new, heavy-duty	10	X	X	355 094	9	X	X	288 977
3363991107	Fuel filters for internal combustion engines and motor vehicles, new, light-duty (car and light truck)	17	X	X	296 207	17	X	X	205 930
3363991111	Fuel filters for internal combustion engines and motor vehicles, new, heavy-duty	6	X	X	223 619	9	X	X	157 322
3363991113	Air filters for internal combustion engines and motor vehicles, new, light-duty (car and light truck)	19	X	X	389 174	18	X	X	267 540
3363991116	Air filters for internal combustion engines and motor vehicles, new, heavy-duty	9	X	X	328 529	12	X	X	330 139
3363991119	Other filters for internal combustion engines and motor vehicles, new, including coolant and hydraulic	12	X	X	201 391	14	X	X	236 234
3363991Y	Filters for internal combustion engines and motor vehicles, new, nsk	N	X	X	22 363	N	X	X	N
3363991YVV	Filters for internal combustion engines and motor vehicles, new, nsk	N	X	X	22 363	N	X	X	4 627
3363993	Exhaust system parts, new	N	X	X	4 884 533	N	X	X	3 187 580
33639931	Exhaust system parts, new	N	X	X	4 851 632	N	X	X	N
3363993101	Exhaust system mufflers, including standard, sports or glass pack, and resonators, new, for motor vehicles	30	X	X	1 092 417	27	X	X	924 079
3363993104	Exhaust system pipes, including exhaust, intermediate, connecting, crossover, tail, and side pipes	38	X	X	1 309 998	32	X	X	627 578
3363993107	Exhaust system catalytic converters, new, for motor vehicles	18	X	X	2 449 217	15	X	X	1 622 609
3363993Y	Exhaust system parts, new, nsk	N	X	X	32 901	N	X	X	N
3363993YVV	Exhaust system parts, new, nsk	N	X	X	32 901	N	X	X	13 314
3363995	Motor vehicle wheels, new	N	X	X	3 396 456	N	X	X	1 943 175
33639951	Motor vehicle wheels, new	N	X	X	3 325 556	N	X	X	N
3363995101	Car and light truck wheels, steel, new	13	X	X	965 693	14	X	X	N
3363995104	Car and light truck wheels, aluminum, new	23	X	X	1 655 098	20	X	X	847 857
3363995107	Other car and light truck wheels, including combination, new	6	X	X	192 622	3	X	X	N
3363995111	Heavy truck and bus type wheels, including those for truck trailers and trailer coaches	11	X	X	512 143	10	X	X	331 102
3363995Y	Motor vehicle wheels, new, nsk	N	X	X	70 900	N	X	X	N
3363995YVV	Motor vehicle wheels, new, nsk	N	X	X	70 900	N	X	X	32 846
3363997	Other motor vehicle parts and accessories, new and rebuilt	N	X	X	21 539 499	N	X	X	N
33639971	Motor vehicle bumper assemblies, bumpers, and parts, new	N	X	X	1 240 143	N	X	X	N
3363997101	Motor vehicle bumper assemblies, bumpers, and parts, new	44	X	X	1 240 143	43	X	X	912 163
33639972	Motor vehicle frames, new	N	X	X	1 484 288	N	X	X	N
3363997204	Motor vehicle frames, new	21	X	X	1 484 288	18	X	X	887 622
33639973	Motor vehicle fuel tanks, new	N	X	X	818 795	N	X	X	N
3363997307	Motor vehicle fuel tanks, new	15	X	X	818 795	15	X	X	407 788
33639974	Radiators, radiator shells and cores, new	N	X	X	1 534 880	N	X	X	N
3363997401	Gasoline engine radiators, complete, new, for motor vehicles	26	X	X	1 352 966	25	X	X	780 146
3363997405	Gasoline engine radiator shells and cores, new, for motor vehicles	19	X	X	127 183	15	X	X	70 362
3363997409	Stationary engine radiators for internal combustion engines, except aircraft and gasoline automotive engines and gas turbines	8	X	X	54 731	7	X	X	30 539
33639975	All other motor vehicle parts, new and rebuilt	N	X	X	15 896 515	N	X	X	N
3363997514	Motor vehicle air-conditioning hose assemblies, new	17	X	X	564 951	19	X	X	483 326
3363997524	Motor vehicle windshield wiper blades, new	6	X	X	461 931	6	X	X	221 093
3363997527	Motor vehicle convertible tops, new	8	X	X	201 447	12	X	X	191 535
3363997531	Motor vehicle sunroofs and parts, new	14	X	X	470 367	10	X	X	38 431
3363997534	Motor vehicle air bag assemblies and parts thereof, new	20	X	X	4 126 461	24	X	X	1 597 624
3363997551	All other motor vehicle parts and accessories for cars, trucks, and buses, new	306	X	X	9 820 348	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)
336399	Motor vehicle parts, nec—Con.								
3363997	Other motor vehicle parts and accessories, new and rebuilt—Con.								
33639975	All other motor vehicle parts, new and rebuilt—Con.								
3363997554	Other rebuilt motor vehicle parts, excluding carburetors and engine electrical equipment	29	X	X	251 010	N	X	X	N
3363997Y	All other motor vehicle parts and accessories, new and rebuilt, nsk	N	X	X	564 878	N	X	X	N
3363997YWV	All other motor vehicle parts and accessories, new and rebuilt, nsk	N	X	X	564 878	N	X	X	N
336399W	Other motor vehicle parts and accessories, nsk, total	N	X	X	1 847 263	N	X	X	N
336399WY	Other motor vehicle parts and accessories, nsk, total	N	X	X	1 847 263	N	X	X	N
336399WYWW	Other motor vehicle parts and accessories, nsk, for nonadministrative-record establishments	N	X	X	1 555 938	N	X	X	N
336399WYWY	Other motor vehicle parts and accessories, nsk, for administrative-record establishments	N	X	X	291 325	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
3363991	FILTERS FOR INTERNAL COMBUSTION ENGINES AND MOTOR VEHICLES, NEW		
	United States	2 418 724	2 155 545
	California	107 005	60 225
	Iowa	298 654	185 466
	Michigan	130 958	204 565
	Ohio	180 419	N
	Tennessee	236 646	258 159
	Wisconsin	113 076	N
3363993	EXHAUST SYSTEM PARTS, NEW		
	United States	4 884 533	3 187 580
	California	255 538	18 944
	Indiana	852 638	370 431
	Michigan	796 449	633 814
	Missouri	106 926	N
	Ohio	422 443	252 709
	Tennessee	303 290	N
3363995	MOTOR VEHICLE WHEELS, NEW		
	United States	3 396 456	1 943 175
	California	781 595	471 669
	Illinois	56 450	N
	Indiana	386 623	204 473
	Kentucky	469 899	286 348
	Michigan	426 620	333 492
	Ohio	328 648	172 790

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
3363997	OTHER MOTOR VEHICLE PARTS AND ACCESSORIES, NEW AND REBUILT		
	United States	21 539 499	N
	Alabama	140 088	N
	Arkansas	137 564	N
	California	328 682	N
	Colorado	277 889	N
	Connecticut	86 136	N
	Florida	182 986	N
	Illinois	682 604	N
	Indiana	1 530 801	N
	Iowa	254 373	N
	Kentucky	662 655	N
	Maryland	27 353	N
	Michigan	5 658 738	N
	Minnesota	98 925	N
	Mississippi	266 104	N
	Missouri	501 228	N
	New Jersey	37 454	N
	New York	1 082 330	N
	North Carolina	287 765	N
	Ohio	2 263 386	N
	Oklahoma	57 349	N
	Oregon	220 078	N
	Pennsylvania	741 018	N
	South Carolina	370 218	N
	Tennessee	1 969 386	N
	Texas	407 414	N
	Virginia	53 110	N
	Washington	110 972	N
	Wisconsin	210 213	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)
336399	ALL OTHER MOTOR VEHICLE PARTS MFG				
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	D	X	N
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic)	X	D	X	N
33399901	Fluid power filters (hydraulic and pneumatic)	X	D	X	N
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic)	X	D	X	N
33291207	Fluid power valves (hydraulic and pneumatic)	X	D	X	N
00190089	Other fluid power products (hydraulic and pneumatic)	X	D	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	287 995	X	N
33151001	Iron and steel castings (rough and semifinished)	X	398 929	X	N
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	266 303	X	N
33152003	Other nonferrous castings (rough and semifinished)	X	119 354	X	N
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	362 115	X	N
33120017	Steel sheet and strip, including tin plate	X	1 570 679	X	N
33120033	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	488 127	X	N
33632200	Engine electrical equipment, including spark plugs, magnetos, generators, starters, etc.	X	313 135	X	N
33299105	Ball bearings (mounted or unmounted)	X	52 523	X	N
33299103	Roller bearings (mounted or unmounted)	X	13 295	X	N
32610011	Fabricated plastics products (except gaskets)	X	508 086	X	N
32622001	Rubber and plastics hose and belting	X	84 089	X	N
33637000	Automotive stampings (including body parts, hubcaps, fenders, etc.)	X	941 854	X	N
33200019	Other fabricated metal products, except fluid power and forgings	X	830 752	X	N
33210001	Forgings	X	207 400	X	N
33142111	Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	76 331	X	N
33100039	Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	671 946	X	N
33100083	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	117 222	X	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	202 362	X	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)
336399	ALL OTHER MOTOR VEHICLE PARTS MFG—Con.				
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	487 527	X	N
32600017	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	X	73 304	X	N
32500023	Ceramic raw materials, including powders, chemicals, and fibers (excluding refractory uses)	X	127 186	X	N
32700035	Ceramic and ceramic composite parts, components, and accessories	X	245 182	X	N
33999103	Gaskets (all types), and packing and sealing devices	X	110 155	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	164 388	X	N
32552003	Glues and adhesives	X	36 766	X	N
00190003	Flexible packaging materials	X	32 908	X	N
32220015	Paper and paperboard containers	X	272 495	X	N
001900B7	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	X	135 836	X	N
00999826	Core parts purchased for use in remanufacturing or rebuilding	X	442 937	X	N
00970099	All other materials and components, parts, containers, and supplies	X	4 707 079	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	2 813 289	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

336399 All Other Motor Vehicle Parts Manufacturing

This U.S. industry comprises establishments primarily engaged in manufacturing and/or rebuilding motor vehicle parts and accessories (except motor vehicle gasoline engines and engine parts, motor vehicle electrical and electronic equipment, motor vehicle steering and suspension components, motor vehicle brake systems, motor vehicle transmission and power train parts, motor vehicle seating and interior trim, motor vehicle stampings, and motor vehicle air-conditioning systems and compressors).

The data published with NAICS code 336399 include the following SIC industries:

3519 Internal combustion engines, n.e.c. (pt)

3714 Motor vehicle parts and accessories (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 336399 do not include establishments primarily engaged in the manufacture of luggage and utility racks or trailer hitches. The NAICS definitions will be fully implemented with the 2002 Economic Census.

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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121571	3714241	3714241
3361201 pt.	37114 pt.	37114 pt.	33621213100	3715200	3715200	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37117	33621213100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201 pt.	37115 pt.	37118	3362130	37160	37160	3363123	37144 pt.	37144 pt.
3361201100 pt.	3711407	3711400 pt.	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711400 pt.	3711400 pt.	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711700	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361201100 pt.	3711500 pt.	3711800	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361202 pt.	37114 pt.	37114 pt.	3362130YWW	3716002	3716002	3363123YWW	3714A00 pt.	3714A00 pt.
3361202 pt.	37119	37119	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711409	3711400 pt.	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361202100 pt.	3711900	3711900	3362141207	3792116	3792116	3363210	36470	36470
3361203	37113	37113	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203101	3711304	3711304	3362141311	3792118	3792118	3363210YWW	3647000 pt.	3647000 pt.
3361203104	3711303	3711303	3362141413	3792125	3792125	3363210YWW	3647002	3647002
3361203YWW	3711300	3711300	3362141516	3792128	3792128	3363221	36941	36941
336120W	37110 pt.	37110 pt.	3362141YWW	3792100	3792100	3363221101	3694101	3694101
336120WYWW	3711000 pt.	3711000 pt.	3362143	37996	37996	3363221104	3694102	3694102
336120WYWW	3711002 pt.	3711002 pt.	3362143101	3799611	3799601 pt.	3363221201	3694103	3694103
3362111 pt.	37111 pt.	37111 pt.	3362143108	3799615	3799604 pt.	3363221204	3694104	3694104
3362111 pt.	37131	37131	3362143111	3799617	3799607 pt.	3363221YWW	3694100	3694100
3362111 pt.	37149 pt.	37149 pt.	3362143114	3799619	3799609 pt.	3363223	36942	36942
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363223101	3694201	3694201
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799604 pt.	3363223104	3694202	3694202
3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223201	3694203	3694203
3362111411	3713115	3713115	3362143117 pt.	3799651 pt.	3799609 pt.	3363223204	3694204	3694204
3362111413	3713116	3713116	3362143YWW	3799600	3799600	3363223YWW	3694200	3694200
3362111416	3713117	3713117	3362145	37922	37922	3363225	36943	36943
3362111519	3713121	3713121	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111522	3713131	3713131	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111525	3713132	3713132	3362145207	3792247	3792247	3363225201	3694303	3694303
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792261	3363225YWW	3694300	3694300
3362111531	3713139	3713139	3362145311 pt.	3792268 pt.	3792263	3363227	36944	36944
3362111534	3713143	3713143	3362145311 pt.	3792268 pt.	3792269	3363227100	3694400	3694400
3362111537	3713153	3713153	3362145YWW	3792200	3792200	3363229	36947	36947
3362111541	3713155	3713155	336214W pt.	37920	37920	3363229101	3694701	3694701
3362111543	3713161	3713161	336214W pt.	37990	37990	3363229201	3694711	3694711
3362111546	3713162	3713162	336214WYWW pt.	3792000	3792000	3363229301	3694702	3694702
3362111549	3713163	3713163	336214WYWW pt.	3792000 pt.	3792000 pt.	3363229304	3694704	3694704
3362111552	3711171	3711171	336214WYWW pt.	3792002	3792002	3363229307	3694705	3694705
3362111555	3711181	3711181 pt.	336214WYWW pt.	3799002 pt.	3799002 pt.	3363229309	3694719	3694719
3362111558	3714925	3714925	3363111	35921	35921	3363229YWW	3694700	3694700
3362111571 pt.	3713171	3713171	3363111101	3592101	3592101	336322A	36949	36949
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111103	3592102	3592102	336322A101	3694901	3694901
3362111YWW pt.	3713100	3713100	3363111105	3592103	3592103	336322A204	3694907	3694907
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111207	3592105	3592105	336322A307	3694911	3694911
3362113 pt.	37114 pt.	37114 pt.	3363111YWW	3592100	3592100	336322A409	3694912	3694912
3362113 pt.	37132	37132	3363113	35922	35922	336322A512	3694913	3694913
3362113101	3713201	3713201	3363113101	3592201	3592201	336322A615	3694919	3694919
3362113219	3713225	3713225	3363113103	3592202	3592202	336322AYWW	3694900	3694900
3362113304	3713211	3713211	3363113205	3592203	3592203	336322C pt.	36799 pt.	36799 pt.
3362113307	3713213	3713213	3363113207	3592204	3592204	336322C pt.	37149 pt.	37149 pt.
3362113311	3713215	3713215	3363113209	3592205	3592205	336322C pt.	37144 pt.	37144 pt.
3362113313	3713217	3713217	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113316	3713218	3713218	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113322	3713226	3713226	3363113YWW	3592200	3592200	336322C107	3714915	3714915
3362113325	3713227	3713227	3363115	35923	35923	336322C111 pt.	3714921	3714917
3362113328	3713241	3713239 pt.	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714917
3362113331 pt.	3711411	3711400 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113331 pt.	3713243	3713239 pt.	3363115YWW	3592300	3592300	336322C117	3714944	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	336311W	35920	35920	336322C119	3679926	3679920 pt.
3362113YWW pt.	3713200	3713200	336311WYWW	3592000	3592000	336322C121	3714945	3714941 pt.
			336311WYWW	3592002	3592002	336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt.	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt.	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt.	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt.	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt.	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt.	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt.	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt.	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt.	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt.	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt.	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt.	3714002 pt	3714002 pt	336360W pt.	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt.	37142 pt	37142 pt	336360W pt.	23990 pt	23990 pt	3364125	37243	37243
3363301 pt.	37149 pt	37149 pt	336360W pt.	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt.	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt.	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt.	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt.	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt.	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt.	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt.	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127307	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127YVW	3724400	3724400
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	336412W	37240	37240
3363301YVW pt.	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412WYVW	3724000	3724000
3363301YVW pt.	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724002	3724002
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	3364131	37282	37282
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131101	3728210	3728210
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131104	3728231	3728231
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131107	3728251	3728251
3363303YVW	3714A00 pt.	3714A00 pt	336391B000	3585B00	3585400 pt	3364131111	3728261	3728261
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131YVW	3728200	3728200
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585000 pt	3585000 pt	3364133	37283	37283
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364133101	3728313	3728313
3363401 pt.	32922	32922	336391YVW	37144	37144	3364133104	3728315	3728315
3363401 pt.	37148	37148	336391YVW	3714400	3714400	3364133YVW	3728300	3728300
3363401 pt.	37149 pt	37149 pt	3363991	37144	37144	3364135	37285	37285
3363401101	3714801	3714801	3363991101	3714401	3714401	3364135101	3728513	3728513
3363401104	3714802	3714802	3363991104	3714402	3714402	3364135104	3728515	3728515
3363401211	3714807	3714807	3363991107	3714404	3714404	3364135207	3728594	3728594
3363401313	3714809	3714809	3363991111	3714405	3714405	3364135211	3728595	3728595
3363401416	3714811	3714811	3363991113	3714407	3714407	3364135313	3728598	3728598
3363401519	3714813	3714813	3363991116	3714408	3714408	3364135416	3728599	3728599
3363401625	3714817	3714817	3363991119	3714409	3714409	3364135YVW	3728500	3728500
3363401707	3714803	3714803	3363991YVW	3714400	3714400	336413W	37280 pt	37280 pt
3363401722	3714815	3714815	3363993	37145	37145	336413WYVW	3728000 pt	3728000 pt
3363401737	3714821	3714821	3363993101	3714501	3714501	336413WYVW	3728002 pt	3728002 pt
3363401741	3714823	3714823	3363993104	3714502	3714502	3364141	37611	37611
3363401744	3714825	3714825	3363993107	3714503	3714503	3364141100	3761100	3761100
3363401745	3714912	3714912	3363993YVW	3714500	3714500	3364143	37613	37613
3363401747 pt.	3292200 pt	3292200 pt	3363995	37147	37147	3364143100	3761300	3761300
3363401747 pt.	3292211	3292211	3363995101	3714701	3714701	3364145	37616	37616
3363401747 pt.	3292215	3292215	3363995104	3714705	3714705	3364145100	3761600	3761600
3363401747 pt.	3292221	3292221	3363995107	3714707	3714707	3364147	37612	37612
3363401747 pt.	3292258	3292258	3363995111	3714714	3714714	3364147101	3761201	3761201
3363401747 pt.	3714827	3714827	3363995YVW	3714700	3714700	3364147204	3761202	3761202
3363401YVW pt.	3292200 pt	3292200 pt	3363997 pt.	35199 pt	35199 pt	3364147YVW	3761200	3761200
3363401YVW pt.	3714800	3714800	3363997 pt.	37142 pt	37142 pt	3364149	37614	37614
3363401YVW pt.	3714900 pt	3714900 pt	3363997 pt.	37149 pt	37149 pt	3364149101	3761401	3761401
3363403	3714A pt	3714A pt	3363997 pt.	37149 pt	37149 pt	3364149104	3761402	3761402
3363403101	3714A09	3714A09	3363997 pt.	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403104	3714A10	3714A10	3363997 pt.	3714A pt	3714A pt	336414A	37617	37617
3363403107	3714A11	3714A11	3363997 pt.	3714A pt	3714A pt	336414A101	3761702	3761702
3363403111	3714A33	3714A33	3363997101	3714901	3714901	336414A104	3761703	3761703
3363403114	3714A35	3714A35	3363997204	3714902	3714902	336414AYVW	3761700	3761700
3363403117	3714A37	3714A37	3363997307	3714903	3714903	336414W	37610	37610
3363403121	3714A44	3714A41 pt	3363997401	3714235	3714235	336414WYVW	3761000	3761000
3363403YVW	3714A00 pt.	3714A00 pt	3363997405	3714236	3714236	336414WYVW	3761002	3761002
336340W pt.	32920 pt	32920 pt	3363997409	3519987	3519987	3364151	37645	37645
336340W pt.	37140 pt	37140 pt	3363997514	3714909	3714909	3364151101	3764511	3764511
336340WYVW pt.	3292000 pt	3292000 pt	3363997524	3714916	3714916	3364151204	3764513	3764513
336340WYVW pt.	3714000 pt	3714000 pt	3363997527	3714922	3714922	3364151307	3764515	3764515
336340WYVW pt.	3292002 pt	3292002 pt	3363997531	3714923	3714923	3364151YVW	3764500	3764500
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			3366127107	3732706	3732706			
			3366127111	3732708	3732708			
3366113	37312	37312	3366127113	3732712	3732712			
3366113100	3731200	3731200	3366127116	3732717	3732717			

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Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336411	Aircraft mfg	173	205	204 401	10 888 798	98 552	208 733	4 449 549	20 545 098	36 344 043	56 843 242	784 550
372100	Aircraft	N	205	204 401	10 888 798	98 552	208 733	4 449 549	20 545 098	36 344 043	56 843 242	784 550

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)				
336411, AIRCRAFT MFG												
United States	-	205	109	204 401	10 888 798	98 552	208 733	4 449 549	20 545 098	36 344 043	56 843 242	784 550
California	-	20	11	27 628	1 597 599	16 878	28 139	681 871	2 096 510	4 118 524	6 886 107	101 041
Florida	-	30	13	3 993	165 233	1 778	3 936	52 579	673 093	392 180	1 034 540	28 216
Georgia	-	7	6	14 802	736 629	7 523	10 598	316 988	1 318 950	2 473 466	3 627 972	42 257
Kansas	-	9	7	19 658	826 334	12 636	23 362	409 651	1 939 471	1 950 969	3 710 872	115 976
Texas	-	31	17	28 257	1 465 627	12 033	29 014	532 119	3 249 341	2 477 979	5 576 411	118 243

* 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
336411, AIRCRAFT MFG		336411, AIRCRAFT MFG—Con.	
Companies ¹	number.. 173	Value added	\$1,000.. 20 545 098
All establishments	number.. 205	Total inventories, beginning of year	\$1,000.. 27 454 311
Establishments with 1 to 19 employees	number.. 96	Finished goods inventories, beginning of year	\$1,000.. 1 259 394
Establishments with 20 to 99 employees	number.. 42	Work-in-process inventories, beginning of year	\$1,000.. 22 967 368
Establishments with 100 employees or more	number.. 67	Materials and supplies inventories, beginning of year	\$1,000.. 3 227 549
All employees	number.. 204 401	Total inventories, end of year	\$1,000.. 27 265 845
Total compensation ²	\$1,000.. 13 749 146	Finished goods inventories, end of year	\$1,000.. 1 377 184
Annual payroll	\$1,000.. 10 888 798	Work-in-process inventories, end of year	\$1,000.. 22 895 477
Total fringe benefits	\$1,000.. 2 860 348	Materials and supplies inventories, end of year	\$1,000.. 2 993 184
Production workers, average for year	number.. 98 552	Gross book value of total assets at beginning of year	\$1,000.. 14 218 863
Production workers on March 12	number.. 94 255	Total capital expenditures (new and used)	\$1,000.. 784 550
Production workers on May 12	number.. 96 389	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 351 514
Production workers on August 12	number.. 100 343	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 433 036
Production workers on November 12	number.. 103 221	Total retirements ²	\$1,000.. 579 134
Production-worker hours	1,000.. 208 733	Gross book value of total assets at end of year	\$1,000.. 14 424 279
Production-worker wages	\$1,000.. 4 449 549	Total depreciation during year ²	\$1,000.. 1 057 248
Total cost of materials	\$1,000.. 36 344 043	Total rental payments ²	\$1,000.. 188 322
Cost of materials, parts, containers, etc., consumed	\$1,000.. 33 961 201	Buildings and other structures rental payments ²	\$1,000.. 109 620
Cost of resales	\$1,000.. 1 224 503	Machinery and equipment rental payments ²	\$1,000.. 78 702
Cost of fuels	\$1,000.. 40 333	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 59 780
Cost of purchased electricity	\$1,000.. 177 131	Response coverage ratio ⁴	percent.. 81
Cost of contract work	\$1,000.. 940 875	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 83 252
Quantity of electricity purchased for heat and power	1,000 kWh.. 3 924 977	Response coverage ratio ⁴	percent.. 81
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 82 570
Total value of shipments	\$1,000.. 56 843 242	Response coverage ratio ⁴	percent.. 81
Primary products value of shipments	\$1,000.. 49 605 741	Cost of purchased legal services ³	\$1,000.. 36 997
Secondary products value of shipments	\$1,000.. 5 616 380	Response coverage ratio ⁴	percent.. 81
Total miscellaneous receipts	\$1,000.. 1 621 121	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 27 900
Value of resales	\$1,000.. 1 333 024	Response coverage ratio ⁴	percent.. 81
Contract receipts	\$1,000.. 4 004	Cost of purchased advertising services ³	\$1,000.. 33 909
Other miscellaneous receipts	\$1,000.. 284 093	Response coverage ratio ⁴	percent.. 81
Primary products specialization ratio	percent.. 89	Cost of purchased software and other data processing services ³	\$1,000.. S
Value of primary products shipments made in all industries	\$1,000.. 51 026 573	Response coverage ratio ⁴	percent.. S
Value of primary products shipments made in this industry	\$1,000.. 49 605 741	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 15 442
Value of primary products shipments made in other industries	\$1,000.. 1 420 832	Response coverage ratio ⁴	percent.. 81
Coverage ratio	percent.. 97		

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)				
336411, AIRCRAFT MFG												
All establishments	-	205	109	204 401	10 888 798	98 552	208 733	4 449 549	20 545 098	36 344 043	56 843 242	784 550
Establishments with 1 to 4 employees	5	64	-	144	3 878	104	152	2 374	8 940	7 892	19 500	347
Establishments with 5 to 9 employees	2	16	-	105	2 529	66	95	1 339	6 048	5 039	10 718	235
Establishments with 10 to 19 employees	3	16	-	218	7 169	136	230	3 562	25 711	13 635	37 190	670
Establishments with 20 to 49 employees	5	26	26	798	27 263	497	920	14 194	57 704	46 535	106 799	1 867
Establishments with 50 to 99 employees	3	16	16	1 196	38 357	725	1 331	20 726	71 897	63 807	141 348	4 141
Establishments with 100 to 249 employees	2	16	16	2 426	79 325	1 577	3 100	42 297	260 890	107 898	395 904	19 284
Establishments with 250 to 499 employees	2	9	9	3 157	122 665	2 017	4 112	72 446	278 094	305 696	553 168	28 162
Establishments with 500 to 999 employees	1	14	14	9 116	348 992	6 520	15 418	214 840	659 934	1 097 903	1 722 369	24 397
Establishments with 1,000 to 2,499 employees	-	10	10	14 153	623 196	8 356	17 446	309 797	1 735 948	1 068 919	2 757 368	61 862
Establishments with 2,500 employees or more	-	18	18	173 088	9 635 424	78 554	165 929	3 767 974	17 439 932	33 626 719	51 098 878	643 585
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)				
336411	Aircraft mfg	205	204 401	10 888 798	98 552	208 733	4 449 549	20 545 098	36 344 043	56 843 242	784 550
3364111	Military aircraft (including all aircraft for U.S. military and any other aircraft built to military specifications)	19	67 557	3 688 790	26 314	54 258	1 180 782	5 450 172	7 496 134	15 168 264	284 135
3364113	Civilian aircraft	35	93 033	5 129 537	46 921	100 492	2 293 453	10 480 439	25 078 566	33 552 041	319 848
3364115	Modification, conversion, and overhaul of previously accepted aircraft	45	22 417	1 016 269	14 280	31 215	527 453	2 684 588	2 098 018	4 722 405	106 259
3364117	Other aeronautical services on complete aircraft, nec	11	19 315	975 463	9 903	20 735	410 880	1 741 423	1 460 773	2 996 618	54 584

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)
336411	Aircraft	N	X	X	51 026 573	N	X	X	56 569 280
3364111	Military aircraft (including all aircraft for U.S. military and any other aircraft built to military specifications)	N	X	X	11 529 993	N	X	X	16 664 564
33641111	Military aircraft (including all aircraft for U.S. military and any other aircraft built to military specifications)	N	X	X	11 529 993	N	X	X	N
3364111100	Military aircraft (including all aircraft for U.S. military and any other aircraft built to military specifications)	19	X	X	11 529 993	25	X	X	16 664 564
3364113	Civilian aircraft @	N	X	X	30 425 758	N	X	X	31 362 648
33641130	Civilian aircraft	N	X	X	30 425 758	N	X	X	N
3364113000	Civilian aircraft	36	X	X	30 425 758	34	X	X	31 362 648
3364115	Modification, conversion, and overhaul of previously accepted aircraft	N	X	X	5 125 579	N	X	X	3 860 224
33641151	Modification, conversion, and overhaul of previously accepted aircraft	N	X	X	5 068 473	N	X	X	N
3364115101	Modification, conversion, and overhaul of U.S. military aircraft and all other aircraft built to military specifications	15	X	X	3 643 966	21	X	X	2 621 986
3364115104	Modification, conversion, and overhaul of previously accepted aircraft for civilian customers	40	X	X	1 424 507	33	X	X	1 231 828
3364115Y	Modification, conversion, and overhaul of previously accepted aircraft, nsk	N	X	X	57 106	N	X	X	N
3364115YWV	Modification, conversion, and overhaul of previously accepted aircraft, nsk	N	X	X	57 106	N	X	X	6 410
3364117	Other aeronautical services on complete aircraft, nec	N	X	X	3 545 439	N	X	X	4 442 987
33641171	Other aeronautical services on complete aircraft, nec	N	X	X	3 524 849	N	X	X	N
3364117101	Research and development on complete aircraft for military customers	5	X	X	672 585	5	X	X	1 564 015
3364117104	All other aeronautical services on complete aircraft for military customers	13	X	X	1 341 896	15	X	X	2 225 476
3364117107	Research and development on complete aircraft for civilian customers	5	X	X	D	3	X	X	N
3364117111	All other aeronautical services on complete aircraft for civilian customers	16	X	X	D	14	X	X	N
3364117Y	Other aeronautical services on complete aircraft, nec, nsk	N	X	X	20 590	N	X	X	N
3364117YWV	Other aeronautical services on complete aircraft, nec, nsk	N	X	X	20 590	N	X	X	2 711
336411W	Aircraft manufacturing, nsk, total	N	X	X	399 804	N	X	X	238 857
336411WY	Aircraft manufacturing, nsk, total	N	X	X	399 804	N	X	X	N
336411WYWW	Aircraft manufacturing, nsk, for nonadministrative-record establishments	N	X	X	399 804	N	X	X	238 857
336411WYWY	Aircraft manufacturing, 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
3364111	MILITARY AIRCRAFT (INCLUDING ALL AIRCRAFT FOR U.S. MILITARY AND ANY OTHER AIRCRAFT BUILT TO MILITARY SPECIFICATIONS)		
	United States	11 529 993	16 664 564
	California	3 463 951	5 694 633
3364113	CIVILIAN AIRCRAFT @		
	United States	30 425 758	31 362 648
	Kansas	2 752 744	1 248 232
	New York	17 415	N
	Texas	160 584	129 505
3364115	MODIFICATION, CONVERSION, AND OVERHAUL OF PREVIOUSLY ACCEPTED AIRCRAFT		
	United States	5 125 579	3 860 224
	Alabama	195 181	N
	Georgia	305 406	N
	Texas	1 272 507	1 288 440
3364117	OTHER AERONAUTICAL SERVICES ON COMPLETE AIRCRAFT, NEC		
	United States	3 545 439	4 442 987
	Arizona	132 875	N
	California	589 475	885 293
	Texas	684 666	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)
336411	AIRCRAFT MFG				
33641201	Aircraft engines	X	D	X	N
33641203	Aircraft engine parts (except instruments)	X	76 075	X	N
33641303	Structural fuselage components, excluding instruments	X	D	X	N
33641305	Structural empennage (tail) components, excluding instruments	X	D	X	N
33641307	Structural wing components, excluding instruments	X	D	X	N
33641309	Structural landing gear components	X	D	X	N
33641311	Other structural components (airframe), including engine mounts, excluding instruments	X	797 366	X	N
33641301	Aircraft propellers and parts thereof	X	37 804	X	45 002
33636005	Aircraft seats	X	12 904	X	8 673
33422003	Radio communication systems and equipment, including airborne transmitters and receivers (microwave, UHF, VHF, etc.)	X	D	X	655 769
33451103	Navigational systems and equipment (NAV AIDS)	X	138 054	X	254 100
001900D5	Search, detection, tracking, and electronic communication systems and equipment (RADAR, SONAR, Optical)	X	D	X	N
33400025	Flight, navigational, airframe, and engine indicators, instruments, and clusters, including sensors, displays, etc.	X	D	X	N
001900B7	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	X	119 093	X	285 290
00190070	Resin matrix composites	X	37 290	X	D
00190071	Other matrix composites, including ceramic, carbon, metal, etc.	X	145 086	X	41 595
33291209	Complete mechanical, hydraulic and pneumatic subassemblies	X	D	X	163 948
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	D	X	149 611
33291201	Fluid power valves (except complete assemblies)	X	D	X	147 309
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic)	X	D	X	101 391
33399503	Fluid power cylinders and rotary actuators (except complete assemblies)	X	D	X	154 689
33399901	Fluid power filters (hydraulic and pneumatic)	X	D	X	N
00190089	Other fluid power products (hydraulic and pneumatic)	X	126 634	X	N
33299101	Ball and roller bearings (mounted or unmounted)	X	52 924	X	D
33351503	Cutting tools for machine tools	X	D	X	D
33251015	Aircraft metal hardware (except forgings)	X	D	X	215 681
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	D	X	N
33200009	Other fabricated metal products, except fluid power and forgings	X	168 799	X	N
33211101	Iron and steel forgings	X	8 313	X	D
33211203	Aluminum and aluminum-base alloy forgings	X	8 964	X	D
33211205	Titanium and titanium-base alloy forgings	X	D	X	D
33210003	Other forgings	X	26 808	X	D
33151001	Iron and steel castings (rough and semifinished)	X	D	X	D
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	4 219	X	D
33152003	Other nonferrous castings (rough and semifinished)	X	D	X	21 240

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)
336411	AIRCRAFT MFG—Con.				
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	13 846	X	N
33120017	Steel sheet and strip, including tin plate	X	30 375	X	N
33120033	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	N
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing	X	154 257	X	268 133
33100055	All other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	54 362
33142111	Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	D
33149101	Titanium and titanium-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	D
33100065	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	D
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	58 088	X	32 072
00970099	All other materials and components, parts, containers, and supplies	X	4 962 581	X	8 760 131
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	7 183 628	X	2 327 185

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

336411 AIRCRAFT MANUFACTURING

This U.S. industry comprises establishments primarily engaged in one or more of the following: (1) manufacturing or assembling complete aircraft; (2) developing and making aircraft prototypes; (3) aircraft conversion (i.e., major modifications to systems); and (4) complete aircraft overhaul and rebuilding (i.e., periodic restoration of aircraft to original design specifications).

The data published with NAICS code 336411 include the following SIC industry:

3721 Aircraft

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 336411 do not include establishments primarily engaged in the manufacture of target drones. The NAICS definitions will be fully implemented with the 2002 Economic Census.

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
@3364113	For additional detail, see Current Industrial Report M336G , Civil Aircraft and Aircraft Engines.

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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121571	3714241	3714241
3361201 pt.	37114 pt.	37114 pt.	33621213100	3715200	3715200	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37117	33621213100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201 pt.	37115 pt.	37118	3362130	37160	37160	3363123	37144 pt.	37144 pt.
3361201100 pt.	3711407	3711400 pt.	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711400 pt.	3711400 pt.	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711700	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361201100 pt.	3711500 pt.	3711800	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361202 pt.	37114 pt.	37114 pt.	3362130YWW	3716002	3716002	3363123YWW	3714A00 pt.	3714A00 pt.
3361202 pt.	37119	37119	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711409	3711400 pt.	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361202100 pt.	3711900	3711900	3362141207	3792116	3792116	3363210	36470	36470
3361203	37113	37113	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203101	3711304	3711304	3362141311	3792118	3792118	3363210YWW	3647000 pt.	3647000 pt.
3361203104	3711303	3711303	3362141413	3792125	3792125	3363210YWW	3647002	3647002
3361203YWW	3711300	3711300	3362141516	3792128	3792128	3363221	36941	36941
336120W	37110 pt.	37110 pt.	3362141YWW	3792100	3792100	3363221101	3694101	3694101
336120WYWW	3711000 pt.	3711000 pt.	3362143	37996	37996	3363221104	3694102	3694102
336120WYWW	3711002 pt.	3711002 pt.	3362143101	3799611	3799601 pt.	3363221201	3694103	3694103
3362111 pt.	37111 pt.	37111 pt.	3362143108	3799615	3799604 pt.	3363221204	3694104	3694104
3362111 pt.	37131	37131	3362143111	3799617	3799607 pt.	3363221YWW	3694100	3694100
3362111 pt.	37149 pt.	37149 pt.	3362143114	3799619	3799609 pt.	3363223	36942	36942
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363223101	3694201	3694201
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799604 pt.	3363223104	3694202	3694202
3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223201	3694203	3694203
3362111411	3713115	3713115	3362143117 pt.	3799651 pt.	3799609 pt.	3363223204	3694204	3694204
3362111413	3713116	3713116	3362143YWW	3799600	3799600	3363223YWW	3694200	3694200
3362111416	3713117	3713117	3362145	37922	37922	3363225	36943	36943
3362111519	3713121	3713121	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111522	3713131	3713131	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111525	3713132	3713132	3362145207	3792247	3792247	3363225201	3694303	3694303
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792261	3363225YWW	3694300	3694300
3362111531	3713139	3713139	3362145311 pt.	3792268 pt.	3792263	3363227	36944	36944
3362111534	3713143	3713143	3362145311 pt.	3792268 pt.	3792269	3363227100	3694400	3694400
3362111537	3713153	3713153	3362145YWW	3792200	3792200	3363229	36947	36947
3362111541	3713155	3713155	336214W pt.	37920	37920	3363229101	3694701	3694701
3362111543	3713161	3713161	336214W pt.	37990	37990	3363229201	3694711	3694711
3362111546	3713162	3713162	336214WYWW pt.	3792000	3792000	3363229301	3694702	3694702
3362111549	3713163	3713163	336214WYWW pt.	3792000 pt.	3792000 pt.	3363229304	3694704	3694704
3362111552	3711171	3711171	336214WYWW pt.	3792002	3792002	3363229307	3694705	3694705
3362111555	3711181	3711181 pt.	336214WYWW pt.	3799002 pt.	3799002 pt.	3363229309	3694719	3694719
3362111558	3714925	3714925	3363111	35921	35921	3363229YWW	3694700	3694700
3362111571 pt.	3713171	3713171	3363111101	3592101	3592101	336322A	36949	36949
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111103	3592102	3592102	336322A101	3694901	3694901
3362111YWW pt.	3713100	3713100	3363111105	3592103	3592103	336322A204	3694907	3694907
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111207	3592105	3592105	336322A307	3694911	3694911
3362113 pt.	37114 pt.	37114 pt.	3363111YWW	3592100	3592100	336322A409	3694912	3694912
3362113 pt.	37132	37132	3363113	35922	35922	336322A512	3694913	3694913
3362113101	3713201	3713201	3363113101	3592201	3592201	336322A615	3694919	3694919
3362113219	3713225	3713225	3363113103	3592202	3592202	336322AYWW	3694900	3694900
3362113304	3713211	3713211	3363113205	3592203	3592203	336322C pt.	36799 pt.	36799 pt.
3362113307	3713213	3713213	3363113207	3592204	3592204	336322C pt.	37149 pt.	37149 pt.
3362113311	3713215	3713215	3363113209	3592205	3592205	336322C pt.	37144 pt.	37144 pt.
3362113313	3713217	3713217	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113316	3713218	3713218	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113322	3713226	3713226	3363113YWW	3592200	3592200	336322C107	3714915	3714915
3362113325	3713227	3713227	3363115	35923	35923	336322C111 pt.	3714921	3714917
3362113328	3713241	3713239 pt.	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714917
3362113331 pt.	3711411	3711400 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113331 pt.	3713243	3713239 pt.	3363115YWW	3592300	3592300	336322C117	3714944	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	336311W	35920	35920	336322C119	3679926	3679920 pt.
3362113YWW pt.	3713200	3713200	336311WYWW	3592000	3592000	336322C121	3714945	3714941 pt.
			336311WYWW	3592002	3592002	336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt.	3679000 pt	3679000 pt	3363505W	3714000 pt	3714000 pt	3364117101	3721813	3721813
336322CYVW pt.	3714900 pt	3714900 pt	3363505WYW	3714000 pt	3714000 pt	3364117107	3721853	3721853
336322CYVW pt.	3714A00 pt	3714A00 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt.	36790 pt	36790 pt	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt.	36940	36940	3363602	23990 pt	23990 pt	336411W	37210	37210
336322W pt.	37140 pt	37140 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt.	3679000 pt	3679000 pt	3363603	25312 pt	25312 pt	336411WYVY	3721002	3721002
336322WYVW pt.	3694000	3694000	3363603101	2531213	2531213	3364121	37241	37241
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3363501541	3714649	3714649						
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3363503101	3714A04	3714A04						
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336510WYVWY pt	3531002 pt	3531002 pt	3366125204	3732403	3732403	3369993101	3799903	3799903
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1997 Economic Census

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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336412	Aircraft engine & engine parts mfg	279	370	82 892	4 234 135	48 112	98 633	1 933 060	11 572 463	11 347 698	22 659 548	668 718
372400	Aircraft engines & engine parts	N	370	82 892	4 234 135	48 112	98 633	1 933 060	11 572 463	11 347 698	22 659 548	668 718

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)				
336412, AIRCRAFT ENGINE & ENGINE PARTS MFG												
United States	-	370	248	82 892	4 234 135	48 112	98 633	1 933 060	11 572 463	11 347 698	22 659 548	668 718
Arizona	-	19	16	7 113	399 182	2 376	5 803	117 476	1 470 339	746 350	2 118 710	64 023
California	-	40	21	3 908	167 459	2 780	5 588	115 382	378 499	485 029	845 931	41 328
Connecticut	-	55	39	15 721	908 587	8 622	18 553	357 934	1 833 883	2 361 519	4 133 065	120 546
Florida	-	34	18	6 824	415 300	2 280	5 215	88 248	1 952 372	512 323	2 395 153	29 965
Massachusetts	-	15	14	5 900	311 045	3 757	7 091	174 770	727 187	1 099 928	1 855 626	57 653
Michigan	-	16	12	1 718	66 575	1 213	2 540	38 345	196 681	92 967	290 028	10 829
Ohio	-	29	23	10 281	620 740	4 846	8 739	215 262	1 999 760	2 465 998	4 539 766	142 592
Pennsylvania	-	8	6	1 335	63 166	999	2 037	37 936	127 755	204 710	322 650	7 152

* 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
336412, AIRCRAFT ENGINE & ENGINE PARTS MFG		336412, AIRCRAFT ENGINE & ENGINE PARTS MFG—Con.	
Companies ¹	number.. 279	Value added	\$1,000.. 11 572 463
All establishments	number.. 370	Total inventories, beginning of year	\$1,000.. 3 455 058
Establishments with 1 to 19 employees	number.. 122	Finished goods inventories, beginning of year	\$1,000.. 1 002 548
Establishments with 20 to 99 employees	number.. 112	Work-in-process inventories, beginning of year	\$1,000.. 2 012 042
Establishments with 100 employees or more	number.. 136	Materials and supplies inventories, beginning of year	\$1,000.. 440 468
All employees	number.. 82 892	Total inventories, end of year	\$1,000.. 3 751 029
Total compensation ²	\$1,000.. 5 334 895	Finished goods inventories, end of year	\$1,000.. 1 251 686
Annual payroll	\$1,000.. 4 234 135	Work-in-process inventories, end of year	\$1,000.. 2 023 517
Total fringe benefits	\$1,000.. 1 100 760	Materials and supplies inventories, end of year	\$1,000.. 475 826
Production workers, average for year	number.. 48 112	Gross book value of total assets at beginning of year	\$1,000.. 7 630 251
Production workers on March 12	number.. 47 499	Total capital expenditures (new and used)	\$1,000.. 668 718
Production workers on May 12	number.. 47 898	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 77 214
Production workers on August 12	number.. 47 723	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 591 504
Production workers on November 12	number.. 48 948	Total retirements ²	\$1,000.. 313 079
Production-worker hours	1,000.. 98 633	Gross book value of total assets at end of year	\$1,000.. 7 985 890
Production-worker wages	\$1,000.. 1 933 060	Total depreciation during year ²	\$1,000.. 613 113
Total cost of materials	\$1,000.. 11 347 698	Total rental payments ²	\$1,000.. 151 828
Cost of materials, parts, containers, etc., consumed	\$1,000.. 9 180 945	Buildings and other structures rental payments ²	\$1,000.. 41 509
Cost of resales	\$1,000.. 975 769	Machinery and equipment rental payments ²	\$1,000.. 110 319
Cost of fuels	\$1,000.. 42 752	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 39 553
Cost of purchased electricity	\$1,000.. 154 064	Response coverage ratio ⁴	percent.. 63
Cost of contract work	\$1,000.. 994 168	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 87 085
Quantity of electricity purchased for heat and power	1,000 kWh.. 2 403 580	Response coverage ratio ⁴	percent.. 63
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 35 559
Total value of shipments	\$1,000.. 22 659 548	Response coverage ratio ⁴	percent.. 63
Primary products value of shipments	\$1,000.. 19 228 049	Cost of purchased legal services ³	\$1,000.. 13 097
Secondary products value of shipments	\$1,000.. 2 312 634	Response coverage ratio ⁴	percent.. 63
Total miscellaneous receipts	\$1,000.. 1 118 865	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 3 876
Value of resales	\$1,000.. 1 022 076	Response coverage ratio ⁴	percent.. 63
Contract receipts	\$1,000.. 19 731	Cost of purchased advertising services ³	\$1,000.. 14 419
Other miscellaneous receipts	\$1,000.. 77 058	Response coverage ratio ⁴	percent.. 63
Primary products specialization ratio	percent.. 89	Cost of purchased software and other data processing services ³	\$1,000.. 23 590
Value of primary products shipments made in all industries	\$1,000.. 20 096 099	Response coverage ratio ⁴	percent.. 63
Value of primary products shipments made in this industry	\$1,000.. 19 228 049	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 9 928
Value of primary products shipments made in other industries	\$1,000.. 868 050	Response coverage ratio ⁴	percent.. 63
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	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)
336412. AIRCRAFT ENGINE & ENGINE PARTS MFG												
All establishments	-	370	248	82 892	4 234 135	48 112	98 633	1 933 060	11 572 463	11 347 698	22 659 548	668 718
Establishments with 1 to 4 employees	4	63	-	131	4 324	98	155	2 644	12 703	11 931	24 310	444
Establishments with 5 to 9 employees	3	27	-	188	7 726	131	238	4 647	35 189	19 556	55 056	764
Establishments with 10 to 19 employees	4	32	-	442	16 586	315	592	10 107	44 745	31 017	72 064	1 952
Establishments with 20 to 49 employees	2	66	66	2 330	94 818	1 595	3 344	54 141	246 769	142 135	385 523	8 792
Establishments with 50 to 99 employees	3	46	46	3 371	129 436	2 467	5 199	85 326	327 430	179 063	500 002	13 577
Establishments with 100 to 249 employees	1	76	76	12 356	475 713	8 683	18 894	284 948	1 107 644	812 350	1 875 482	80 604
Establishments with 250 to 499 employees	-	29	29	10 380	414 600	7 111	15 178	261 931	1 097 010	1 049 553	2 071 149	119 315
Establishments with 500 to 999 employees	-	19	19	12 317	532 836	8 618	17 173	329 094	1 337 678	1 679 090	3 080 305	106 280
Establishments with 1,000 to 2,499 employees	-	5	5	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	-	7	7	D	D	D	D	D	D	D	D	D
Administrative records ²	9	69	-	426	16 073	296	544	9 530	31 206	21 586	52 529	1 167

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)				
336412	Aircraft engine & engine parts mfg	370	82 892	4 234 135	48 112	98 633	1 933 060	11 572 463	11 347 698	22 659 548	668 718
3364121	Military aircraft engines (and any other aircraft built to military specifications)	8	D	D	D	D	D	D	D	D	D
3364123	Civilian aircraft engines	40	33 957	2 040 705	15 827	33 384	730 171	5 389 094	6 632 114	11 857 153	292 360
3364125	Aeronautical services on aircraft engines	27	4 987	180 874	3 940	7 340	116 964	362 141	332 628	697 813	31 673
3364127	Aircraft engine parts and accessories	157	31 195	1 299 840	22 381	46 481	835 080	3 213 770	2 907 185	6 054 999	265 680

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)
336412	Aircraft engines and engine parts	N	X	X	20 096 099	N	X	X	20 932 579
3364121	Military aircraft engines (and any other aircraft built to military specifications)	N	X	X	1 712 011	N	X	X	3 260 415
33641211	Military aircraft engines (and any other aircraft built to military specifications)	N	X	X	1 712 011	N	N	N	N
3364121100	Military aircraft engines (and any other aircraft built to military specifications)	20	X	X	1 712 011	28	X	X	3 260 415
3364123	Civilian aircraft engines @	N	X	X	5 295 622	N	X	X	6 667 521
33641230	Civilian aircraft engines	N	X	X	5 295 622	N	N	N	N
3364123000	Civilian aircraft engines	42	X	X	5 295 622	35	X	X	6 667 521
3364125	Aeronautical services on aircraft engines	N	X	X	3 229 045	N	X	X	2 678 510
33641251	Aeronautical services on aircraft engines	N	X	X	3 008 876	N	N	N	N
3364125101	Research and development work on U.S. military aircraft engines and all other engines built to military specifications	9	X	X	D	14	X	X	N
3364125104	Research and development work on civilian aircraft engines	8	X	X	D	16	X	X	N
3364125107	All other aeronautical services on U.S. military aircraft engines and all other engines built to military specifications	15	X	X	732 242	15	X	X	758 692
3364125111	All other aeronautical services on civilian aircraft engines	20	X	X	1 513 859	18	X	X	737 326
3364125Y	Aeronautical services on aircraft engines, nsk	N	X	X	220 169	N	N	N	N
3364125YVW	Aeronautical services on aircraft engines, nsk	N	X	X	220 169	N	X	X	2 455
3364127	Aircraft engine parts and accessories	N	X	X	9 441 222	N	X	X	7 965 191
33641271	Parts and accessories for spark ignition reciprocating or rotary internal combustion military aircraft engines	N	X	X	1 880 584	N	N	N	N
3364127101	Parts and accessories for spark ignition reciprocating or rotary internal combustion military aircraft engines	32	X	X	1 880 584	56	X	X	1 632 422
33641272	Parts and accessories for other military aircraft engines	N	X	X	531 233	N	N	N	N
3364127204	Parts and accessories for other military aircraft engines	68	X	X	531 233	72	X	X	1 519 377
33641273	Parts and accessories for spark ignition reciprocating or rotary internal combustion civilian aircraft engines	N	X	X	4 157 391	N	N	N	N
3364127307	Parts and accessories for spark ignition reciprocating or rotary internal combustion civilian aircraft engines	58	X	X	4 157 391	79	X	X	1 960 438
33641274	Parts and accessories for other civilian aircraft engines	N	X	X	2 017 867	N	N	N	N
3364127411	Parts and accessories for other civilian aircraft engines	83	X	X	2 017 867	79	X	X	2 664 458
3364127Y	Aircraft engine parts and accessories, nsk	N	X	X	854 147	N	N	N	N
3364127YVW	Aircraft engine parts and accessories, nsk	N	X	X	854 147	N	X	X	188 496
336412W	Aircraft engines and engine parts manufacturing, nsk, total	N	X	X	418 199	N	X	X	360 942
336412WY	Aircraft engines and engine parts manufacturing, nsk, total	N	X	X	418 199	N	N	N	N
336412WYVW	Aircraft engines and engine parts manufacturing, nsk, for nonadministrative-record establishments	N	X	X	368 771	N	X	X	321 787
336412WYVY	Aircraft engines and engine parts manufacturing, nsk, for administrative-record establishments	N	X	X	49 428	N	X	X	39 155

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
3364121	MILITARY AIRCRAFT ENGINES (AND ANY OTHER AIRCRAFT BUILT TO MILITARY SPECIFICATIONS)		
	United States	1 712 011	3 260 415
	Connecticut	44 884	N
3364123	CIVILIAN AIRCRAFT ENGINES @		
	United States	5 295 622	6 667 521
	California	57 632	N
	Florida	72 906	N
	Michigan	23 630	N
	Oklahoma	13 034	N
3364125	AERONAUTICAL SERVICES ON AIRCRAFT ENGINES		
	United States	3 229 045	2 678 510
	California	32 296	193 980
	Connecticut	117 576	127 087
	Massachusetts	217 501	N
	Michigan	22 343	N
	Oklahoma	92 259	N
3364127	AIRCRAFT ENGINE PARTS AND ACCESSORIES		
	United States	9 441 222	7 965 191
	Arizona	625 160	N
	California	654 166	647 498
	Connecticut	1 479 535	593 069
	Florida	823 570	1 036 828
	Georgia	301 296	99 290
	Illinois	221 984	253 801
	Indiana	485 346	285 125
	Massachusetts	439 414	413 201
	Michigan	234 337	227 815
	New York	279 274	351 784
	Ohio	1 055 129	1 706 817
	Oklahoma	38 054	16 785
	Pennsylvania	185 737	205 053
	Texas	147 936	229 995
	Washington	32 746	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)
336412	AIRCRAFT ENGINE & ENGINE PARTS MFG				
33641201	Aircraft engines	X	249 248	X	D
33641203	Aircraft engine parts (except instruments)	X	5 171 339	X	4 353 141
00190071	Other matrix composites, including ceramic, carbon, metal, etc.	X	16 014	X	24 114
33291209	Complete mechanical, hydraulic and pneumatic subassemblies	X	18 104	X	7 271
33299101	Ball and roller bearings (mounted or unmounted)	X	24 151	X	D
33351503	Cutting tools for machine tools	X	16 227	X	D
33251015	Aircraft metal hardware (except forgings)	X	174 165	X	104 449
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	27 315	X	65 801
33200009	Other fabricated metal products, except fluid power and forgings	X	51 984	X	69 701
33211101	Iron and steel forgings	X	186 798	X	128 105
33211203	Aluminum and aluminum-base alloy forgings	X	19 305	X	N
33211205	Titanium and titanium-base alloy forgings	X	114 733	X	137 539
33210003	Other forgings	X	58 714	X	N
33151001	Iron and steel castings (rough and semifinished)	X	223 091	X	103 551
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	28 193	X	71 383
33152003	Other nonferrous castings (rough and semifinished)	X	77 723	X	202 102
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	110 699	X	53 719
33120017	Steel sheet and strip, including tin plate	X	59 903	X	22 046
33120033	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	10 883	X	18 198
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing	X	7 654	X	5 015

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)
336412	AIRCRAFT ENGINE & ENGINE PARTS MFG—Con.				
33100055	All other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	1 391	X	13 583
33142111	Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	230	X	N
33149101	Titanium and titanium-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	21 724	X	28 853
33100065	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	32 263	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	798	X	912
00970099	All other materials and components, parts, containers, and supplies	X	461 633	X	D
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	2 016 663	X	D

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

336412 AIRCRAFT ENGINE AND ENGINE PARTS MANUFACTURING

This U.S. industry comprises establishments primarily engaged in one or more of the following: (1) manufacturing aircraft engines and engine parts; (2) developing and making prototypes of aircraft engines and engine parts; (3) aircraft propulsion system conversion (i.e., major modifications to systems); and (4) aircraft propulsion systems

overhaul and rebuilding (i.e., periodic restoration of aircraft propulsion system to original design specifications).

The data published with NAICS code 336412 include the following SIC industry:

3724 Aircraft engines and engine parts

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
@3364123	For additional detail, see Current Industrial Report M336G , Civil Aircraft and Aircraft Engines.

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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121544	3714227	3714227
3361201 pt.	37114 pt.	37114 pt.	33621213100	3715200	3715200	3363121571	3714241	3714241
3361201 pt.	37115 pt.	37117	33621213100	3715200	3715200	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37118	33621213100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201100 pt.	3711407	3711400 pt.	3362130	37160	37160	336312123	37144 pt.	37144 pt.
3361201100 pt.	3711400 pt.	3711400 pt.	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711500 pt.	3711700	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711800	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361202 pt.	37114 pt.	37114 pt.	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361202 pt.	37119	37119	3362130YWW	3716002	3716002	3363123YVV	3714A00 pt.	3714A00 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711900	3711900	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361203	37113	37113	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361203101	3711304	3711304	3362141207	3792116	3792116	3363210	36470	36470
3361203104	3711303	3711303	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203YVV	3711300	3711300	3362141413	3792125	3792125	3363210YWW	3647000 pt.	3647000 pt.
336120W	37110 pt.	37110 pt.	3362141416	3792128	3792128	3363210YWW	3647002	3647002
336120WYWW	3711000 pt.	3711000 pt.	3362141413	3792128	3792128	3363221	36941	36941
336120WYWW	3711002 pt.	3711002 pt.	3362141413	3792128	3792128	3363221101	3694101	3694101
3362111 pt.	37111 pt.	37111 pt.	3362141413	3792128	3792128	3363221104	3694102	3694102
3362111 pt.	37131	37131	3362141413	3792128	3792128	3363221201	3694103	3694103
3362111 pt.	37149 pt.	37149 pt.	3362141413	3792128	3792128	3363221204	3694104	3694104
3362111101	3713101	3713101	3362141413	3792128	3792128	3363221YVV	3694100	3694100
3362111204	3713102	3713102	3362141413	3792128	3792128	3363223	36942	36942
3362111307	3713112	3713112	3362141413	3792128	3792128	3363223101	3694201	3694201
3362111411	3713115	3713115	3362141413	3792128	3792128	3363223104	3694202	3694202
3362111413	3713116	3713116	3362141413	3792128	3792128	3363223201	3694203	3694203
3362111416	3713117	3713117	3362141413	3792128	3792128	3363223204	3694204	3694204
3362111519	3713121	3713121	3362141413	3792128	3792128	3363223YVV	3694200	3694200
3362111522	3713131	3713131	3362141413	3792128	3792128	3363225	36943	36943
3362111525	3713132	3713132	3362141413	3792128	3792128	3363225101	3694301	3694301
3362111528	3713135	3713135	3362141413	3792128	3792128	3363225104	3694302	3694302
3362111531	3713139	3713139	3362141413	3792128	3792128	3363225201	3694303	3694303
3362111534	3713143	3713143	3362141413	3792128	3792128	3363225YVV	3694300	3694300
3362111537	3713153	3713153	3362141413	3792128	3792128	3363227	36944	36944
3362111541	3713155	3713155	3362141413	3792128	3792128	3363227100	3694400	3694400
3362111543	3713161	3713161	3362141413	3792128	3792128	3363229	36947	36947
3362111546	3713162	3713162	3362141413	3792128	3792128	3363229101	3694701	3694701
3362111549	3713163	3713163	3362141413	3792128	3792128	3363229201	3694711	3694711
3362111552	3711171	3711171	3362141413	3792128	3792128	3363229301	3694702	3694702
3362111555	3711181	3711181	3362141413	3792128	3792128	3363229304	3694704	3694704
3362111558	3714925	3714925	3362141413	3792128	3792128	3363229307	3694705	3694705
3362111571 pt.	3713171	3713171	3362141413	3792128	3792128	3363229309	3694719	3694719
3362111571 pt.	3714924	3714941 pt.	3362141413	3792128	3792128	3363229YVV	3694700	3694700
3362111YVV pt.	3711100 pt.	3711100 pt.	3363111	35921	35921	336322A	36949	36949
3362111YVV pt.	3713100	3713100	3363111101	3592101	3592101	336322A101	3694901	3694901
3362111YVV pt.	3714900 pt.	3714900 pt.	3363111103	3592102	3592102	336322A204	3694907	3694907
3362113 pt.	37114 pt.	37114 pt.	3363111105	3592103	3592103	336322A307	3694911	3694911
3362113 pt.	37132	37132	3363111207	3592105	3592105	336322A409	3694912	3694912
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3362113219	3713225	3713225	3363113	35922	35922	336322A615	3694919	3694919
3362113304	3713211	3713211	3363113101	3592201	3592201	336322AYVV	3694900	3694900
3362113307	3713213	3713213	3363113103	3592202	3592202	336322C pt.	36799 pt.	36799 pt.
3362113311	3713215	3713215	3363113105	3592203	3592203	336322C pt.	37149 pt.	37149 pt.
3362113313	3713217	3713217	3363113205	3592204	3592204	336322C pt.	3714A pt.	3714A pt.
3362113316	3713218	3713218	3363113207	3592204	3592204	336322C102	3714913	3714913
3362113322	3713226	3713226	3363113209	3592205	3592205	336322C104	3714914	3714914
3362113325	3713227	3713227	3363113211	3592206	3592206	336322C107	3714915	3714915
3362113328	3713241	3713239 pt.	3363113313	3592209	3592209	336322C111 pt.	3714921	3714917
3362113331 pt.	3711411	3711400 pt.	3363113YVV	3592200	3592200	336322C111 pt.	3714921 pt.	3714917
3362113331 pt.	3713243	3713239 pt.	3363115	35923	35923	336322C114	3714942	3714904 pt.
3362113YVV pt.	3711400 pt.	3711400 pt.	3363115101	3592301	3592301	336322C117	3714944	3714904 pt.
3362113YVV pt.	3713200	3713200	3363115103	3592302	3592302	336322C119	3679926	3679920 pt.
			3363115YVV	3592300	3592300	336322C121	3714945	3714941 pt.
			336311W	35920	35920	336322C122	3714946	3714941 pt.
			336311YWW	3592000	3592000	336322C124	3714A05	3714A41 pt.
			336311YWW	3592002	3592002	336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt.	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt.	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt.	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt.	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt.	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt.	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt.	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt.	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt.	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt.	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
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336322WYVW pt.	3714002 pt	3714002 pt	336360W pt.	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt.	37142 pt	37142 pt	336360W pt.	23990 pt	23990 pt	3364125	37243	37243
3363301 pt.	37149 pt	37149 pt	336360W pt.	25310 pt	25310 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360WYVW pt.	2396000 pt	2396000 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt.	2399000 pt	2399000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt.	2531000 pt	2531000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt.	2396002 pt	2396002 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt.	2399002 pt	2399002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt.	2531002 pt	2531002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	3363700	34650	34650	3364127104	3724402	3724402
3363301524	3714919	3714941 pt	3363700100	3465000 pt	3465000 pt	3364127204	3724402	3724402
3363301526	3714228	3714228	3363700YVW	3465000 pt	3465000 pt	3364127307	3724405	3724405
3363301528	3714911	3714911	3363700YVW	3465002	3465002	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363917	35857	35851 pt	3364127YVW	3724400	3724400
3363301YVW pt.	3714200 pt	3714200 pt	3363917010	3585705	3585100 pt	336412W	37240	37240
3363301YVW pt.	3714900 pt	3714900 pt	3363917020	3585707	3585100 pt	336412WYVW	3724000	3724000
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3363303101	3714A06	3714A06	3363917YVW	3585700	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	336391B	3585B	35854 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B000	3585B00	3585400 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt.	3714A00 pt	336391W	35850 pt	35850 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	336391WYVW	3585000 pt	3585000 pt	3364131111	3728261	3728261
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585002 pt	3585002 pt	3364131YVW	3728200	3728200
336330WYVW	3714002 pt.	3714002 pt	3363991	37144	37144	3364133	37283	37283
3363401 pt.	32922	32922	3363991101	3714401	3714401	3364133101	3728313	3728313
3363401 pt.	37148	37148	3363991104	3714402	3714402	3364133104	3728315	3728315
3363401 pt.	37149 pt	37149 pt	3363991107	3714404	3714404	3364133YVW	3728300	3728300
3363401101	3714801	3714801	3363991111	3714405	3714405	3364135	37285	37285
3363401104	3714802	3714802	3363991113	3714407	3714407	3364135101	3728513	3728513
3363401211	3714807	3714807	3363991116	3714408	3714408	3364135104	3728515	3728515
3363401313	3714809	3714809	3363991119	3714409	3714409	3364135207	3728594	3728594
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3363401416	3714811	3714811	3363993	37145	37145	3364135211	3728595	3728595
3363401519	3714813	3714813	3363993101	3714501	3714501	3364135313	3728598	3728598
3363401625	3714817	3714817	3363993104	3714502	3714502	3364135416	3728599	3728599
3363401707	3714803	3714803	3363993107	3714503	3714503	3364135YVW	3728500	3728500
3363401722	3714815	3714815	3363993YVW	3714500	3714500	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363995	37147	37147	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363995101	3714701	3714701	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363995104	3714705	3714705	3364141	37611	37611
3363401745	3714912	3714912	3363995107	3714707	3714707	3364141100	3761100	3761100
3363401747 pt.	3292200 pt.	3292200 pt.	3363995111	3714714	3714714	3364143	37613	37613
3363401747 pt.	3292200 pt.	3292211 pt.	3363995116	3714717	3714717	3364143100	3761300	3761300
3363401747 pt.	3292200 pt.	3292215 pt.	3363995YVW	3714700	3714700	3364145	37616	37616
3363401747 pt.	3292200 pt.	3292221 pt.	3363997 pt.	35199 pt	35199 pt	3364145100	3761600	3761600
3363401747 pt.	3292200 pt.	3292258 pt.	3363997 pt.	37142 pt	37142 pt	3364147	37612	37612
3363401747 pt.	3292200 pt.	3292277 pt.	3363997 pt.	37149 pt	37149 pt	3364147101	3761201	3761201
3363401747 pt.	3292200 pt.	3292280 pt.	3363997 pt.	37149 pt	37149 pt	3364147204	3761202	3761202
3363401YVW pt.	3714800	3714800	3363997 pt.	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363401YVW pt.	3714900 pt.	3714900 pt	3363997 pt.	37149 pt	37149 pt	3364149	37614	37614
3363403	3714A pt	3714A pt	3363997 pt.	37149 pt	37149 pt	3364149101	3761401	3761401
3363403101	3714A09	3714A09	3363997 pt.	37149 pt	37149 pt	3364149104	3761402	3761402
3363403104	3714A10	3714A10	3363997 pt.	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403107	3714A11	3714A11	3363997 pt.	37149 pt	37149 pt	336414A	37617	37617
3363403111	3714A33	3714A33	3363997 pt.	37149 pt	37149 pt	336414A101	3761702	3761702
3363403114	3714A35	3714A35	3363997 pt.	37149 pt	37149 pt	336414A104	3761703	3761703
3363403117	3714A37	3714A37	3363997 pt.	37149 pt	37149 pt	336414AYVW	3761700	3761700
3363403117	3714A37	3714A37	3363997 pt.	37149 pt	37149 pt	336414W	37610	37610
3363403121	3714A44	3714A41 pt	3363997 pt.	37149 pt	37149 pt	336414WYVW	3761000	3761000
3363403YVW	3714A00 pt.	3714A00 pt	3363997 pt.	37149 pt	37149 pt	336414WYVW	3761002	3761002
336340W pt.	32920 pt	32920 pt	3363997 pt.	37149 pt	37149 pt	3364151	37645	37645
336340W pt.	37140 pt	37140 pt	3363997 pt.	37149 pt	37149 pt	3364151101	3764511	3764511
336340WYVW pt.	3292000 pt.	3292000 pt.	3363997 pt.	37149 pt	37149 pt	3364151204	3764513	3764513
336340WYVW pt.	3714000 pt.	3714000 pt.	3363997 pt.	37149 pt	37149 pt	3364151307	3764515	3764515
336340WYVW pt.	3292002 pt.	3292002 pt.	3363997 pt.	37149 pt	37149 pt	3364151YVW	3764500	3764500
336340WYVW pt.	3714002 pt.	3714002 pt.	3363997 pt.	37149 pt	37149 pt	3364153	37646	37646
3363501	37146	37146	3363997 pt.	37149 pt	37149 pt	3364153101	3764611	3764611
3363501101	3714603	3714603	3363997 pt.	37149 pt	37149 pt	3364153104	3764613	3764613
3363501104	3714605	3714605	3363997 pt.	37149 pt	37149 pt	3364153107	3764615	3764615
3363501207	3714613	3714613	3363997 pt.	37149 pt	37149 pt	3364153YVW	3764600	3764600
3363501211	3714615	3714615	3363997 pt.	37149 pt	37149 pt	3364155	37647	37647
3363501313	3714623	3714623	3363997 pt.	37149 pt	37149 pt	3364155101	3764711	3764711
3363501316	3714625	3714625	3363997 pt.	37149 pt	37149 pt	3364155104	3764713	3764713
3363501434	3714641	3714641	3363997 pt.	37149 pt	37149 pt	3364155107	3764715	3764715
3363501519	3714628	3714628	3363997 pt.	37149 pt	37149 pt	3364155YVW	3764700	3764700
3363501522	3714631	3714631	3363997 pt.	37149 pt	37149 pt	3364157	37648	37648
3363501525	3714633	3714633	3363997 pt.	37149 pt	37149 pt	3364157101	3764811	3764811
3363501528	3714635	3714635	3363997 pt.	37149 pt	37149 pt	3364157104	3764813	3764813
3363501531	3714637	3714637	3363997 pt.	37149 pt	37149 pt	3364157107	3764815	3764815
3363501537	3714643	3714643	3363997 pt.	37149 pt	37149 pt	3364157YVW	3764800	3764800
3363501541	3714649	3714649	3363997 pt.	37149 pt	37149 pt	336415W	37640	37640
3363501YVW	3714600	3714600	3363997 pt.	37149 pt	37149 pt	336415WYVW	3764000	3764000
3363503	3714A pt	3714A pt	3363997 pt.	37149 pt				

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
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336419104	3769213	3769213	3366115107	3731335	3731335	336612W	37320 pt	37320 pt
3364191207	3769219	3769219	3366115111	3731343	3731343	336612WYVW	3732000 pt	3732000 pt
3364191311	3769225	3769225	3366115113	3731348	3731348	336612WYVWY	3732002 pt	3732002 pt
3364191413	3769235	3769235	3366115116	3731357	3731357	3369911 pt	37511	37511
3364191YVW	3769200	3769200	3366115119	3731321	3731321	3369911 pt	39443 pt	39443 pt
			3366115121	3731332	3731332	3369911101 pt	3751148 pt	3751139
3364193	37694	37694	3366115123	3731333	3731333	3369911101 pt	3751148 pt	3751141
3364193101	3769414	3769414	3366115124 pt	3731361 pt	3731324	3369911101 pt	3751148 pt	3751143
3364193104	3769419	3769419	3366115124 pt	3731361 pt	3731326	3369911101 pt	3751148 pt	3751145
3364193107	3769425	3769425	3366115124 pt	3731361 pt	3731328	3369911101 pt	3751148 pt	3751147
3364193111	3769435	3769435	3366115YVW	3731300	3731300	3369911101 pt	3751148 pt	3751149
3364193YVW	3769400	3769400				3369911101 pt	3751148 pt	3751155
			3366117	37314	37314	3369911104 pt	3751109	3751109
336419W	37690	37690	3366117101	3731441	3731441	3369911104 pt	3944336	3944346 pt
336419WYVW	3769000	3769000	3366117104	3731449	3731449	3369911109	3751110	3751110
336419WYVWY	3769002	3769002	3366117YVW	3731400	3731400	3369911113	3751112	3751112
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3365101	37431 pt	37431 pt	3366119	37316	37316	3369911119	3751116	3751116
3365101101	3743101	3743101 pt	3366119101	3731601	3731601	3369911122 pt	3751124 pt	3751113
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3365103	37432	37432	336611WYVWY	3731002	3731002	3369913100 pt	3751200 pt	3751200
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3365103100 pt	3743200 pt	3743265	3366121111	3732207	3732207	3369919YVWY pt	3944002 pt	3944002 pt
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3365105 pt	3531X pt	3531M pt	3366121116	3732210	3732219 pt	3369920 pt	37114 pt	37114 pt
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3365105 pt	3531X pt	3531P pt	3366121225	3732223	3732223	3369920214	3795051	3795051
			3366121228	3732225	3732225	3369920216	3711401	3711400 pt
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3365105 pt	37433	37433	3366121231	3732227	3732227	3369920YVW pt	3711000 pt	3711000 pt
3365105301	3743301	3743301	3366121234	3732226	3732229 pt	3369920YVW pt	3711400 pt	3711400 pt
3365105304	3743305	3743305	3366121239	3732222	3732229 pt	3369920YVWY pt	3795000	3795000
3365105405	3531X21	3531P21	3366121243	3732224	3732229 pt	3369920YVWY pt	3711002 pt	3711002 pt
3365105407	3743304	3743304	3366121246	3732231	3732228 pt	3369920YVWY pt	3795002	3795002
3365105411	3743311	3743311	3366121246	3732228	3732228	3369991	37993	37993
3365105413	3743312	3743312	3366121337	3732228	3732228	3369991101	3799382	3799382
3365105416	3743314	3743314	3366121YVW	3732200	3732200	3369991104	3799384	3799384
3365105419 pt	3531X80	3531M21 pt				3369991YVW	3799300	3799300
3365105419 pt	3743319	3743319	3366123	37323	37323	3369993	37999 pt	37999 pt
3365105YVW pt	3531X00 pt	3531M00 pt	3366123104	3732311	3732311	3369993101	3799903	3799903
3365105YVW pt	3531X00 pt	3531P00 pt	3366123107	3732316	3732316	3369993204	3799904	3799904
3365105YVW pt	3743300	3743300	3366123201	3732304	3732304	3369993307	3799905	3799905
			3366123211	3732321	3732321	3369993414	3799916	3799923 pt
336510W pt	35310 pt	35310 pt	3366123YVW	3732300	3732300	3369993417	3799915	3799923 pt
						3369993421	3799920	3799923 pt
336510W pt	37430 pt	37430 pt	3366125	37324	37324	3369993513	3799925	3799925
336510WYVW pt	3531000 pt	3531000 pt	3366125107	3732405	3732405	3369993YVW	3799900 pt	3799900 pt
336510WYVW pt	3743000 pt	3743000 pt	3366125201	3732401	3732401	336999W	37990 pt	37990 pt
336510WYVWY pt	3531002 pt	3531002 pt	3366125204	3732403	3732403	336999WYVW	3799000 pt	3799000 pt
336510WYVWY pt	3743002 pt	3743002 pt	3366125211	3732406	3732409 pt			
			3366125213 pt	3732408 pt	3732407			
			3366125213 pt	3732408 pt	3732409 pt			
			3366125YVW	3732400	3732400			
3366111	37311	37311						
3366111101	3731111	3731111	3366127	37327	37327			
3366111104	3731107	3731107	3366127101	3732702	3732702			
3366111107	3731119	3731119	3366127104	3732704	3732704			
3366111YVW	3731100	3731100	3366127107	3732706	3732706			
			3366127111	3732708	3732708			
			3366127113	3732712	3732712			
3366113	37312	37312	3366127116	3732717	3732717			
3366113100	3731200	3731200						

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1997 Economic Census

Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336413	Other aircraft part & auxiliary equipment mfg	1 051	1 138	127 729	5 737 768	73 680	157 093	3 037 568	13 279 697	7 480 056	20 073 061	935 580
372840	Aircraft parts & equipment, n.e.c. (pt)	N	1 138	127 729	5 737 768	73 680	157 093	3 037 568	13 279 697	7 480 056	20 073 061	935 580

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)				
336413, OTHER AIRCRAFT PART & AUXILIARY EQUIPMENT MFG												
United States	-	1 138	458	127 729	5 737 768	73 680	157 093	3 037 568	13 279 697	7 480 056	20 073 061	935 580
Arizona	-	38	17	2 132	77 874	1 329	2 673	33 484	177 854	104 749	276 156	14 125
California	-	250	109	30 395	1 339 695	14 937	29 511	605 546	3 037 957	1 800 715	4 675 069	220 857
Illinois	-	18	10	3 964	215 700	1 385	3 115	64 960	564 561	313 682	831 788	40 544
Maryland	-	9	5	549	21 978	328	651	12 229	58 611	22 636	86 518	9 587
New York	-	49	24	5 841	268 344	2 757	4 973	79 153	1 075 798	516 619	1 653 673	26 627
Oklahoma	-	29	10	2 107	89 436	1 433	2 887	52 657	286 198	163 796	475 409	11 646
Oregon	-	24	7	2 379	99 578	1 859	3 616	81 844	256 617	102 998	355 899	14 061
Tennessee	-	15	9	3 012	134 835	2 065	4 096	84 022	285 535	156 486	416 655	16 673
Texas	-	85	23	7 857	414 330	3 952	7 399	217 029	984 583	330 592	1 141 072	46 833

* 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
336413, OTHER AIRCRAFT PART & AUXILIARY EQUIPMENT MFG		336413, OTHER AIRCRAFT PART & AUXILIARY EQUIPMENT MFG—Con.	
Companies ¹	number.. 1 051	Value added	\$1,000.. 13 279 697
All establishments	number.. 1 138	Total inventories, beginning of year	\$1,000.. 5 083 374
Establishments with 1 to 19 employees	number.. 680	Finished goods inventories, beginning of year	\$1,000.. 509 124
Establishments with 20 to 99 employees	number.. 287	Work-in-process inventories, beginning of year	\$1,000.. 3 747 847
Establishments with 100 employees or more	number.. 171	Materials and supplies inventories, beginning of year	\$1,000.. 826 403
All employees	number.. 127 729	Total inventories, end of year	\$1,000.. 6 099 780
Total compensation ²	\$1,000.. 7 333 296	Finished goods inventories, end of year	\$1,000.. 943 861
Annual payroll	\$1,000.. 5 737 768	Work-in-process inventories, end of year	\$1,000.. 3 999 802
Total fringe benefits	\$1,000.. 1 595 528	Materials and supplies inventories, end of year	\$1,000.. 1 156 117
Production workers, average for year	number.. 73 680	Gross book value of total assets at beginning of year	\$1,000.. 9 633 770
Production workers on March 12	number.. 70 789	Total capital expenditures (new and used)	\$1,000.. 935 580
Production workers on May 12	number.. 72 928	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 192 162
Production workers on August 12	number.. 72 587	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 743 418
Production workers on November 12	number.. 78 416	Total retirements ²	\$1,000.. 265 794
Production-worker hours	1,000.. 157 093	Gross book value of total assets at end of year	\$1,000.. 10 303 556
Production-worker wages	\$1,000.. 3 037 568	Total depreciation during year ²	\$1,000.. 752 335
Total cost of materials	\$1,000.. 7 480 056	Total rental payments ²	\$1,000.. 184 228
Cost of materials, parts, containers, etc., consumed	\$1,000.. 6 380 766	Buildings and other structures rental payments ²	\$1,000.. 96 768
Cost of resales	\$1,000.. 164 063	Machinery and equipment rental payments ²	\$1,000.. 87 460
Cost of fuels	\$1,000.. 45 259	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 52 958
Cost of purchased electricity	\$1,000.. 197 425	Response coverage ratio ⁴	percent.. 74
Cost of contract work	\$1,000.. 692 543	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 87 031
Quantity of electricity purchased for heat and power	1,000 kWh.. 3 456 137	Response coverage ratio ⁴	percent.. 74
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 25 355
Total value of shipments	\$1,000.. 20 073 061	Response coverage ratio ⁴	percent.. 74
Primary products value of shipments	\$1,000.. 16 712 235	Cost of purchased legal services ³	\$1,000.. 16 376
Secondary products value of shipments	\$1,000.. 2 878 828	Response coverage ratio ⁴	percent.. 74
Total miscellaneous receipts	\$1,000.. 481 998	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 8 946
Value of resales	\$1,000.. 222 623	Response coverage ratio ⁴	percent.. 74
Contract receipts	\$1,000.. 105 580	Cost of purchased advertising services ³	\$1,000.. 7 857
Other miscellaneous receipts	\$1,000.. 153 795	Response coverage ratio ⁴	percent.. 74
Primary products specialization ratio	percent.. 85	Cost of purchased software and other data processing services ³	\$1,000.. 65 016
Value of primary products shipments made in all industries	\$1,000.. 22 368 311	Response coverage ratio ⁴	percent.. 74
Value of primary products shipments made in this industry	\$1,000.. 16 712 235	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 25 817
Value of primary products shipments made in other industries	\$1,000.. 5 656 076	Response coverage ratio ⁴	percent.. 74
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)				
336413. OTHER AIRCRAFT PART & AUXILIARY EQUIPMENT MFG												
All establishments	-	1 138	458	127 729	5 737 768	73 680	157 093	3 037 568	13 279 697	7 480 056	20 073 061	935 580
Establishments with 1 to 4 employees	9	335	-	699	19 719	499	684	11 493	40 320	19 892	62 260	2 863
Establishments with 5 to 9 employees	8	164	-	1 117	34 777	724	1 086	19 897	74 615	36 952	115 299	5 686
Establishments with 10 to 19 employees	7	181	-	2 486	83 517	1 673	2 690	47 397	176 044	93 785	276 669	13 533
Establishments with 20 to 49 employees	3	208	208	6 373	220 155	4 289	7 666	126 173	495 618	287 322	781 242	38 178
Establishments with 50 to 99 employees	-	79	79	5 455	193 089	3 769	7 199	113 102	419 320	249 017	665 778	30 961
Establishments with 100 to 249 employees	-	97	97	16 003	585 663	10 561	21 201	320 178	1 671 819	905 408	2 597 064	122 232
Establishments with 250 to 499 employees	-	43	43	14 648	573 966	9 953	20 401	315 639	1 277 296	693 249	1 993 991	95 853
Establishments with 500 to 999 employees	-	13	13	8 889	406 039	5 627	11 177	244 794	984 688	587 593	1 519 430	51 443
Establishments with 1,000 to 2,499 employees	-	11	11	16 621	827 430	10 536	22 159	462 515	2 372 866	1 301 661	3 475 781	154 949
Establishments with 2,500 employees or more	-	7	7	55 438	2 793 413	26 049	62 830	1 376 380	5 767 111	3 305 177	8 585 547	419 882
Administrative records ²	9	645	-	5 072	146 948	3 348	4 710	85 252	306 288	147 857	467 993	22 471

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)				
336413	Other aircraft part & auxiliary equipment mfg	1 138	127 729	5 737 768	73 680	157 093	3 037 568	13 279 697	7 480 056	20 073 061	935 580
3364131	Aircraft propellers and helicopter rotors	28	2 070	85 260	1 389	3 101	48 202	188 453	110 535	294 548	11 992
3364133	Research and development on aircraft parts (except engines)	4	D	D	D	D	D	D	D	D	D
3364135	Aircraft parts and auxiliary equipment, excluding hydraulic and pneumatic subassemblies and engines	333	115 327	5 333 192	65 546	143 691	2 810 670	12 410 947	6 981 281	18 670 177	871 980

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)
336413	Aircraft parts and auxiliary equipment, nec	N	X	X	22 368 311	N	X	X	N
3364131	Aircraft propellers and helicopter rotors	N	X	X	1 011 234	N	X	X	532 271
33641311	Aircraft propellers and helicopter rotors	N	X	X	984 211	N	X	X	N
3364131101	Complete aircraft propellers, excluding helicopter rotors	10	X	X	100 679	9	X	X	86 521
3364131104	Aircraft propeller blades	10	X	X	80 490	9	X	X	64 459
3364131107	Aircraft propeller parts, except propeller blades	10	X	X	95 390	13	X	X	82 071
3364131111	Helicopter rotors and parts	29	X	X	707 652	31	X	X	282 361
3364131Y	Aircraft propellers and helicopter rotors, nsk	N	X	X	27 023	N	X	X	N
3364131YVW	Aircraft propellers and helicopter rotors, nsk	N	X	X	27 023	N	X	X	16 859
3364133	Research and development on aircraft parts (except engines)	N	X	X	1 453 345	N	X	X	1 311 085
33641331	Research and development on aircraft parts (except engines)	N	X	X	1 446 572	N	X	X	N
3364133101	Research and development on U.S. military aircraft parts (except engines) and all other aircraft parts built to military specifications	22	X	X	1 375 253	N	X	X	N
3364133104	Research and development on civilian aircraft parts (except engines)	18	X	X	71 319	N	X	X	N
3364133Y	Research and development on aircraft parts (except engines), nsk	N	X	X	6 773	N	X	X	N
3364133YVW	Research and development on aircraft parts (except engines), nsk	N	X	X	6 773	N	X	X	466
3364135	Aircraft parts and auxiliary equipment, excluding hydraulic and pneumatic subassemblies and engines	N	X	X	18 891 291	N	X	X	18 246 728
33641351	Aircraft mechanical power transmission equipment for civilian and U.S. military aircraft	N	X	X	1 124 132	N	X	X	N
3364135101	Aircraft mechanical power transmission equipment for U.S. military aircraft and all other aircraft built to military specifications	21	X	X	472 598	27	X	X	589 155
3364135104	Aircraft mechanical power transmission equipment for civilian aircraft	19	X	X	651 534	23	X	X	749 756
33641352	Aircraft landing gear	N	X	X	1 500 534	N	X	X	N
3364135207	Aircraft landing gear for U.S. military aircraft and all other aircraft built to military specifications	21	X	X	800 308	24	X	X	872 574
3364135211	Aircraft landing gear for civilian aircraft	27	X	X	700 226	31	X	X	630 944
33641353	Other aircraft subassemblies and parts for U.S. military aircraft and all other aircraft built to military specifications	N	X	X	3 413 998	N	X	X	N
3364135313	Other aircraft subassemblies and parts for U.S. military aircraft and all other aircraft built to military specifications	175	X	X	3 413 998	204	X	X	3 854 210
33641354	Other aircraft subassemblies and parts for civilian aircraft	N	X	X	12 824 678	N	X	X	N
3364135416	Other aircraft subassemblies and parts for civilian aircraft	255	X	X	12 824 678	237	X	X	11 489 449
3364135Y	Aircraft parts and auxiliary equipment, excluding hydraulic and pneumatic subassemblies and engines, nsk	N	X	X	27 949	N	X	X	N
3364135YVW	Aircraft parts and auxiliary equipment, excluding hydraulic and pneumatic subassemblies and engines, nsk	N	X	X	27 949	N	X	X	60 640
336413W	Aircraft parts and auxiliary equipment, nec, nsk, total	N	X	X	1 012 441	N	X	X	N
336413WY	Aircraft parts and auxiliary equipment, nec, nsk, total	N	X	X	1 012 441	N	X	X	N
336413WYVW	Aircraft parts and auxiliary equipment, nec, nsk, for nonadministrative-record establishments	N	X	X	537 735	N	X	X	N
336413WYVY	Aircraft parts and auxiliary equipment, nec, nsk, for administrative-record establishments	N	X	X	474 706	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
3364131	AIRCRAFT PROPELLERS AND HELICOPTER ROTORS		
	United States	1 011 234	532 271
	California	77 728	57 664
	Connecticut	197 624	210 277
	Georgia	3 514	N
3364133	RESEARCH AND DEVELOPMENT ON AIRCRAFT PARTS (EXCEPT ENGINES)		
	United States	1 453 345	1 311 085
	Arizona	86 781	N
	Illinois	14 174	N
3364135	AIRCRAFT PARTS AND AUXILIARY EQUIPMENT, EXCLUDING HYDRAULIC AND PNEUMATIC SUBASSEMBLIES AND ENGINES		
	United States	18 891 291	18 246 728
	Arizona	885 626	164 021
	Arkansas	264 223	N
	California	3 374 100	3 914 640
	Colorado	120 499	72 052
	Connecticut	895 602	N
	Florida	386 763	193 130
	Georgia	332 873	N
	Illinois	687 709	206 501
	Kansas	2 210 741	N
	Maryland	86 806	N
	Michigan	144 771	144 255
	Minnesota	27 624	N
	Missouri	454 012	N
	New Jersey	118 687	156 171
	New York	874 037	1 209 325
	Ohio	845 716	779 311
	Oklahoma	439 807	427 328
	Pennsylvania	215 606	215 887
	Tennessee	361 534	N
	Texas	1 035 171	1 686 420
	Washington	3 902 718	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)
336413	OTHER AIRCRAFT PART & AUXILIARY EQUIPMENT MFG				
33641201	Aircraft engines	X	3 663	X	N
33641203	Aircraft engine parts (except instruments)	X	48 951	X	N
33641303	Structural fuselage components, excluding instruments	X	D	X	N
33641305	Structural empennage (tail) components, excluding instruments	X	50 806	X	N
33641307	Structural wing components, excluding instruments	X	96 715	X	N
33641309	Structural landing gear components	X	D	X	N
33641311	Other structural components (airframe), including engine mounts, excluding instruments	X	314 576	X	N
33641301	Aircraft propellers and parts thereof	X	D	X	N
33636005	Aircraft seats	X	1 546	X	N
33422003	Radio communication systems and equipment, including airborne transmitters and receivers (microwave, UHF, VHF, etc.)	X	D	X	N
33451103	Navigational systems and equipment (NAV AIDS)	X	D	X	N
001900D5	Search, detection, tracking, and electronic communication systems and equipment (RADAR, SONAR, Optical)	X	D	X	N
33400025	Flight, navigational, airframe, and engine indicators, instruments, and clusters, including sensors, displays, etc.	X	8 500	X	N
001900B7	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	X	97 274	X	N
00190070	Resin matrix composites	X	122 203	X	N
00190071	Other matrix composites, including ceramic, carbon, metal, etc.	X	226 051	X	N
33291209	Complete mechanical, hydraulic and pneumatic subassemblies	X	201 884	X	N
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	4 245	X	N
33291201	Fluid power valves (except complete assemblies)	X	9 546	X	N
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic)	X	2 269	X	N
33399503	Fluid power cylinders and rotary actuators (except complete assemblies)	X	3 834	X	N
33399901	Fluid power filters (hydraulic and pneumatic)	X	580	X	N
00190089	Other fluid power products (hydraulic and pneumatic)	X	2 072	X	N
33299101	Ball and roller bearings (mounted or unmounted)	X	27 071	X	N
33351503	Cutting tools for machine tools	X	59 073	X	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)
336413	OTHER AIRCRAFT PART & AUXILIARY EQUIPMENT MFG—Con.				
33251015	Aircraft metal hardware (except forgings)	X	1 267 701	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	237 721	X	N
33200009	Other fabricated metal products, except fluid power and forgings	X	213 585	X	N
33211101	Iron and steel forgings	X	63 780	X	N
33211203	Aluminum and aluminum-base alloy forgings	X	106 464	X	N
33211205	Titanium and titanium-base alloy forgings	X	45 528	X	N
33210003	Other forgings	X	20 485	X	N
33151001	Iron and steel castings (rough and semifinished)	X	41 541	X	N
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	67 045	X	N
33152003	Other nonferrous castings (rough and semifinished)	X	14 769	X	N
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	51 043	X	N
33120017	Steel sheet and strip, including tin plate	X	25 617	X	N
33120033	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	8 068	X	N
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing	X	278 516	X	N
33100055	All other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	83 459	X	N
33142111	Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	1 009	X	N
33149101	Titanium and titanium-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	52 670	X	N
33100065	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	8 011	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	43 091	X	N
00970099	All other materials and components, parts, containers, and supplies	X	1 283 872	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	977 032	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

336413 OTHER AIRCRAFT PARTS AND AUXILIARY EQUIPMENT MANUFACTURING

This U.S. industry comprises establishment primarily engaged in (1) manufacturing aircraft parts or auxiliary equipment (except engines and aircraft fluid power subassemblies) and/or (2) developing and making prototypes of aircraft parts and auxiliary equipment. Auxiliary equipment includes such items as crop dusting apparatus, armament racks, inflight refueling equipment, and external fuel tanks.

The data published with NAICS code 336413 include the following SIC industry:

3728 Aircraft parts and equipment, 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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121547	3714227	3714227
3361201 pt.	37114 pt.	37114 pt.	33621213100	3715200	3715200	3363121571	3714241	3714241
3361201 pt.	37115 pt.	37117	33621213100	3715200	3715200	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37118	33621213100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201100 pt.	3711407	3711400 pt.	3362130	37160	37160	33631213100	3714200 pt.	3714200 pt.
3361201100 pt.	3711400 pt.	3711400 pt.	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711500 pt.	3711700	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711800	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361202 pt.	37114 pt.	37114 pt.	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361202 pt.	37119	37119	3362130YWW	3716002	3716002	3363123YWW	3714A00 pt.	3714A00 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711900	3711900	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361203	37113	37113	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361203101	3711304	3711304	3362141207	3792116	3792116	3363210	36470	36470
3361203104	3711303	3711303	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203YWW	3711300	3711300	3362141413	3792125	3792125	3363210YWW	3647000 pt.	3647000 pt.
336120W	37110 pt.	37110 pt.	3362141416	3792128	3792128	3363210YWW	3647002	3647002
336120WYWW	3711000 pt.	3711000 pt.	3362141413	3792128	3792128	3363221	36941	36941
336120WYWW	3711002 pt.	3711002 pt.	3362141413	3792128	3792128	3363221101	3694101	3694101
3362111 pt.	37111 pt.	37111 pt.	3362141413	3792128	3792128	3363221104	3694102	3694102
3362111 pt.	37131	37131	3362141413	3792128	3792128	3363221201	3694103	3694103
3362111 pt.	37149 pt.	37149 pt.	3362141413	3792128	3792128	3363221204	3694104	3694104
3362111101	3713101	3713101	3362141413	3792128	3792128	3363221YWW	3694100	3694100
3362111204	3713102	3713102	3362141413	3792128	3792128	3363223	36942	36942
3362111307	3713112	3713112	3362141413	3792128	3792128	3363223101	3694201	3694201
3362111411	3713115	3713115	3362141413	3792128	3792128	3363223104	3694202	3694202
3362111413	3713116	3713116	3362141413	3792128	3792128	3363223201	3694203	3694203
3362111416	3713117	3713117	3362141413	3792128	3792128	3363223204	3694204	3694204
3362111519	3713121	3713121	3362141413	3792128	3792128	3363223YWW	3694200	3694200
3362111522	3713131	3713131	3362141413	3792128	3792128	3363225	36943	36943
3362111525	3713132	3713132	3362141413	3792128	3792128	3363225101	3694301	3694301
3362111528	3713135	3713135	3362141413	3792128	3792128	3363225104	3694302	3694302
3362111531	3713139	3713139	3362141413	3792128	3792128	3363225201	3694303	3694303
3362111534	3713143	3713143	3362141413	3792128	3792128	3363225YWW	3694300	3694300
3362111537	3713153	3713153	3362141413	3792128	3792128	3363227	36944	36944
3362111541	3713155	3713155	3362141413	3792128	3792128	3363227100	3694400	3694400
3362111543	3713161	3713161	3362141413	3792128	3792128	3363229	36947	36947
3362111546	3713162	3713162	3362141413	3792128	3792128	3363229101	3694701	3694701
3362111549	3713163	3713163	3362141413	3792128	3792128	3363229201	3694711	3694711
3362111552	3711171	3711171	3362141413	3792128	3792128	3363229301	3694702	3694702
3362111555	3711181	3711181	3362141413	3792128	3792128	3363229304	3694704	3694704
3362111558	3714925	3714925	3362141413	3792128	3792128	3363229307	3694705	3694705
3362111571 pt.	3713171	3713171	3362141413	3792128	3792128	3363229309	3694719	3694719
3362111571 pt.	3714924	3714941 pt.	3362141413	3792128	3792128	3363229YWW	3694700	3694700
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111	35921	35921	336322A	36949	36949
3362111YWW pt.	3713100	3713100	3363111101	3592101	3592101	336322A101	3694901	3694901
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111103	3592102	3592102	336322A204	3694907	3694907
3362113 pt.	37114 pt.	37114 pt.	3363111105	3592103	3592103	336322A307	3694911	3694911
3362113 pt.	37132	37132	3363111207	3592105	3592105	336322A409	3694912	3694912
3362113101	3713201	3713201	3363111YWW	3592100	3592100	336322A512	3694913	3694913
3362113219	3713225	3713225	3363113	35922	35922	336322A615	3694919	3694919
3362113304	3713211	3713211	3363113101	3592201	3592201	336322AYWW	3694900	3694900
3362113307	3713213	3713213	3363113103	3592202	3592202	336322C pt.	36799 pt.	36799 pt.
3362113311	3713215	3713215	3363113205	3592203	3592203	336322C pt.	37149 pt.	37149 pt.
3362113313	3713217	3713217	3363113207	3592204	3592204	336322C pt.	3714A pt.	3714A pt.
3362113316	3713218	3713218	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113322	3713226	3713226	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113325	3713227	3713227	3363113YWW	3592200	3592200	336322C107	3714915	3714915
3362113328	3713241	3713239 pt.	3363115	35923	35923	336322C111 pt.	3714921	3714917
3362113331 pt.	3711411	3711400 pt.	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714941 pt.
3362113331 pt.	3713243	3713239 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	3363115YWW	3592300	3592300	336322C117	3714944	3714904 pt.
3362113YWW pt.	3713200	3713200	336311W	35920	35920	336322C119	3679926	3679920 pt.
			336311WYWW	3592000	3592000	336322C121	3714945	3714941 pt.
			336311WYWW	3592002	3592002	336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127YVW	3724400	3724400
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	336412W	37240	37240
3363301YVW pt	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412WYVW	3724000	3724000
3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724002	3724002
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	3364131	37282	37282
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131101	3728210	3728210
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131104	3728231	3728231
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131107	3728251	3728251
3363303YVW	3714A00 pt	3714A00 pt	336391B000	3585B00	3585400 pt	3364131111	3728261	3728261
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131YVW	3728200	3728200
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585000 pt	3585000 pt	3364133	37283	37283
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364133101	3728313	3728313
3363401 pt	32922	32922	3363991	37144	37144	3364133104	3728315	3728315
3363401 pt	37148	37148	3363991101	3714401	3714401	3364133YVW	3728300	3728300
3363401 pt	37149 pt	37149 pt	3363991104	3714402	3714402	3364135	37285	37285
3363401101	3714801	3714801	3363991107	3714403	3714403	3364135101	3728513	3728513
3363401104	3714802	3714802	3363991111	3714405	3714405	3364135104	3728515	3728515
3363401211	3714807	3714807	3363991113	3714407	3714407	3364135207	3728594	3728594
3363401313	3714809	3714809	3363991116	3714408	3714408	3364135211	3728595	3728595
3363401416	3714811	3714811	3363991119	3714409	3714409	3364135313	3728598	3728598
3363401519	3714813	3714813	3363991YVW	3714400	3714400	3364135416	3728599	3728599
3363401625	3714817	3714817	3363993	37145	37145	3364135YVW	3728500	3728500
3363401707	3714803	3714803	3363993101	3714501	3714501	336413W	37280 pt	37280 pt
3363401722	3714815	3714815	3363993104	3714502	3714502	336413WYVW	3728000 pt	3728000 pt
3363401737	3714821	3714821	3363993107	3714503	3714503	336413WYVW	3728002 pt	3728002 pt
3363401741	3714823	3714823	3363993YVW	3714500	3714500	3364141	37611	37611
3363401744	3714825	3714825	3363995	37147	37147	3364141100	3761100	3761100
3363401745	3714912	3714912	3363995101	3714701	3714701	3364143	37613	37613
3363401747 pt	3292200 pt	3292200 pt	3363995104	3714705	3714705	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292211 pt	3363995107	3714707	3714707	3364145	37616	37616
3363401747 pt	3292200 pt	3292211 pt	3363995111	3714714	3714714	3364145100	3761600	3761600
3363401747 pt	3292200 pt	3292258 pt	3363995YVW	3714700	3714700	3364147	37612	37612
3363401747 pt	3714827	3714827	3363997 pt	35199 pt	35199 pt	3364147101	3761201	3761201
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	37142 pt	37142 pt	3364147204	3761202	3761202
3363401YVW pt	3714800	3714800	3363997 pt	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A101	3761702	3761702
3363403114	3714A35	3714A35	3363997010	3714901	3714901	336414A104	3761703	3761703
3363403117	3714A37	3714A37	3363997204	3714902	3714902	336414AYVW	3761700	3761700
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3366111107	3731119	3731119	3366127107	3732706	3732706			
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3366113	37312	37312	3366127116	3732717	3732717			
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1997 Economic Census

Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336414	Guided missile & space vehicle mfg	15	22	52 158	3 156 221	18 722	36 483	824 117	8 582 966	5 598 036	14 791 466	637 729
376100	Guided missiles & space vehicles	N	22	52 158	3 156 221	18 722	36 483	824 117	8 582 966	5 598 036	14 791 466	637 729

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)				
336414, GUIDED MISSILE & SPACE VEHICLE MFG												
United States	-	22	18	52 158	3 156 221	18 722	36 483	824 117	8 582 966	5 598 036	14 791 466	637 729
California	-	8	8	31 286	1 904 029	6 299	13 747	270 330	4 864 244	2 812 134	8 092 229	519 547

* 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
336414, GUIDED MISSILE & SPACE VEHICLE MFG		336414, GUIDED MISSILE & SPACE VEHICLE MFG	
— Con.		— Con.	
Companies ¹	number.. 15	Value added	\$1,000.. 8 582 966
All establishments	number.. 22	Total inventories, beginning of year	\$1,000.. 3 322 328
Establishments with 1 to 19 employees	number.. 4	Finished goods inventories, beginning of year	\$1,000.. D
Establishments with 20 to 99 employees	number.. 3	Work-in-process inventories, beginning of year	\$1,000.. 3 036 929
Establishments with 100 employees or more	number.. 15	Materials and supplies inventories, beginning of year	\$1,000.. D
All employees	number.. 52 158	Total inventories, end of year	\$1,000.. 2 637 923
Total compensation ²	\$1,000.. 3 942 227	Finished goods inventories, end of year	\$1,000.. D
Annual payroll	\$1,000.. 3 156 221	Work-in-process inventories, end of year	\$1,000.. 2 426 444
Total fringe benefits	\$1,000.. 786 006	Materials and supplies inventories, end of year	\$1,000.. D
Production workers, average for year	number.. 18 722	Gross book value of total assets at beginning of year	\$1,000.. 5 074 992
Production workers on March 12	number.. 18 791	Total capital expenditures (new and used)	\$1,000.. 637 729
Production workers on May 12	number.. 18 715	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 251 009
Production workers on August 12	number.. 18 726	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 386 720
Production workers on November 12	number.. 18 656	Total retirements ²	\$1,000.. 371 907
Production-worker hours	1,000.. 36 483	Gross book value of total assets at end of year	\$1,000.. 5 340 814
Production-worker wages	\$1,000.. 824 117	Total depreciation during year ²	\$1,000.. 376 614
Total cost of materials	\$1,000.. 5 598 036	Total rental payments ²	\$1,000.. 96 351
Cost of materials, parts, containers, etc., consumed	\$1,000.. 3 410 584	Buildings and other structures rental payments ²	\$1,000.. 57 607
Cost of resales	\$1,000.. D	Machinery and equipment rental payments ²	\$1,000.. 38 744
Cost of fuels	\$1,000.. 9 081	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 36 809
Cost of purchased electricity	\$1,000.. 61 710	Response coverage ratio ⁴	percent.. 98
Cost of contract work	\$1,000.. D	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 19 580
Quantity of electricity purchased for heat and power	1,000 kWh.. 1 081 045	Response coverage ratio ⁴	percent.. 98
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 53 712
Total value of shipments	\$1,000.. 14 791 466	Response coverage ratio ⁴	percent.. 98
Primary products value of shipments	\$1,000.. 12 061 536	Cost of purchased legal services ³	\$1,000.. 28 795
Secondary products value of shipments	\$1,000.. 2 016 648	Response coverage ratio ⁴	percent.. 98
Total miscellaneous receipts	\$1,000.. 713 282	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 14 154
Value of resales	\$1,000.. D	Response coverage ratio ⁴	percent.. 98
Contract receipts	\$1,000.. D	Cost of purchased advertising services ³	\$1,000.. 7 613
Other miscellaneous receipts	\$1,000.. D	Response coverage ratio ⁴	percent.. 98
Primary products specialization ratio	percent.. 85	Cost of purchased software and other data processing services ³	\$1,000.. 222 786
Value of primary products shipments made in all industries	\$1,000.. 12 671 414	Response coverage ratio ⁴	percent.. 98
Value of primary products shipments made in this industry	\$1,000.. 12 061 536	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 5 635
Value of primary products shipments made in other industries	\$1,000.. 609 878	Response coverage ratio ⁴	percent.. 98
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	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)
336414. GUIDED MISSILE & SPACE VEHICLE MFG												
All establishments	-	22	18	52 158	3 156 221	18 722	36 483	824 117	8 582 966	5 598 036	14 791 466	637 729
Establishments with 1 to 4 employees	9	1	-	D	D	D	D	D	D	D	D	D
Establishments with 5 to 9 employees	-	-	-	-	-	-	-	-	-	-	-	-
Establishments with 10 to 19 employees	-	3	-	D	D	D	D	D	D	D	D	D
Establishments with 20 to 49 employees	9	1	1	D	D	D	D	D	D	D	D	D
Establishments with 50 to 99 employees	-	2	2	D	D	D	D	D	D	D	D	D
Establishments with 100 to 249 employees	-	2	2	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	-	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	-	7	7	47 526	2 904 583	16 285	31 713	715 698	7 918 159	4 902 717	13 450 692	608 402
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)				
336414	Guided missile & space vehicle mfg	22	52 158	3 156 221	18 722	36 483	824 117	8 582 966	5 598 036	14 791 466	637 729
3364141	Complete guided missiles	3	7 233	483 348	1 850	4 531	56 810	808 637	732 650	1 866 018	D
3364143	Research and development on complete guided missiles	4	D	D	D	D	D	D	D	D	D
3364147	Complete space vehicles (excluding propulsion systems)	7	D	D	D	D	D	D	D	D	D
3364149	Research and development on complete space vehicles	1	D	D	D	D	D	D	D	D	D
336414A	All other services on complete space vehicles	4	D	D	D	D	D	D	D	D	D

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)
336414	Guided missiles and space vehicles	N	X	X	12 671 414	N	X	X	13 972 083
3364141	Complete guided missiles	N	X	X	1 694 379	N	X	X	4 064 782
33641411	Complete guided missiles	N	X	X	1 694 379	N	X	X	N
3364141100	Complete guided missiles	5	X	X	1 694 379	11	X	X	4 064 782
3364143	Research and development on complete guided missiles	N	X	X	2 271 322	N	X	X	1 351 807
33641431	Research and development on complete guided missiles	N	X	X	2 271 322	N	X	X	N
3364143100	Research and development on complete guided missiles	5	X	X	2 271 322	12	X	X	1 351 807
3364145	Other services on complete guided missiles	N	X	X	D	N	X	X	1 354 797
33641451	Other services on complete guided missiles	N	X	X	D	N	X	X	N
3364145100	Other services on complete guided missiles	3	X	X	D	13	X	X	1 354 797
3364147	Complete space vehicles (excluding propulsion systems)	N	X	X	D	N	X	X	5 797 129
33641471	Complete space vehicles (excluding propulsion systems) for U.S. Government military customers	N	X	X	D	N	X	X	N
3364147101	Complete space vehicles (excluding propulsion systems) for U.S. Government military customers	7	X	X	D	8	X	X	4 409 424
33641472	Complete space vehicles (excluding propulsion systems) for other customers	N	X	X	D	N	X	X	N
3364147204	Complete space vehicles (excluding propulsion systems) for other customers	5	X	X	D	6	X	X	1 387 705
3364147Y	Complete space vehicles (excluding propulsion systems), nsk	N	X	X	-	N	X	X	N
3364147YV	Complete space vehicles (excluding propulsion systems), nsk	N	X	X	-	N	X	X	-
3364149	Research and development on complete space vehicles	N	X	X	781 841	N	X	X	588 239
33641491	Research and development on complete space vehicles	N	X	X	781 841	N	X	X	N
3364149101	Research and development on complete space vehicles for U.S. Government military customers	8	X	X	301 932	8	X	X	219 119
3364149104	Research and development on complete space vehicles for other customers	4	X	X	479 909	6	X	X	369 120
3364149Y	Research and development on complete space vehicles, nsk	N	X	X	-	N	X	X	N
3364149YV	Research and development on complete space vehicles, nsk	N	X	X	-	N	X	X	-
336414A	All other services on complete space vehicles	N	X	X	1 231 629	N	X	X	814 844
336414A1	All other services on complete space vehicles	N	X	X	1 231 629	N	X	X	N
336414A101	All other services on complete space vehicles for U.S. Government military customers	8	X	X	711 006	6	X	X	706 211
336414A104	All other services on complete space vehicles for other customers	6	X	X	520 623	6	X	X	108 633
336414AY	All other services on complete space vehicles, nsk	N	X	X	-	N	X	X	N
336414AYV	All other services on complete space vehicles, nsk	N	X	X	-	N	X	X	-
336414W	Guided missile and space vehicle manufacturing, nsk, total	N	X	X	9 646	N	X	X	485
336414WY	Guided missile and space vehicle manufacturing, nsk, total	N	X	X	9 646	N	X	X	N
336414WYV	Guided missile and space vehicle manufacturing, nsk, for nonadministrative-record establishments	N	X	X	9 646	N	X	X	485
336414WYVY	Guided missile and space vehicle manufacturing, 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
3364141	COMPLETE GUIDED MISSILES		
	United States	1 694 379	4 064 782
3364143	RESEARCH AND DEVELOPMENT ON COMPLETE GUIDED MISSILES		
	United States	2 271 322	1 351 807
3364145	OTHER SERVICES ON COMPLETE GUIDED MISSILES		
	United States	D	1 354 797
3364147	COMPLETE SPACE VEHICLES (EXCLUDING PROPULSION SYSTEMS)		
	United States	D	5 797 129
3364149	RESEARCH AND DEVELOPMENT ON COMPLETE SPACE VEHICLES		
	United States	781 841	588 239
	California.....	671 145	454 747
336414A	ALL OTHER SERVICES ON COMPLETE SPACE VEHICLES		
	United States	1 231 629	814 844
	California.....	1 067 014	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)
336414	GUIDED MISSILE & SPACE VEHICLE MFG				
33641503	Guided missile and space vehicle engines and parts	X	429 341	X	620 965
33641501	Guided missile and space vehicle propulsion units and parts	X	D	X	D
33641900	Guided missile and space vehicle airframe parts	X	D	X	D
33422003	Radio communication systems and equipment, including airborne transmitters and receivers (microwave, UHF, VHF, etc.)	X	D	X	N
33451103	Navigational systems and equipment (NAV AIDS).....	X	D	X	N
001900D5	Search, detection, tracking, and electronic communication systems and equipment (RADAR, SONAR, Optical)	X	D	X	N
33400025	Flight, navigational, airframe, and engine indicators, instruments, and clusters, including sensors, displays, etc.	X	D	X	N
001900B7	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	X	D	X	D
00190070	Resin matrix composites	X	-	X	N
00190071	Other matrix composites, including ceramic, carbon, metal, etc.....	X	D	X	8 413
33291209	Complete mechanical, hydraulic and pneumatic subassemblies	X	22 368	X	77 066
00190090	Fluid power products	X	6 978	X	26 550
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	D	X	13 263
33200063	Other fabricated metal products (except fluid power products and forgings)	X	D	X	D
33211101	Iron and steel forgings	X	D	X	D
33211201	Nonferrous forgings	X	-	X	D
33151001	Iron and steel castings (rough and semifinished)	X	D	X	N
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	D	X	N
33152003	Other nonferrous castings (rough and semifinished)	X	-	X	N
33100033	Metal shapes and forms, except castings, forgings, and fabricated metal products	X	D	X	12 689
32500045	Chemicals, all types (including propellants)	X	D	X	D
33510000	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	X	D	X	D
00970099	All other materials and components, parts, containers, and supplies	X	824 554	X	1 654 250
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	1 146 275	X	786 802

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

336414 GUIDED MISSILE AND SPACE VEHICLE MANUFACTURING

This U.S. industry comprises establishments primarily engaged in (1) manufacturing complete guided missiles and space vehicles and/or (2) developing and making prototypes of guided missile or space vehicles.

The data published with NAICS code 336414 include the following SIC industry:

3761 Guided missiles and space vehicles

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
3361110 pt.....	37110 pt.....	37110 pt	336211W pt.....	37110 pt.....	37110 pt	3363121.....	37142 pt.....	37142 pt
3361110 pt.....	37111 pt.....	37111 pt	336211W pt.....	37130.....	37130	3363121101.....	3714201.....	3714201
3361110 pt.....	37114 pt.....	37114 pt	336211W pt.....	37140 pt.....	37140 pt	3363121224.....	3714218.....	3714218
3361110100 pt.....	3711100 pt.....	3711100 pt	336211WYWW pt.....	3711000 pt.....	3711000 pt	3363121351.....	3714231.....	3714231
3361110100 pt.....	3711111.....	3711111 pt	336211WYWW pt.....	3713000.....	3713000	3363121354.....	3714232.....	3714232
3361110100 pt.....	3711151.....	3711151	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121457.....	3714234.....	3714234
3361110100 pt.....	3711400 pt.....	3711400 pt	336211WYWW pt.....	3711002 pt.....	3711002 pt	3363121467.....	3714237.....	3714237
3361110100 pt.....	3711403.....	3711400 pt	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121504.....	3714206.....	3714206
3361110YWW.....	3711000 pt.....	3711000 pt	336211WYWW pt.....	3713002.....	3713002	3363121507.....	3714207.....	3714207
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3714002 pt.....	3714002 pt	3363121511.....	3714208.....	3714208
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3715002.....	3715002	3363121514.....	3714209.....	3714209
3361120 pt.....	37110 pt.....	37110 pt	3362121.....	37151.....	37151	3363121517.....	3714215.....	3714215
3361120 pt.....	37114 pt.....	37114 pt	3362121000.....	3715100.....	3715100	3363121521.....	3714216.....	3714216
3361120 pt.....	37116.....	37116	336212123.....	37152.....	37152	3363121527.....	3714217.....	3714217
3361120100 pt.....	3711405.....	3711400 pt	33621213100.....	3715200.....	3715200	3363121531.....	3714222.....	3714222
3361120100 pt.....	3711400 pt.....	3711400 pt	33621213100.....	3715200.....	3715200	3363121534.....	3714224.....	3714224
3361120100 pt.....	3711600.....	3711600	33621213100.....	3715200.....	3715200	3363121537.....	3714225.....	3714225
3361120YWW.....	3711000 pt.....	3711000 pt	33621213100.....	3715200.....	3715200	3363121541.....	3714226.....	3714226
3361120YWW.....	3711002 pt.....	3711002 pt	33621213100.....	3715200.....	3715200	3363121544.....	3714227.....	3714227
3361120YWW.....	3711002 pt.....	3711002 pt	33621213100.....	3715200.....	3715200	3363121571.....	3714241.....	3714241
3361201 pt.....	37114 pt.....	37114 pt	33621213100.....	3715200.....	3715200	3363121574.....	3714249.....	3714249
3361201 pt.....	37115 pt.....	37117	33621213100.....	3715200.....	3715200	3363121YWW.....	3714200 pt.....	3714200 pt
3361201 pt.....	37115 pt.....	37118	3362130.....	37160.....	37160	3363123.....	37144 pt.....	37144 pt
3361201100 pt.....	3711407.....	3711400 pt	3362130101.....	3716001.....	3716001	3363123101.....	3714A02.....	3714A02
3361201100 pt.....	3711400 pt.....	3711400 pt	3362130104.....	3716005.....	3716005	3363123104.....	3714A03.....	3714A03
3361201100 pt.....	3711400 pt.....	3711400 pt	3362130107.....	3716007.....	3716007	3363123107.....	3714A23.....	3714A23
3361201100 pt.....	3711500 pt.....	3711700	3362130111.....	3716021.....	3716021	3363123111.....	3714A25.....	3714A25
3361201100 pt.....	3711500 pt.....	3711800	3362130YWW.....	3716000.....	3716000	3363123121.....	3714A43.....	3714A41 pt
3361202 pt.....	37114 pt.....	37114 pt	3362130YWW.....	3716002.....	3716002	3363123YWW.....	3714A00 pt.....	3714A00 pt
3361202 pt.....	37119.....	37119	3362141.....	37921.....	37921	336312W.....	37140 pt.....	37140 pt
3361202100 pt.....	3711409.....	3711400 pt	3362141101.....	3792112.....	3792112	336312WYWW.....	3714000 pt.....	3714000 pt
3361202100 pt.....	3711400 pt.....	3711400 pt	3362141104.....	3792114.....	3792114	336312WYWW.....	3714002 pt.....	3714002 pt
3361202100 pt.....	3711900.....	3711900	3362141207.....	3792116.....	3792116	3363210.....	36470.....	36470
3361203.....	37113.....	37113	3362141311.....	3792118.....	3792118	3363210100.....	3647000 pt.....	3647000 pt
3361203101.....	3711304.....	3711304	3362141311.....	3792118.....	3792118	3363210YWW.....	3647000 pt.....	3647000 pt
3361203104.....	3711303.....	3711303	3362141413.....	3792125.....	3792125	3363210YWW.....	3647002.....	3647002
3361203YWW.....	3711300.....	3711300	3362141516.....	3792128.....	3792128	3363221.....	36941.....	36941
336120W.....	37110 pt.....	37110 pt	3362141YWW.....	3792100.....	3792100	3363221101.....	3694101.....	3694101
336120WYWW.....	3711000 pt.....	3711000 pt	3362143.....	37996.....	37996	3363221104.....	3694102.....	3694102
336120WYWW.....	3711002 pt.....	3711002 pt	3362143101.....	3799611.....	3799601 pt	3363221201.....	3694103.....	3694103
3362111 pt.....	37111 pt.....	37111 pt	3362143105.....	3799613.....	3799602 pt	3363221204.....	3694104.....	3694104
3362111 pt.....	37131.....	37131	3362143108.....	3799615.....	3799604 pt	3363221YWW.....	3694100.....	3694100
3362111 pt.....	37149 pt.....	37149 pt	3362143111.....	3799617.....	3799607 pt	3363223.....	36942.....	36942
3362111101.....	3713101.....	3713101	3362143114.....	3799619.....	3799609 pt	3363223101.....	3694201.....	3694201
3362111204.....	3713102.....	3713102	3362143117.....	3799651 pt.....	3799602 pt	3363223104.....	3694202.....	3694202
3362111307.....	3713112.....	3713112	3362143117 pt.....	3799651 pt.....	3799604 pt	3363223201.....	3694203.....	3694203
3362111411.....	3713115.....	3713115	3362143117 pt.....	3799651 pt.....	3799607 pt	3363223204.....	3694204.....	3694204
3362111413.....	3713116.....	3713116	3362143YWW.....	3799600.....	3799609 pt	3363223YWW.....	3694200.....	3694200
3362111416.....	3713117.....	3713117	3362145.....	37922.....	37922	3363225.....	36943.....	36943
3362111519.....	3713121.....	3713121	3362145101.....	3792242.....	3792242	3363225101.....	3694301.....	3694301
3362111522.....	3713131.....	3713131	3362145204.....	3792244.....	3792244	3363225104.....	3694302.....	3694302
3362111525.....	3713132.....	3713132	3362145207.....	3792247.....	3792247	3363225201.....	3694303.....	3694303
3362111528.....	3713135.....	3713135	3362145311 pt.....	3792268 pt.....	3792261	3363225YWW.....	3694300.....	3694300
3362111531.....	3713139.....	3713139	3362145311 pt.....	3792268 pt.....	3792263	3363227.....	36944.....	36944
3362111534.....	3713143.....	3713143	3362145311 pt.....	3792268 pt.....	3792269	3363227100.....	3694400.....	3694400
3362111537.....	3713153.....	3713153	3362145YWW.....	3792200.....	3792200	3363229.....	36947.....	36947
3362111541.....	3713155.....	3713155	336214W pt.....	37920.....	37920	3363229101.....	3694701.....	3694701
3362111543.....	3713161.....	3713161	336214W pt.....	37990.....	37990	3363229201.....	3694711.....	3694711
3362111546.....	3713162.....	3713162	336214WYWW pt.....	3792000.....	3792000	3363229301.....	3694702.....	3694702
3362111549.....	3713163.....	3713163	336214WYWW pt.....	3799000 pt.....	3799000 pt	3363229304.....	3694704.....	3694704
3362111552.....	3711171.....	3711171	336214WYWW pt.....	3792002.....	3792002	3363229307.....	3694705.....	3694705
3362111555.....	3711181.....	3711181 pt	336214WYWW pt.....	3799002 pt.....	3799002 pt	3363229309.....	3694719.....	3694719
3362111558.....	3714925.....	3714925	3363111.....	35921.....	35921	3363229YWW.....	3694700.....	3694700
3362111571 pt.....	3713171.....	3713171	3363111101.....	3592101.....	3592101	336322A.....	36949.....	36949
3362111YWW pt.....	3711100 pt.....	3711100 pt	3363111103.....	3592102.....	3592102	336322A101.....	3694901.....	3694901
3362111YWW pt.....	3713100.....	3713100	3363111105.....	3592103.....	3592103	336322A204.....	3694907.....	3694907
3362111YWW pt.....	3714900 pt.....	3714900 pt	3363111207.....	3592105.....	3592105	336322A307.....	3694911.....	3694911
3362113 pt.....	37114 pt.....	37114 pt	3363111YWW.....	3592100.....	3592100	336322A409.....	3694912.....	3694912
3362113 pt.....	37132.....	37132	3363113.....	35922.....	35922	336322A512.....	3694913.....	3694913
3362113101.....	3713201.....	3713201	3363113101.....	3592201.....	3592201	336322A615.....	3694919.....	3694919
3362113219.....	3713225.....	3713225	3363113103.....	3592202.....	3592202	336322AYWW.....	3694900.....	3694900
3362113304.....	3713211.....	3713211	3363113205.....	3592203.....	3592203	336322C pt.....	36799 pt.....	36799 pt
3362113307.....	3713213.....	3713213	3363113207.....	3592204.....	3592204	336322C pt.....	37149 pt.....	37149 pt
3362113311.....	3713215.....	3713215	3363113209.....	3592205.....	3592205	336322C pt.....	3714A pt.....	3714A pt
3362113313.....	3713217.....	3713217	3363113211.....	3592206.....	3592206	336322C102.....	3714913.....	3714913
3362113316.....	3713218.....	3713218	3363113313.....	3592209.....	3592209	336322C104.....	3714914.....	3714914
3362113322.....	3713226.....	3713226	3363113YWW.....	3592200.....	3592200	336322C107.....	3714915.....	3714915
3362113325.....	3713227.....	3713227	3363115.....	35923.....	35923	336322C111 pt.....	3714921.....	3714921
3362113328.....	3713241.....	3713239 pt	3363115101.....	3592301.....	3592301	336322C111 pt.....	3714921 pt.....	3714921 pt
3362113331 pt.....	3711411.....	3711400 pt	3363115103.....	3592302.....	3592302	336322C114.....	3714942.....	3714904 pt
3362113331 pt.....	3713243.....	3713239 pt	3363115YWW.....	3592300.....	3592300	336322C117.....	3714944.....	3714904 pt
3362113YWW pt.....	3711400 pt.....	3711400 pt	336311W.....	35920.....	35920	336322C119.....	3679926.....	3679920 pt
3362113YWW pt.....	3713200.....	3713200	336311WYWW.....	3592000.....	3592000	336322C121.....	3714945.....	3714941 pt
			336311WYWW.....	3592002.....	3592002	336322C122.....	3714946.....	3714941 pt
						336322C124.....	3714A05.....	3714A41 pt
						336322C127.....	3714A40.....	3714A41 pt

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127307	3724406	3724406
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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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3365105405	3531X21	3531P21	3366121243	3732224	3732229 pt	3369920 pt	37950	37950
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			3366127107	3732706	3732706			
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Manufacturing

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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336415	Guided missile & space vehicle propulsion unit & parts mfg...	19	28	18 540	1 066 084	8 264	16 480	381 550	2 134 726	1 124 834	3 239 033	65 089
376400	Space propulsion units & parts	N	28	18 540	1 066 084	8 264	16 480	381 550	2 134 726	1 124 834	3 239 033	65 089

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)				
336415, GUIDED MISSILE & SPACE VEHICLE PROPULSION UNIT & PARTS MFG												
United States	-	28	22	18 540	1 066 084	8 264	16 480	381 550	2 134 726	1 124 834	3 239 033	65 089

* 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
336415, GUIDED MISSILE & SPACE VEHICLE PROPULSION UNIT & PARTS MFG		336415, GUIDED MISSILE & SPACE VEHICLE PROPULSION UNIT & PARTS MFG—Con.	
Companies ¹	number.. 19	Value added	\$1,000.. 2 134 726
All establishments	number.. 28	Total inventories, beginning of year	\$1,000.. 311 073
Establishments with 1 to 19 employees	number.. 6	Finished goods inventories, beginning of year	\$1,000.. D
Establishments with 20 to 99 employees	number.. 5	Work-in-process inventories, beginning of year	\$1,000.. 259 118
Establishments with 100 employees or more	number.. 17	Materials and supplies inventories, beginning of year	\$1,000.. D
All employees	number.. 18 540	Total inventories, end of year	\$1,000.. 345 777
Total compensation ²	\$1,000.. 1 350 982	Finished goods inventories, end of year	\$1,000.. D
Annual payroll	\$1,000.. 1 066 084	Work-in-process inventories, end of year	\$1,000.. 269 481
Total fringe benefits	\$1,000.. 284 898	Materials and supplies inventories, end of year	\$1,000.. D
Production workers, average for year	number.. 8 264	Gross book value of total assets at beginning of year	\$1,000.. 1 336 724
Production workers on March 12	number.. 8 468	Total capital expenditures (new and used)	\$1,000.. 65 089
Production workers on May 12	number.. 8 460	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 17 458
Production workers on August 12	number.. 8 045	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 47 631
Production workers on November 12	number.. 8 083	Total retirements ²	\$1,000.. 65 112
Production-worker hours	1,000.. 16 480	Gross book value of total assets at end of year	\$1,000.. 1 336 701
Production-worker wages	1,000.. 381 550	Total depreciation during year ²	\$1,000.. 75 022
Total cost of materials	\$1,000.. 1 124 834	Total rental payments ²	\$1,000.. 20 418
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 026 554	Buildings and other structures rental payments ²	\$1,000.. 12 769
Cost of resales	\$1,000.. D	Machinery and equipment rental payments ²	\$1,000.. 7 649
Cost of fuels	\$1,000.. 8 688	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 19 021
Cost of purchased electricity	\$1,000.. 35 193	Response coverage ratio ⁴	percent.. 89
Cost of contract work	\$1,000.. D	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 11 989
Quantity of electricity purchased for heat and power	1,000 kWh.. 636 230	Response coverage ratio ⁴	percent.. 89
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 8 127
Total value of shipments	\$1,000.. 3 239 033	Response coverage ratio ⁴	percent.. 89
Primary products value of shipments	\$1,000.. 2 498 362	Cost of purchased legal services ³	\$1,000.. 16 049
Secondary products value of shipments	\$1,000.. 715 971	Response coverage ratio ⁴	percent.. 89
Total miscellaneous receipts	\$1,000.. 24 700	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 126
Value of resales	\$1,000.. D	Response coverage ratio ⁴	percent.. 89
Contract receipts	\$1,000.. D	Cost of purchased advertising services ³	\$1,000.. 1 121
Other miscellaneous receipts	\$1,000.. D	Response coverage ratio ⁴	percent.. 89
Primary products specialization ratio	percent.. 77	Cost of purchased software and other data processing services ³	\$1,000.. 18 114
Value of primary products shipments made in all industries	\$1,000.. 3 127 431	Response coverage ratio ⁴	percent.. 89
Value of primary products shipments made in this industry	\$1,000.. 2 498 362	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 2 975
Value of primary products shipments made in other industries	\$1,000.. 629 069	Response coverage ratio ⁴	percent.. 89
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	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)				
336415. GUIDED MISSILE & SPACE VEHICLE PROPULSION UNIT & PARTS MFG												
All establishments	-	28	22	18 540	1 066 084	8 264	16 480	381 550	2 134 726	1 124 834	3 239 033	65 089
Establishments with 1 to 4 employees	-	1	-	D	D	D	D	D	D	D	D	D
Establishments with 5 to 9 employees	3	3	-	D	D	D	D	D	D	D	D	D
Establishments with 10 to 19 employees	-	2	-	D	D	D	D	D	D	D	D	D
Establishments with 20 to 49 employees	-	4	4	D	D	D	D	D	D	D	D	D
Establishments with 50 to 99 employees	-	1	1	D	D	D	D	D	D	D	D	D
Establishments with 100 to 249 employees	-	3	3	475	20 768	227	474	5 930	49 730	25 977	70 209	4 170
Establishments with 250 to 499 employees	-	5	5	1 744	103 524	1 097	2 224	54 132	174 456	223 181	400 102	13 614
Establishments with 500 to 999 employees	-	4	4	3 009	157 359	1 597	3 186	67 462	370 202	145 536	496 968	11 358
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	-	2	2	D	D	D	D	D	D	D	D	D
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)				
336415	Guided missile & space vehicle propulsion unit & parts mfg	28	18 540	1 066 084	8 264	16 480	381 550	2 134 726	1 124 834	3 239 033	65 089
3364151	Complete missile or space vehicle engines and-or propulsion units	10	13 488	769 088	5 685	11 176	261 110	1 646 168	763 088	2 468 124	44 128
3364153	Research and development on complete missile or space vehicle engines and-or propulsion units	3	D	D	D	D	D	D	D	D	D
3364155	Other services on complete missile or space vehicle engines and-or propulsion units	4	D	D	D	D	D	D	D	D	D
3364157	Missile and space vehicle engine and-or propulsion parts and accessories	7	1 534	89 864	895	1 771	42 458	108 880	81 186	184 610	4 549

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)
336415	Guided missile and space vehicle propulsion units and propulsion unit parts	N	X	X	3 127 431	N	X	X	5 206 578
3364151	Complete missile or space vehicle engines and-or propulsion units	N	X	X	1 707 783	N	X	X	2 649 484
33641511	Complete missile or space vehicle engines and-or propulsion units for U.S. Government military customers	N	X	X	640 806	N	X	X	N
3364151101	Complete missile or space vehicle engines and-or propulsion units for U.S. Government military customers	11	X	X	640 806	9	X	X	1 274 128
33641512	Complete missile or space vehicle engines and-or propulsion units for U.S. Government nonmilitary customers	N	X	X	D	N	X	X	N
3364151204	Complete missile or space vehicle engines and-or propulsion units for U.S. Government nonmilitary customers	7	X	X	D	7	X	X	1 078 272
33641513	Complete missile or space vehicle engines and-or propulsion units for other customers	N	X	X	D	N	X	X	N
3364151307	Complete missile or space vehicle engines and-or propulsion units for other customers	8	X	X	D	10	X	X	297 084
3364151Y	Complete missile or space vehicle engines and-or propulsion units, nsk	N	X	X	6 262	N	X	X	N
3364151YWV	Complete missile or space vehicle engines and-or propulsion units, nsk	N	X	X	6 262	N	X	X	-
3364153	Research and development on complete missile or space vehicle engines and-or propulsion units	N	X	X	629 266	N	X	X	620 431
33641531	Research and development on complete missile or space vehicle engines and-or propulsion units	N	X	X	629 266	N	X	X	N
3364153101	Research and development on complete missile or space vehicle engines and-or propulsion units for U.S. Government military customers	12	X	X	582 397	12	X	X	433 274
3364153104	Research and development on complete missile or space vehicle engines and-or propulsion units for U.S. Government nonmilitary customers	6	X	X	15 281	5	X	X	123 052
3364153107	Research and development on complete missile or space vehicle engines and-or propulsion units for other customers	6	X	X	31 588	8	X	X	63 105
3364153Y	Research and development on complete missile or space vehicle engines and-or propulsion units, nsk	N	X	X	-	N	X	X	N
3364153YWV	Research and development on complete missile or space vehicle engines and-or propulsion units, nsk	N	X	X	-	N	X	X	1 000
3364155	Other services on complete missile or space vehicle engines and-or propulsion units	N	X	X	329 136	N	X	X	1 304 600
33641551	Other services on complete missile or space vehicle engines and-or propulsion units	N	X	X	329 136	N	X	X	N
3364155101	Other services on complete missile or space vehicle engines and-or propulsion units for U.S. Government military customers	9	X	X	D	8	X	X	D
3364155104	Other services on complete missile or space vehicle engines and-or propulsion units for U.S. Government nonmilitary customers	4	X	X	D	5	X	X	D
3364155107	Other services on complete missile or space vehicle engines and-or propulsion units for other customers	4	X	X	D	4	X	X	D
3364155Y	Other services on complete missile or space vehicle engines and-or propulsion units, nsk	N	X	X	-	N	X	X	N
3364155YWV	Other services on complete missile or space vehicle engines and-or propulsion units, nsk	N	X	X	-	N	X	X	-
3364157	Missile and space vehicle engine and-or propulsion parts and accessories	N	X	X	459 023	N	X	X	626 209
33641571	Missile and space vehicle engine and-or propulsion parts and accessories	N	X	X	458 955	N	X	X	N
3364157101	Missile and space vehicle engine and-or propulsion parts and accessories for U.S. Government military customers	18	X	X	320 316	28	X	X	500 210
3364157104	Missile and space vehicle engine and-or propulsion parts and accessories for U.S. Government nonmilitary customers	11	X	X	48 236	15	X	X	56 552

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)
336415	Guided missile and space vehicle propulsion units and propulsion unit parts—Con.								
3364157	Missile and space vehicle engine and-or propulsion parts and accessories—Con.								
33641571	Missile and space vehicle engine and-or propulsion parts and accessories—Con.								
3364157107	Missile and space vehicle engine and-or propulsion parts and accessories for other customers.....	18	X	X	90 403	19	X	X	65 552
3364157Y	Missile and space vehicle engine and-or propulsion parts and accessories, nsk.....	N	X	X	68	N	X	X	N
3364157YWW	Missile and space vehicle engine and-or propulsion parts and accessories, nsk.....	N	X	X	68	N	X	X	3 895
336415W	Space propulsion units and parts, nsk, total.....	N	X	X	2 223	N	X	X	5 854
336415WY	Space propulsion units and parts, nsk, total.....	N	X	X	2 223	N	X	X	N
336415WYWW	Space propulsion units and parts, nsk, for nonadministrative-record establishments.....	N	X	X	2 223	N	X	X	5 854
336415WYWY	Space propulsion units and parts, 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
3364151	COMPLETE MISSILE OR SPACE VEHICLE ENGINES AND-OR PROPULSION UNITS		
	United States.....	1 707 783	2 649 484
	California.....	628 909	1 239 493
	Utah.....	855 967	N
3364153	RESEARCH AND DEVELOPMENT ON COMPLETE MISSILE OR SPACE VEHICLE ENGINES AND-OR PROPULSION UNITS		
	United States.....	629 266	620 431
	California.....	114 956	349 492
3364155	OTHER SERVICES ON COMPLETE MISSILE OR SPACE VEHICLE ENGINES AND-OR PROPULSION UNITS		
	United States.....	329 136	1 304 600
	California.....	126 412	N
3364157	MISSILE AND SPACE VEHICLE ENGINE AND-OR PROPULSION PARTS AND ACCESSORIES		
	United States.....	459 023	626 209
	California.....	50 464	179 606

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)
336415	GUIDED MISSILE & SPACE VEHICLE PROPULSION UNIT & PARTS MFG				
33641503	Guided missile and space vehicle engines and parts	X	161 555	X	N
33641501	Guided missile and space vehicle propulsion units and parts	X	531 265	X	N
33641900	Guided missile and space vehicle airframe parts	X	-	X	N
33422003	Radio communication systems and equipment, including airborne transmitters and receivers (microwave, UHF, VHF, etc.)	X	-	X	N
33451103	Navigational systems and equipment (NAV Aids)	X	D	X	D
001900D5	Search, detection, tracking, and electronic communication systems and equipment (RADAR, SONAR, Optical)	X	-	X	N
33400025	Flight, navigational, airframe, and engine indicators, instruments, and clusters, including sensors, displays, etc.	X	D	X	D
001900B7	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	X	D	X	5 406
00190070	Resin matrix composites	X	D	X	D
00190071	Other matrix composites, including ceramic, carbon, metal, etc.	X	D	X	D
33291209	Complete mechanical, hydraulic and pneumatic subassemblies	X	5 703	X	D
00190090	Fluid power products	X	4 195	X	D
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	D	X	5 685
33200063	Other fabricated metal products (except fluid power products and forgings)	X	17 085	X	59 518
33211101	Iron and steel forgings	X	1 573	X	N
33211201	Nonferrous forgings	X	6 413	X	N
33151001	Iron and steel castings (rough and semifinished)	X	D	X	5 979
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	D	X	2 025
33152003	Other nonferrous castings (rough and semifinished)	X	4 540	X	2 439
33100033	Metal shapes and forms, except castings, forgings, and fabricated metal products	X	4 773	X	9 503
32500045	Chemicals, all types (including propellants)	X	D	X	D
33510000	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	X	D	X	7 213
00970099	All other materials and components, parts, containers, and supplies	X	187 669	X	367 839
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	312	X	798 632

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

336415 GUIDED MISSILE AND SPACE VEHICLE PROPULSION UNIT AND PROPULSION UNIT PARTS MANUFACTURING

This U.S. industry comprises establishments primarily engaged in (1) manufacturing guided missile and/or space vehicle propulsion units and propulsion unit parts and/or (2) developing and making prototypes of guided missile and space vehicle propulsion units and propulsion unit parts.

The data published with NAICS code 336415 include the following SIC industry:

3764 Space propulsion units and parts

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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121571	3714241	3714241
3361201 pt.	37114 pt.	37114 pt.	33621213100	3715200	3715200	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37117	33621213100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201 pt.	37115 pt.	37118	3362130	37160	37160	3363123	37144 pt.	37144 pt.
3361201100 pt.	3711407	3711400 pt.	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711400 pt.	3711400 pt.	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711700	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361201100 pt.	3711500 pt.	3711800	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361202 pt.	37114 pt.	37114 pt.	3362130YWW	3716002	3716002	3363123YWW	3714A00 pt.	3714A00 pt.
3361202 pt.	37119	37119	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711409	3711400 pt.	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361202100 pt.	3711900	3711900	3362141207	3792116	3792116	3363210	36470	36470
3361203	37113	37113	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203101	3711304	3711304	3362141311	3792118	3792118	3363210YWW	3647000 pt.	3647000 pt.
3361203104	3711303	3711303	3362141413	3792125	3792125	3363210YWW	3647002	3647002
3361203YWW	3711300	3711300	3362141516	3792128	3792128	3363221	36941	36941
336120W	37110 pt.	37110 pt.	3362141YWW	3792100	3792100	3363221101	3694101	3694101
336120WYWW	3711000 pt.	3711000 pt.	3362143	37996	37996	3363221104	3694102	3694102
336120WYWW	3711002 pt.	3711002 pt.	3362143101	3799611	3799601 pt.	3363221201	3694103	3694103
3362111 pt.	37111 pt.	37111 pt.	3362143108	3799615	3799604 pt.	3363221204	3694104	3694104
3362111 pt.	37131	37131	3362143111	3799617	3799607 pt.	3363221YWW	3694100	3694100
3362111 pt.	37149 pt.	37149 pt.	3362143114	3799619	3799609 pt.	3363223	36942	36942
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363223101	3694201	3694201
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799604 pt.	3363223104	3694202	3694202
3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223201	3694203	3694203
3362111411	3713115	3713115	3362143117 pt.	3799651 pt.	3799609 pt.	3363223204	3694204	3694204
3362111413	3713116	3713116	3362143YWW	3799600	3799600	3363223YWW	3694200	3694200
3362111416	3713117	3713117	3362145	37922	37922	3363225	36943	36943
3362111519	3713121	3713121	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111522	3713131	3713131	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111525	3713132	3713132	3362145207	3792247	3792247	3363225201	3694303	3694303
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792261	3363225YWW	3694300	3694300
3362111531	3713139	3713139	3362145311 pt.	3792268 pt.	3792263	3363227	36944	36944
3362111534	3713143	3713143	3362145311 pt.	3792268 pt.	3792269	3363227100	3694400	3694400
3362111537	3713153	3713153	3362145YWW	3792200	3792200	3363229	36947	36947
3362111541	3713155	3713155	336214W pt.	37920	37920	3363229101	3694701	3694701
3362111543	3713161	3713161	336214W pt.	37990	37990	3363229201	3694711	3694711
3362111546	3713162	3713162	336214WYWW pt.	3792000	3792000	3363229301	3694702	3694702
3362111549	3713163	3713163	336214WYWW pt.	3792000 pt.	3792000 pt.	3363229304	3694704	3694704
3362111552	3711171	3711171	336214WYWW pt.	3792002	3792002	3363229307	3694705	3694705
3362111555	3711181	3711181 pt.	336214WYWW pt.	3799002 pt.	3799002 pt.	3363229309	3694719	3694719
3362111558	3714925	3714925	3363111	35921	35921	3363229YWW	3694700	3694700
3362111571 pt.	3713171	3713171	3363111101	3592101	3592101	336322A	36949	36949
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111103	3592102	3592102	336322A101	3694901	3694901
3362111YWW pt.	3713100	3713100	3363111105	3592103	3592103	336322A204	3694907	3694907
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111207	3592105	3592105	336322A307	3694911	3694911
3362113 pt.	37114 pt.	37114 pt.	3363111YWW	3592100	3592100	336322A409	3694912	3694912
3362113 pt.	37132	37132	3363113	35922	35922	336322A512	3694913	3694913
3362113101	3713201	3713201	3363113101	3592201	3592201	336322A615	3694919	3694919
3362113219	3713225	3713225	3363113103	3592202	3592202	336322AYWW	3694900	3694900
3362113304	3713211	3713211	3363113205	3592203	3592203	336322C pt.	36799 pt.	36799 pt.
3362113307	3713213	3713213	3363113207	3592204	3592204	336322C pt.	37149 pt.	37149 pt.
3362113311	3713215	3713215	3363113209	3592205	3592205	336322C pt.	37144 pt.	37144 pt.
3362113313	3713217	3713217	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113316	3713218	3713218	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113322	3713226	3713226	3363113YWW	3592200	3592200	336322C107	3714915	3714915
3362113325	3713227	3713227	3363115	35923	35923	336322C111 pt.	3714921	3714921
3362113328	3713241	3713239 pt.	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714921 pt.
3362113331 pt.	3711411	3711400 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113331 pt.	3713243	3713239 pt.	3363115YWW	3592300	3592300	336322C117	3714944	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	336311W	35920	35920	336322C119	3679926	3679920 pt.
3362113YWW pt.	3713200	3713200	336311WYWW	3592000	3592000	336322C121	3714945	3714941 pt.
			336311WYWW	3592002	3592002	336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127307	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	3364127YVW	3724400	3724400
3363301YVW pt	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412W	37240	37240
3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	336391B000	3585B00	3585400 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131111	3728261	3728261
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585000 pt	3585000 pt	3364131YVW	3728200	3728200
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364133	37283	37283
3363401 pt	32922	32922	3363991	37144	37144	3364133101	3728313	3728313
3363401 pt	37148	37148	3363991101	3714401	3714401	3364133104	3728315	3728315
3363401 pt	37149 pt	37149 pt	3363991104	3714402	3714402	3364133YVW	3728300	3728300
3363401101	3714801	3714801	3363991107	3714403	3714403	3364135	37285	37285
3363401104	3714802	3714802	3363991111	3714405	3714405	3364135101	3728513	3728513
3363401211	3714807	3714807	3363991113	3714407	3714407	3364135104	3728515	3728515
3363401313	3714809	3714809	3363991116	3714408	3714408	3364135207	3728594	3728594
3363401416	3714811	3714811	3363991119	3714409	3714409	3364135211	3728595	3728595
3363401519	3714813	3714813	3363991YVW	3714400	3714400	3364135313	3728598	3728598
3363401625	3714817	3714817	3363993	37145	37145	3364135416	3728599	3728599
3363401707	3714803	3714803	3363993101	3714501	3714501	3364135YVW	3728500	3728500
3363401722	3714815	3714815	3363993104	3714502	3714502	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363993107	3714503	3714503	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363993YVW	3714500	3714500	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363995	37147	37147	3364141	37611	37611
3363401745	3714912	3714912	3363995101	3714701	3714701	3364141100	3761100	3761100
3363401747 pt	3292200 pt	3292200 pt	3363995104	3714705	3714705	3364143	37613	37613
3363401747 pt	3292200 pt	3292211	3363995107	3714707	3714707	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292221	3363995111	3714714	3714714	3364145	37616	37616
3363401747 pt	3292200 pt	3292258	3363995YVW	3714700	3714700	3364145100	3761600	3761600
3363401747 pt	3714827	3714827	3363997 pt	35199 pt	35199 pt	3364147	37612	37612
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	37142 pt	37142 pt	3364147101	3761201	3761201
3363401YVW pt	3714800	3714800	3363997 pt	37149 pt	37149 pt	3364147204	3761202	3761202
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403114	3714A35	3714A35	3363997101	3714901	3714901	336414A101	3761702	3761702
3363403117	3714A37	3714A37	3363997204	3714902	3714902	336414A104	3761703	3761703
3363403121	3714A44	3714A41 pt	3363997307	3714903	3714903	336414AYVW	3761700	3761700
3363403YVW	3714A00 pt	3714A00 pt	3363997401	3714235	3714235	336414W	37610	37610
336340W pt	32920 pt	32920 pt	3363997405	3714236	3714236	336414WYVW	3761000	3761000
336340W pt	37140 pt	37140 pt	3363997409	3519987	3519987	336414WYVW	3761002	3761002
336340WYVW pt	3292000 pt	3292000 pt	3363997514	3714909	3714909	3364151	37645	37645
336340WYVW pt	3714000 pt	3714000 pt	3363997524	3714916	3714916	3364151101	3764511	3764511
336340WYVW pt	3292002 pt	3292002 pt	3363997527	3714922	3714922	3364151204	3764513	3764513
336340WYVW pt	3714002 pt	3714002 pt	3363997531	3714923	3714923	3364151307	3764515	3764515
3363501	37146	37146	3363997534	3714931	3714931	3364151YVW	3764500	3764500
3363501101	3714603	3714603	3363997551	3714951	3714941 pt	3364153	37646	37646
3363501104	3714605	3714605	3363997554	3714A52	3714A41 pt	3364153101	3764611	3764611
3363501207	3714613	3714613	3363997YVW pt	3519900 pt	3519900 pt	3364153104	3764613	3764613
3363501211	3714615	3714615	3363997YVW pt	3714200 pt	3714200 pt	3364153107	3764615	3764615
3363501313	3714623	3714623	3363997YVW pt	3714900 pt	3714900 pt	3364153YVW	3764600	3764600
3363501316	3714625	3714625	336399W pt	35190 pt	35190 pt	3364155	37647	37647
3363501434	3714641	3714641	336399WYVW pt	3519000 pt	3519000 pt	3364155101	3764711	3764711
3363501519	3714628	3714628	336399WYVW pt	3714000 pt	3714000 pt	3364155104	3764713	3764713
3363501522	3714631	3714631	336399WYVW pt	3519002 pt	3519002 pt	3364155107	3764715	3764715
3363501525	3714633	3714633	3364111	37211	37211	3364155YVW	3764700	3764700
3363501528	3714635	3714635	3364111100	3721100	3721100	3364157	37648	37648
3363501531	3714637	3714637	3364113	37215	37215	3364157101	3764811	3764811
3363501537	3714643	3714643	3364113000	3721500	3721500	3364157104	3764813	3764813
3363501541	3714649	3714649	3364115	37217	37217	3364157107	3764815	3764815
3363501YVW	3714600	3714600	3364115101	3721711	3721711	3364157YVW	3764800	3764800
3363503	3714A pt	3714A pt	3364115104	3721751	3721751	336415W	37640	37640
3363503101	3714A04	3714A04	3364115YVW	3721700	3721700	336415WYVW	3764000	3764000
3363503104	3714A27	3714A27				336415WYVW	3764002	3764002

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336419101	3769211	3769211	3366115101	3731315	3731315	3366127YVW	3732700	3732700
336419104	3769213	3769213	3366115107	3731335	3731335	336612W	37320 pt	37320 pt
3364191207	3769219	3769219	3366115111	3731343	3731343	336612WYVW	3732000 pt	3732000 pt
3364191311	3769225	3769225	3366115113	3731348	3731348	336612WYVWY	3732002 pt	3732002 pt
3364191413	3769235	3769235	3366115116	3731357	3731357	3369911 pt	37511	37511
3364191YVW	3769200	3769200	3366115119	3731321	3731321	3369911 pt	39443 pt	39443 pt
			3366115121	3731332	3731332	3369911101 pt	3751148 pt	3751139
3364193	37694	37694	3366115123	3731333	3731333	3369911101 pt	3751148 pt	3751141
3364193101	3769414	3769414	3366115124 pt	3731361 pt	3731324	3369911101 pt	3751148 pt	3751143
3364193104	3769419	3769419	3366115124 pt	3731361 pt	3731326	3369911101 pt	3751148 pt	3751145
3364193107	3769425	3769425	3366115124 pt	3731361 pt	3731328	3369911101 pt	3751148 pt	3751147
3364193111	3769435	3769435	3366115YVW	3731300	3731300	3369911101 pt	3751148 pt	3751149
3364193YVW	3769400	3769400				3369911101 pt	3751148 pt	3751155
			3366117	37314	37314	3369911104 pt	3751109	3751109
336419W	37690	37690	3366117101	3731441	3731441	3369911104 pt	3944336	3944346 pt
336419WYVW	3769000	3769000	3366117104	3731449	3731449	3369911109	3751110	3751110
336419WYVWY	3769002	3769002	3366117YVW	3731400	3731400	3369911113	3751112	3751112
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3365101	37431 pt	37431 pt	3366119	37316	37316	3369911119	3751116	3751116
3365101101	3743102	3743101 pt	3366119101	3731601	3731601	3369911122 pt	3751124 pt	3751113
3365101104	3743104	3743101 pt	3366119104	3731602	3731602	3369911122 pt	3751124 pt	3751114
3365101107	3743105	3743101 pt	3366119YVW	3731600	3731600	3369911122 pt	3751124 pt	3751123
3365101111	3743113	3743103 pt	336611W	37310	37310	3369911YVW pt	3751100	3751100
3365101YVW	3743100 pt	3743100 pt	336611WYVW	3731000	3731000	3369911YVWY pt	3944300 pt	3944300 pt
			336611WYVWY	3731002	3731002	3369913	37512	37512
3365103	37432	37432	3366121	37322	37322	3369913100 pt	3751200 pt	3751200
3365103100	3743200 pt	3743200	3366121101	3732201	3732201	3369913100 pt	3751200 pt	3751201
3365103100 pt	3743200 pt	3743211	3366121104	3732202	3732202	3369913100 pt	3751200 pt	3751209
3365103100 pt	3743200 pt	3743215	3366121107	3732211	3732211	3369919 pt	37510	37510
3365103100 pt	3743200 pt	3743235	3366121111	3732207	3732207	3369919 pt	39440 pt	39440 pt
3365103100 pt	3743200 pt	3743241	3366121113	3732209	3732219 pt	3369919YVW pt	3751000	3751000
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			3366121119	3732220	3732221 pt	3369919YVWY pt	3751002	3751002
3365105 pt	3531X pt	3531M pt	3366121225	3732221	3732221	3369919YVWY pt	3944002 pt	3944002 pt
			3366121225	3732223	3732223	3369920 pt	37110 pt	37110 pt
3365105 pt	3531X pt	3531P pt	3366121228	3732225	3732225	3369920 pt	37114 pt	37114 pt
						3369920 pt	37950	37950
3365105 pt	37433	37433	3366121231	3732227	3732227	3369920111	3795001	3795001
3365105301	3743301	3743301	3366121234	3732226	3732229 pt	3369920214	3795051	3795051
3365105304	3743305	3743305	3366121239	3732222	3732229 pt	3369920216	3711401	3711400 pt
3365105405	3531X21	3531P21	3366121243	3732224	3732229 pt	3369920217	3795098	3795098
3365105407	3743304	3743304	3366121246	3732231	3732229 pt	3369920YVW pt	3711000 pt	3711000 pt
3365105411	3743311	3743311	3366121246	3732224	3732228	3369920YVW pt	3711400 pt	3795000
3365105413	3743312	3743312	3366121337	3732228	3732228	3369920YVW pt	3711002 pt	3711002 pt
3365105416	3743314	3743314	3366121YVW	3732200	3732200	3369920YVWY pt	3795002	3795002
3365105419 pt	3531X80	3531M21 pt	3366123	37323	37323	3369991	37993	37993
3365105419 pt	3743319	3743319	3366123104	3732311	3732311	3369991101	3799382	3799382
3365105YVW pt	3531X00 pt	3531M00 pt	3366123107	3732316	3732316	3369991104	3799384	3799384
3365105YVW pt	3531X00 pt	3531P00 pt	3366123201	3732304	3732304	3369991YVW	3799300	3799300
3365105YVW pt	3743300	3743300	3366123211	3732321	3732321	3369993	37999 pt	37999 pt
			3366123YVW	3732300	3732300	3369993101	3799903	3799903
336510W pt	35310 pt	35310 pt	3366125	37324	37324	3369993204	3799904	3799904
			3366125107	3732405	3732405	3369993307	3799905	3799905
336510W pt	37430 pt	37430 pt	3366125201	3732401	3732401	3369993414	3799916	3799923 pt
336510WYVW pt	3531000 pt	3531000 pt	3366125204	3732403	3732403	3369993417	3799915	3799923 pt
336510WYVW pt	3743000 pt	3743000 pt	3366125211	3732406	3732409 pt	3369993421	3799920	3799923 pt
336510WYVW pt	3531002 pt	3531002 pt	3366125213 pt	3732408 pt	3732407	3369993513	3799925	3799925
336510WYVW pt	3743002 pt	3743002 pt	3366125YVW	3732400	3732400	3369993YVW	3799900 pt	3799900 pt
						3369999W	37990 pt	37990 pt
3366111	37311	37311	3366127	37327	37327	3369999YVW	3799000 pt	3799000 pt
3366111101	3731111	3731111	3366127101	3732702	3732702	3369999YVWY	3799002 pt	3799002 pt
3366111104	3731107	3731107	3366127104	3732704	3732704			
3366111107	3731119	3731119	3366127107	3732706	3732706			
3366111YVW	3731100	3731100	3366127111	3732708	3732708			
			3366127113	3732712	3732712			
3366113	37312	37312	3366127116	3732717	3732717			
3366113100	3731200	3731200						

Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing

1997

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1997 Economic Census

Manufacturing

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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336419	Other guided missile & space vehicle parts & auxiliary equip mfg	47	49	6 110	278 355	4 165	8 503	178 631	538 345	365 499	898 758	28 485
376900	Space vehicle equipment, n.e.c.	N	49	6 110	278 355	4 165	8 503	178 631	538 345	365 499	898 758	28 485

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)				
336419, OTHER GUIDED MISSILE & SPACE VEHICLE PARTS & AUXILIARY EQUIP MFG												
United States	-	49	26	6 110	278 355	4 165	8 503	178 631	538 345	365 499	898 758	28 485

* 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
336419, OTHER GUIDED MISSILE & SPACE VEHICLE PARTS & AUXILIARY EQUIP MFG		336419, OTHER GUIDED MISSILE & SPACE VEHICLE PARTS & AUXILIARY EQUIP MFG—Con.	
Companies ¹	number.. 47	Value added	\$1,000.. 538 345
All establishments	number.. 49	Total inventories, beginning of year	\$1,000.. 91 641
Establishments with 1 to 19 employees	number.. 23	Finished goods inventories, beginning of year	\$1,000.. D
Establishments with 20 to 99 employees	number.. 15	Work-in-process inventories, beginning of year	\$1,000.. 59 379
Establishments with 100 employees or more	number.. 11	Materials and supplies inventories, beginning of year	\$1,000.. D
All employees	number.. 6 110	Total inventories, end of year	\$1,000.. 98 004
Total compensation ²	\$1,000.. 354 986	Finished goods inventories, end of year	\$1,000.. D
Annual payroll	\$1,000.. 278 355	Work-in-process inventories, end of year	\$1,000.. 62 781
Total fringe benefits	\$1,000.. 76 631	Materials and supplies inventories, end of year	\$1,000.. D
Production workers, average for year	number.. 4 165	Gross book value of total assets at beginning of year	\$1,000.. 176 450
Production workers on March 12	number.. 4 042	Total capital expenditures (new and used)	\$1,000.. 28 485
Production workers on May 12	number.. 4 098	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 5 188
Production workers on August 12	number.. 4 171	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 23 297
Production workers on November 12	number.. 4 349	Total retirements ²	\$1,000.. 7 440
Production-worker hours	1,000.. 8 503	Gross book value of total assets at end of year	\$1,000.. 197 495
Production-worker wages	\$1,000.. 178 631	Total depreciation during year ²	\$1,000.. 15 267
Total cost of materials	\$1,000.. 365 499	Total rental payments ²	\$1,000.. 7 184
Cost of materials, parts, containers, etc., consumed	\$1,000.. 283 019	Buildings and other structures rental payments ²	\$1,000.. 3 203
Cost of resales	\$1,000.. 2 503	Machinery and equipment rental payments ²	\$1,000.. 3 981
Cost of fuels	\$1,000.. 3 016	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 1 713
Cost of purchased electricity	\$1,000.. 11 868	Response coverage ratio ⁴	percent.. 87
Cost of contract work	\$1,000.. 65 093	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 2 972
Quantity of electricity purchased for heat and power	1,000 kWh.. 214 067	Response coverage ratio ⁴	percent.. 87
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 639
Total value of shipments	\$1,000.. 898 758	Response coverage ratio ⁴	percent.. 87
Primary products value of shipments	\$1,000.. 840 895	Cost of purchased legal services ³	\$1,000.. 2 177
Secondary products value of shipments	\$1,000.. 52 564	Response coverage ratio ⁴	percent.. 87
Total miscellaneous receipts	\$1,000.. 5 299	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 1 475
Value of resales	\$1,000.. 4 480	Response coverage ratio ⁴	percent.. 87
Contract receipts	\$1,000.. D	Cost of purchased advertising services ³	\$1,000.. 1 055
Other miscellaneous receipts	\$1,000.. D	Response coverage ratio ⁴	percent.. 87
Primary products specialization ratio	percent.. 94	Cost of purchased software and other data processing services ³	\$1,000.. 4 442
Value of primary products shipments made in all industries	\$1,000.. 2 812 223	Response coverage ratio ⁴	percent.. 87
Value of primary products shipments made in this industry	\$1,000.. 840 895	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 186
Value of primary products shipments made in other industries	\$1,000.. 1 971 328	Response coverage ratio ⁴	percent.. 87
Coverage ratio	percent.. 29		

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)				
336419. OTHER GUIDED MISSILE & SPACE VEHICLE PARTS & AUXILIARY EQUIP MFG												
All establishments	-	49	26	6 110	278 355	4 165	8 503	178 631	538 345	365 499	898 758	28 485
Establishments with 1 to 4 employees	9	11	-	24	867	15	25	449	1 649	967	2 635	184
Establishments with 5 to 9 employees	9	4	-	29	844	15	23	393	1 593	1 006	2 646	61
Establishments with 10 to 19 employees	9	8	-	111	4 178	65	117	2 031	7 726	4 525	12 351	259
Establishments with 20 to 49 employees	2	9	9	297	12 857	182	390	6 531	19 373	11 360	33 082	618
Establishments with 50 to 99 employees	1	6	6	351	18 682	237	548	10 153	37 520	17 415	53 015	1 509
Establishments with 100 to 249 employees	1	7	7	954	34 376	559	970	15 268	79 852	53 094	134 188	2 055
Establishments with 250 to 499 employees	-	1	1	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	-	1	1	D	D	D	D	D	D	D	D	D
Administrative records ²	9	20	-	140	5 029	80	137	2 392	9 484	5 685	15 341	352

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)				
336419	Other guided missile & space vehicle parts & auxiliary equip mfg	49	6 110	278 355	4 165	8 503	178 631	538 345	365 499	898 758	28 485
3364191	Missile and space vehicle components, parts, and subassemblies	23	D	D	D	D	D	D	D	D	D
3364193	Research and development on missile and space vehicle parts and components, nec	1	D	D	D	D	D	D	D	D	D

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)
336419	Guided missile and space vehicle parts and auxiliary equipment, nec	N	X	X	2 812 223	N	X	X	4 179 121
3364191	Missile and space vehicle components, parts, and subassemblies	N	X	X	2 460 015	N	X	X	3 449 463
33641911	Missile and space vehicle airframes and space capsules for U.S. Government military customers	N	X	X	266 391	N	X	X	N
3364191101	Missile and space vehicle airframes for U.S. Government military customers	8	X	X	D	8	X	X	113 916
3364191104	Missile and space capsules for U.S. Government military customers	3	X	X	D	10	X	X	158 241
33641912	All other missile and space vehicle components, parts, and subassemblies for U.S. Government military customers	N	X	X	700 341	N	X	X	N
3364191207	All other missile and space vehicle components, parts, and subassemblies for U.S. Government military customers	31	X	X	700 341	54	X	X	2 070 357
33641913	Missile and space vehicle components, parts, and subassemblies for U.S. Government nonmilitary customers	N	X	X	1 228 555	N	X	X	N
3364191311	Missile and space vehicle components, parts, and subassemblies for U.S. Government nonmilitary customers	15	X	X	1 228 555	16	X	X	917 418
33641914	Missile and space vehicle components, parts, and subassemblies for other customers	N	X	X	247 031	N	X	X	N
3364191413	Missile and space vehicle components, parts, and subassemblies for other customers	17	X	X	247 031	18	X	X	166 553
3364191Y	Missile and space vehicle components, parts, and subassemblies, nsk	N	X	X	17 697	N	X	X	N
3364191YWV	Missile and space vehicle components, parts, and subassemblies, nsk	N	X	X	17 697	N	X	X	22 978
3364193	Research and development on missile and space vehicle parts and components, nec	N	X	X	331 949	N	X	X	705 128
33641931	Research and development on missile and space vehicle parts and components, nec	N	X	X	330 848	N	X	X	N
3364193101	Research and development on missile and space vehicle airframes and space capsules for U.S. Government military customers	4	X	X	D	5	X	X	87 791
3364193104	All other research and development on missile and space vehicle parts and components for U.S. Government military customers	9	X	X	D	19	X	X	422 204
3364193107	Research and development on missile and space vehicle parts and components for U.S. Government nonmilitary customers	7	X	X	D	8	X	X	139 117
3364193111	Research and development on missile and space vehicle parts and components for other customers	6	X	X	D	6	X	X	38 515
3364193Y	Research and development on missile and space vehicle parts and components, nec, nsk	N	X	X	1 101	N	X	X	N
3364193YWV	Research and development on missile and space vehicle parts and components, nec, nsk	N	X	X	1 101	N	X	X	17 501
336419W	Other guided missile and space vehicle parts and auxiliary equipment, nsk	N	X	X	20 259	N	X	X	24 530
336419WY	Other guided missile and space vehicle parts and auxiliary equipment, nsk	N	X	X	20 259	N	X	X	N
336419WYWW	Other guided missile and space vehicle parts and auxiliary equipment, nsk for nonadministrative-record establishments	N	X	X	6 726	N	X	X	18 586
336419WYWY	Other guided missile and space vehicle parts and auxiliary equipment, nsk for administrative-record establishments	N	X	X	13 533	N	X	X	5 944

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
3364191	MISSILE AND SPACE VEHICLE COMPONENTS, PARTS, AND SUBASSEMBLIES		
	United States	2 460 015	3 449 463
	California	1 266 820	1 158 727
	Illinois	23 591	N
	Tennessee	2 312	N
	Texas	69 649	22 841
3364193	RESEARCH AND DEVELOPMENT ON MISSILE AND SPACE VEHICLE PARTS AND COMPONENTS, NEC		
	United States	331 949	705 128
	California	55 333	166 388

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)
336419	OTHER GUIDED MISSILE & SPACE VEHICLE PARTS & AUXILIARY EQUIP MFG				
33641503	Guided missile and space vehicle engines and parts	X	—	X	3 123
33641501	Guided missile and space vehicle propulsion units and parts	X	—	X	D
33641900	Guided missile and space vehicle airframe parts	X	D	X	D
33422003	Radio communication systems and equipment, including airborne transmitters and receivers (microwave, UHF, VHF, etc.)	X	—	X	5 029
33451103	Navigational systems and equipment (NAV AIDS)	X	D	X	26 941
001900D5	Search, detection, tracking, and electronic communication systems and equipment (RADAR, SONAR, Optical)	X	—	X	23 388
33400025	Flight, navigational, airframe, and engine indicators, instruments, and clusters, including sensors, displays, etc.	X	D	X	2 771
001900B7	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	X	D	X	D
00190070	Resin matrix composites	X	D	X	N
00190071	Other matrix composites, including ceramic, carbon, metal, etc.	X	D	X	N
33291209	Complete mechanical, hydraulic and pneumatic subassemblies	X	D	X	D
00190090	Fluid power products	X	D	X	D
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	1 164	X	4 323
33200063	Other fabricated metal products (except fluid power products and forgings)	X	16 132	X	11 819
33211101	Iron and steel forgings	X	1 579	X	N
33211201	Nonferrous forgings	X	D	X	N
33151001	Iron and steel castings (rough and semifinished)	X	D	X	D
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	D	X	D
33152003	Other nonferrous castings (rough and semifinished)	X	D	X	46
33100033	Metal shapes and forms, except castings, forgings, and fabricated metal products	X	D	X	D
32500045	Chemicals, all types (including propellants)	X	D	X	1 082
33510000	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	X	D	X	D
00970099	All other materials and components, parts, containers, and supplies	X	88 884	X	86 033
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	34 194	X	211 278

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

336419 OTHER GUIDED MISSILE AND SPACE VEHICLE PARTS AND AUXILIARY EQUIPMENT MANUFACTURING

This U.S. Industry comprises establishments primarily engaged in (1) manufacturing guided missile and space vehicle parts and auxiliary equipment (except guided missile and space vehicle propulsion units and propulsion unit parts) and/or (2) developing and making prototypes of guided missile and space vehicle parts and auxiliary equipment.

The data published with NAICS code 336419 include the following SIC industry:

3769 Space vehicle equipment, n.e.c.

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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121547	3714241	3714241
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121574	3714249	3714249
3361201 pt.	37114 pt.	37114 pt.	33621213100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201 pt.	37115 pt.	37117	3362130	37160	37160	3363123	37144 pt.	37144 pt.
3361201 pt.	37115 pt.	37118	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711407	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711400 pt.	3711400 pt.	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711400 pt.	3711400 pt.	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361201100 pt.	3711500 pt.	3711700	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361201100 pt.	3711500 pt.	3711800	3362130YWW	3716002	3716002	3363123YWW	3714A00 pt.	3714A00 pt.
3361202 pt.	37114 pt.	37114 pt.	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202 pt.	37119	37119	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361202100 pt.	3711409	3711400 pt.	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141207	3792116	3792116	3363210	36470	36470
3361202100 pt.	3711900	3711900	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203	37113	37113	3362141311	3792118	3792118	3363210YWW	3647000 pt.	3647000 pt.
3361203101	3711304	3711304	3362141413	3792125	3792125	3363210YWW	3647002	3647002
3361203104	3711303	3711303	3362141516	3792128	3792128	3363221	36941	36941
3361203YWW	3711300	3711300	3362141YWW	3792100	3792100	3363221101	3694101	3694101
336120W	37110 pt.	37110 pt.	3362143	37996	37996	3363221104	3694102	3694102
336120WYWW	3711000 pt.	3711000 pt.	3362143101	3799611	3799601 pt.	3363221201	3694103	3694103
336120WYWW	3711002 pt.	3711002 pt.	3362143108	3799615	3799604 pt.	3363221204	3694104	3694104
3362111 pt.	37111 pt.	37111 pt.	3362143111	3799617	3799607 pt.	3363221YWW	3694100	3694100
3362111 pt.	37131	37131	3362143114	3799619	3799609 pt.	3363223	36942	36942
3362111 pt.	37149 pt.	37149 pt.	3362143117 pt.	3799651 pt.	3799601 pt.	3363223101	3694201	3694201
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363223104	3694202	3694202
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799604 pt.	3363223201	3694203	3694203
3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223204	3694204	3694204
3362111411	3713115	3713115	3362143YWW	3799600	3799609 pt.	3363223YWW	3694200	3694200
3362111413	3713116	3713116	3362145	37922	37922	3363225	36943	36943
3362111416	3713117	3713117	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111519	3713121	3713121	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111522	3713131	3713131	3362145207	3792247	3792247	3363225201	3694303	3694303
3362111525	3713132	3713132	3362145311 pt.	3792268 pt.	3792261	3363225YWW	3694300	3694300
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792263	3363227	36944	36944
3362111531	3713139	3713139	3362145YWW	3792200	3792200	3363227100	3694400	3694400
3362111534	3713143	3713143	336214W pt.	37920	37920	3363229	36947	36947
3362111537	3713153	3713153	336214W pt.	37990 pt.	37990 pt.	3363229101	3694701	3694701
3362111541	3713155	3713155	336214WYWW pt.	3792000	3792000	3363229201	3694711	3694711
3362111543	3713161	3713161	336214WYWW pt.	3792000	3792000	3363229301	3694702	3694702
3362111546	3713162	3713162	336214WYWW pt.	3792002	3792002	3363229304	3694704	3694704
3362111549	3713163	3713163	336214WYWW pt.	3792002	3792002	3363229307	3694705	3694705
3362111552	3711171	3711171	336214WYWW pt.	3799002 pt.	3799002 pt.	3363229309	3694719	3694719
3362111555	3711181	3711181 pt.	3363111	35921	35921	3363229YWW	3694700	3694700
3362111558	3714925	3714925	3363111101	3592101	3592101	336322A	36949	36949
3362111571 pt.	3713171	3713171	3363111103	3592102	3592102	336322A101	3694901	3694901
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111105	3592103	3592103	336322A204	3694907	3694907
3362111YWW pt.	3713100	3713100	3363111207	3592105	3592105	336322A307	3694911	3694911
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111YWW	3592100	3592100	336322A409	3694912	3694912
3362113 pt.	37114 pt.	37114 pt.	3363113	35922	35922	336322A512	3694913	3694913
3362113101	37132	37132	3363113101	3592201	3592201	336322A615	3694919	3694919
3362113219	3713225	3713225	3363113103	3592202	3592202	336322AYWW	3694900	3694900
3362113304	3713211	3713211	3363113205	3592203	3592203	336322C pt.	36799 pt.	36799 pt.
3362113307	3713213	3713213	3363113207	3592204	3592204	336322C pt.	37149 pt.	37149 pt.
3362113311	3713215	3713215	3363113209	3592205	3592205	336322C pt.	37144 pt.	37144 pt.
3362113313	3713217	3713217	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113316	3713218	3713218	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113322	3713226	3713226	3363113YWW	3592200	3592200	336322C107	3714915	3714915
3362113325	3713227	3713227	3363115	35923	35923	336322C111 pt.	3714921	3714921
3362113328	3713241	3713239 pt.	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714921 pt.
3362113331 pt.	3711411	3711400 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113331 pt.	3713243	3713239 pt.	3363115YWW	3592300	3592300	336322C117	3714944	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	336311W	35920	35920	336322C119	3679926	3679920 pt.
3362113YWW pt.	3713200	3713200	336311WYWW	3592000	3592000	336322C121	3714945	3714941 pt.
			336311WYWW	3592002	3592002	336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
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3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127307	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	3364127YVW	3724400	3724400
3363301YVW pt	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412W	37240	37240
3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	336391B000	3585B00	3585400 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131111	3728261	3728261
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585000 pt	3585000 pt	3364131YVW	3728200	3728200
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364133	37283	37283
3363401 pt	32922	32922	3363991	37144	37144	3364133101	3728313	3728313
3363401 pt	37148	37148	3363991101	3714401	3714401	3364133104	3728315	3728315
3363401 pt	37149 pt	37149 pt	3363991104	3714402	3714402	3364133YVW	3728300	3728300
3363401101	3714801	3714801	3363991107	3714404	3714404	3364135	37285	37285
3363401104	3714802	3714802	3363991111	3714405	3714405	3364135101	3728513	3728513
3363401211	3714807	3714807	3363991113	3714407	3714407	3364135104	3728515	3728515
3363401313	3714809	3714809	3363991116	3714408	3714408	3364135207	3728594	3728594
3363401416	3714811	3714811	3363991119	3714409	3714409	3364135211	3728595	3728595
3363401519	3714813	3714813	3363991YVW	3714400	3714400	3364135313	3728598	3728598
3363401625	3714817	3714817	3363993	37145	37145	3364135416	3728599	3728599
3363401707	3714803	3714803	3363993101	3714501	3714501	3364135YVW	3728500	3728500
3363401722	3714815	3714815	3363993104	3714502	3714502	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363993107	3714503	3714503	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363993YVW	3714500	3714500	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363995	37147	37147	3364141	37611	37611
3363401745	3714912	3714912	3363995101	3714701	3714701	3364141100	3761100	3761100
3363401747 pt	3292200 pt	3292200 pt	3363995104	3714705	3714705	3364143	37613	37613
3363401747 pt	3292200 pt	3292211 pt	3363995107	3714707	3714707	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292211 pt	3363995111	3714714	3714714	3364145	37616	37616
3363401747 pt	3292200 pt	3292258 pt	3363995YVW	3714700	3714700	3364145100	3761600	3761600
3363401747 pt	3714827	3714827	3363997 pt	35199 pt	35199 pt	3364147	37612	37612
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	37142 pt	37142 pt	3364147101	3761201	3761201
3363401YVW pt	3714800	3714800	3363997 pt	37149 pt	37149 pt	3364147204	3761202	3761202
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403114	3714A35	3714A35	3363997101	3714901	3714901	336414A101	3761702	3761702
3363403117	3714A37	3714A37	3363997204	3714902	3714902	336414A104	3761703	3761703
3363403121	3714A44	3714A41 pt	3363997307	3714903	3714903	336414AYVW	3761700	3761700
3363403YVW	3714A00 pt	3714A00 pt	3363997401	3714235	3714235	336414W	37610	37610
336340W pt	32920 pt	32920 pt	3363997405	3714236	3714236	336414WYVW	3761000	3761000
336340W pt	37140 pt	37140 pt	3363997409	3519987	3519987	336414WYVW	3761002	3761002
336340WYVW pt	3292000 pt	3292000 pt	3363997514	3714909	3714909	3364151	37645	37645
336340WYVW pt	3714000 pt	3714000 pt	3363997524	3714916	3714916	3364151101	3764511	3764511
336340WYVW pt	3292002 pt	3292002 pt	3363997527	3714922	3714922	3364151204	3764513	3764513
336340WYVW pt	3714002 pt	3714002 pt	3363997531	3714923	3714923	3364151307	3764515	3764515
3363501	37146	37146	3363997534	3714931	3714931	3364151YVW	3764500	3764500
3363501101	3714603	3714603	3363997551	3714951	3714941 pt	3364153	37646	37646
3363501104	3714605	3714605	3363997554	3714A52	3714A41 pt	3364153101	3764611	3764611
3363501207	3714613	3714613	3363997YVW pt	3519900 pt	3519900 pt	3364153104	3764613	3764613
3363501211	3714615	3714615	3363997YVW pt	3714200 pt	3714200 pt	3364153107	3764615	3764615
3363501313	3714623	3714623	3363997YVW pt	3714900 pt	3714900 pt	3364153YVW	3764600	3764600
3363501316	3714625	3714625	336399W pt	35190 pt	35190 pt	3364155	37647	37647
3363501434	3714641	3714641	336399WYVW pt	3519000 pt	3519000 pt	3364155101	3764711	3764711
3363501519	3714628	3714628	336399WYVW pt	3714000 pt	3714000 pt	3364155104	3764713	3764713
3363501522	3714631	3714631	336399WYVW pt	3519002 pt	3519002 pt	3364155107	3764715	3764715
3363501525	3714633	3714633	3364111	37211	37211	3364155YVW	3764700	3764700
3363501528	3714635	3714635	3364111100	3721100	3721100	3364157	37648	37648
3363501531	3714637	3714637	3364113	37215	37215	3364157101	3764811	3764811
3363501537	3714643	3714643	3364113000	3721500	3721500	3364157104	3764813	3764813
3363501541	3714649	3714649	3364115	37217	37217	3364157107	3764815	3764815
3363501YVW	3714600	3714600	3364115101	3721711	3721711	3364157YVW	3764800	3764800
3363503	3714A pt	3714A pt	3364115104	3721751	3721751	336415W	37640	37640
3363503101	3714A04	3714A04	3364115YVW	3721700	3721700	336415WYVW	3764000	3764000
3363503104	3714A27	3714A27				336415WYVW	3764002	3764002

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3364191	37692	37692	3366115	37313	37313	3366127119	3732719	3732719
336419101	3769211	3769211	3366115101	3731315	3731315	3366127YVW	3732700	3732700
336419104	3769213	3769213	3366115107	3731335	3731335	336612W	37320 pt	37320 pt
3364191207	3769219	3769219	3366115111	3731343	3731343	336612WYVW	3732000 pt	3732000 pt
3364191311	3769225	3769225	3366115113	3731348	3731348	336612WYVWY	3732002 pt	3732002 pt
3364191413	3769235	3769235	3366115116	3731357	3731357	3369911 pt	37511	37511
3364191YVW	3769200	3769200	3366115119	3731321	3731321	3369911 pt	39443 pt	39443 pt
			3366115121	3731332	3731332	3369911101 pt	3751148 pt	3751139
3364193	37694	37694	3366115123	3731333	3731333	3369911101 pt	3751148 pt	3751141
3364193101	3769414	3769414	3366115124 pt	3731361 pt	3731324	3369911101 pt	3751148 pt	3751143
3364193104	3769419	3769419	3366115124 pt	3731361 pt	3731326	3369911101 pt	3751148 pt	3751145
3364193107	3769425	3769425	3366115124 pt	3731361 pt	3731328	3369911101 pt	3751148 pt	3751147
3364193111	3769435	3769435	3366115YVW	3731300	3731300	3369911101 pt	3751148 pt	3751149
3364193YVW	3769400	3769400				3369911101 pt	3751148 pt	3751155
			3366117	37314	37314	3369911104 pt	3751109	3751109
336419W	37690	37690	3366117101	3731441	3731441	3369911104 pt	3944336	3944346 pt
336419WYVW	3769000	3769000	3366117104	3731449	3731449	3369911109	3751110	3751110
336419WYVWY	3769002	3769002	3366117YVW	3731400	3731400	3369911113	3751112	3751112
						3369911116	3751115	3751115
3365101	37431 pt	37431 pt	3366119	37316	37316	3369911119	3751116	3751116
3365101101	3743102	3743101 pt	3366119101	3731601	3731601	3369911122 pt	3751124 pt	3751113
3365101104	3743104	3743101 pt	3366119104	3731602	3731602	3369911122 pt	3751124 pt	3751114
3365101107	3743105	3743101 pt	3366119YVW	3731600	3731600	3369911122 pt	3751124 pt	3751123
3365101111	3743113	3743103 pt	336611W	37310	37310	3369911YVW pt	3751100	3751100
3365101YVW	3743100 pt	3743100 pt	336611WYVW	3731000	3731000	3369911YVWY pt	3944300 pt	3944300 pt
			336611WYVWY	3731002	3731002	3369913	37512	37512
3365103	37432	37432	3366121	37322	37322	3369913100 pt	3751200 pt	3751200
3365103100	3743200 pt	3743200	3366121101	3732201	3732201	3369913100 pt	3751200 pt	3751201
3365103100 pt	3743200 pt	3743211	3366121104	3732202	3732202	3369913100 pt	3751200 pt	3751209
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3365103100 pt	3743200 pt	3743265	3366121116	3732210	3732219 pt	3369919YVWY pt	3944000 pt	3944000 pt
			3366121119	3732220	3732221 pt	3369919YVWY pt	3751002	3751002
3365105 pt	3531X pt	3531M pt	3366121225	3732221	3732221	3369919YVWY pt	3944002 pt	3944002 pt
			3366121225	3732223	3732223	3369920 pt	37110 pt	37110 pt
3365105 pt	3531X pt	3531P pt	3366121228	3732225	3732225	3369920 pt	37114 pt	37114 pt
						3369920 pt	37950	37950
3365105 pt	37433	37433	3366121231	3732227	3732227	3369920111	3795001	3795001
3365105301	3743301	3743301	3366121234	3732226	3732229 pt	3369920214	3795051	3795051
3365105304	3743305	3743305	3366121239	3732222	3732229 pt	3369920216	3711401	3711400 pt
3365105405	3531X21	3531P21	3366121243	3732224	3732229 pt	3369920217	3795098	3795098
3365105407	3743304	3743304	3366121246	3732231	3732229 pt	3369920YVW pt	3711000 pt	3711000 pt
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3365105413	3743312	3743312	3366121337	3732228	3732228	3369920YVW pt	3711002 pt	3711002 pt
3365105416	3743314	3743314	3366121YVW	3732200	3732200	3369920YVWY pt	3795002	3795002
3365105419 pt	3531X80	3531M21 pt	3366123	37323	37323	3369991	37993	37993
3365105419 pt	3743319	3743319	3366123104	3732311	3732311	3369991101	3799382	3799382
3365105YVW pt	3531X00 pt	3531M00 pt	3366123107	3732316	3732316	3369991104	3799384	3799384
3365105YVW pt	3531X00 pt	3531P00 pt	3366123201	3732304	3732304	3369991YVW	3799300	3799300
3365105YVW pt	3743300	3743300	3366123211	3732321	3732321	3369993	37999 pt	37999 pt
			3366123YVW	3732300	3732300	3369993101	3799903	3799903
336510W pt	35310 pt	35310 pt	3366125	37324	37324	3369993204	3799904	3799904
			3366125107	3732405	3732405	3369993307	3799905	3799905
336510W pt	37430 pt	37430 pt	3366125201	3732401	3732401	3369993414	3799916	3799923 pt
336510WYVW pt	3531000 pt	3531000 pt	3366125204	3732403	3732403	3369993417	3799915	3799923 pt
336510WYVW pt	3743000 pt	3743000 pt	3366125211	3732406	3732409 pt	3369993421	3799920	3799923 pt
336510WYVW pt	3531002 pt	3531002 pt	3366125213 pt	3732408 pt	3732407	3369993513	3799925	3799925
336510WYVW pt	3743002 pt	3743002 pt	3366125YVW	3732400	3732400	3369993YVW	3799900 pt	3799900 pt
						3369999W	37990 pt	37990 pt
3366111	37311	37311	3366127	37327	37327	3369999YVW	3799000 pt	3799000 pt
3366111101	3731111	3731111	3366127101	3732702	3732702	3369999YVWY	3799002 pt	3799002 pt
3366111104	3731107	3731107	3366127104	3732704	3732704			
3366111107	3731119	3731119	3366127107	3732706	3732706			
3366111YVW	3731100	3731100	3366127111	3732708	3732708			
			3366127113	3732712	3732712			
3366113	37312	37312	3366127116	3732717	3732717			
3366113100	3731200	3731200						

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Manufacturing

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Industry Series



U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

**Economics
and Statistics
Administration**

Robert J. Shapiro,

Under Secretary for
Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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	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)				
336510	Railroad rolling stock mfg	173	230	33 843	1 313 609	23 822	53 044	791 379	3 329 550	5 068 882	8 219 052	196 806
353130	Construction machinery (pt)	N	25	2 379	84 571	1 404	2 820	42 551	196 993	156 336	346 760	33 780
374320	Railroad equipment (pt)	N	205	31 464	1 229 038	22 418	50 224	748 828	3 132 557	4 912 546	7 872 292	163 026

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)				
336510, RAILROAD ROLLING STOCK MFG												
United States	-	230	145	33 843	1 313 609	23 822	53 044	791 379	3 329 550	5 068 882	8 219 052	196 806
Alabama	-	4	3	591	16 469	401	497	9 898	1 426	49 238	60 826	2 773
Florida	8	5	3	103	3 536	65	129	2 286	8 472	7 759	16 026	334
Illinois	-	39	24	6 027	277 464	3 995	8 930	161 509	530 034	1 285 175	1 815 366	27 531
Indiana	-	7	5	1 502	51 701	1 084	2 034	29 290	106 242	124 141	234 002	4 056
New York	-	16	8	1 630	58 310	923	1 819	27 735	99 516	95 728	208 143	18 197
Ohio	-	13	6	839	25 084	691	1 444	17 562	42 758	188 874	238 389	2 313
Pennsylvania	-	27	21	10 599	470 287	7 365	19 150	287 368	1 530 123	1 586 111	2 961 970	64 558
South Carolina	-	8	6	1 228	43 767	783	1 480	22 984	98 523	108 559	200 915	7 132
Texas	-	17	13	2 275	65 096	1 878	3 713	44 029	153 589	516 744	671 793	8 241

* 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
336510, RAILROAD ROLLING STOCK MFG		336510, RAILROAD ROLLING STOCK MFG—Con.	
Companies ¹	number.. 173	Value added .....	..\$1,000.. 3 329 550
All establishments	number.. 230	Total inventories, beginning of year .....	..\$1,000.. 1 391 720
Establishments with 1 to 19 employees	number.. 85	Finished goods inventories, beginning of year .....	..\$1,000.. 320 941
Establishments with 20 to 99 employees	number.. 74	Work-in-process inventories, beginning of year .....	..\$1,000.. 659 852
Establishments with 100 employees or more	number.. 71	Materials and supplies inventories, beginning of year .....	..\$1,000.. 410 927
All employees	number.. 33 843	Total inventories, end of year .....	..\$1,000.. 1 587 192
Total compensation ² .....	..\$1,000.. 1 732 003	Finished goods inventories, end of year .....	..\$1,000.. 399 400
Annual payroll .....	..\$1,000.. 1 313 609	Work-in-process inventories, end of year .....	..\$1,000.. 760 773
Total fringe benefits .....	..\$1,000.. 418 394	Materials and supplies inventories, end of year .....	..\$1,000.. 427 019
Production workers, average for year	number.. 23 822	Gross book value of total assets at beginning of year .....	..\$1,000.. 2 313 291
Production workers on March 15	number.. 22 835	Total capital expenditures (new and used) .....	..\$1,000.. 196 806
Production workers on May 15	number.. 23 198	Capital expenditures for buildings and other structures	
Production workers on August 15	number.. 23 894	(new and used) .....	..\$1,000.. 22 412
Production workers on November 15	number.. 25 361	Capital expenditures for machinery and equipment (new	
Production-worker hours .....	..1,000.. 53 044	and used) .....	..\$1,000.. 174 394
Production-worker wages .....	..\$1,000.. 791 379	Total retirements ² .....	..\$1,000.. 108 347
Total cost of materials .....	..\$1,000.. 5 068 882	Gross book value of total assets at end of year .....	..\$1,000.. 2 401 750
Cost of materials, parts, containers, etc., consumed .....	..\$1,000.. 4 796 010	Total depreciation during year ² .....	..\$1,000.. 139 872
Cost of resales .....	..\$1,000.. 138 155	Total rental payments ² .....	..\$1,000.. 53 722
Cost of fuels .....	..\$1,000.. 23 442	Buildings and other structures rental payments ² .....	..\$1,000.. 16 777
Cost of purchased electricity .....	..\$1,000.. 35 117	Machinery and equipment rental payments ² .....	..\$1,000.. 36 945
Cost of contract work .....	..\$1,000.. 76 158	Cost of purchased services for the repair of buildings and other	
Quantity of electricity purchased for heat and power .....	..1,000 kWh.. 569 474	structures ³ .....	..\$1,000.. 13 835
Quantity of electricity generated less sold for heat and power .....	..1,000 kWh.. S	Response coverage ratio ⁴	percent.. 87
Total value of shipments .....	..\$1,000.. 8 219 052	Cost of purchased services for the repair of machinery and	
Primary products value of shipments .....	..\$1,000.. 7 562 239	equipment ³ .....	..\$1,000.. 46 564
Secondary products value of shipments .....	..\$1,000.. 306 666	Response coverage ratio ⁴	percent.. 87
Total miscellaneous receipts .....	..\$1,000.. 350 147	Cost of purchased communications services ³ .....	..\$1,000.. 14 498
Value of resales .....	..\$1,000.. 185 894	Response coverage ratio ⁴	percent.. 87
Contract receipts .....	..\$1,000.. 86 262	Cost of purchased legal services ³ .....	..\$1,000.. 7 162
Other miscellaneous receipts .....	..\$1,000.. 77 991	Response coverage ratio ⁴	percent.. 87
Primary products specialization ratio	percent.. 96	Cost of purchased accounting and bookkeeping services ³ .....	..\$1,000.. 2 794
Value of primary products shipments made in all industries .....	..\$1,000.. 7 651 734	Response coverage ratio ⁴	percent.. 87
Value of primary products shipments made in this industry .....	..\$1,000.. 7 562 239	Cost of purchased advertising services ³ .....	..\$1,000.. 14 257
Value of primary products shipments made in other		Response coverage ratio ⁴	percent.. 87
industries .....	..\$1,000.. 89 495	Cost of purchased software and other data processing	
Coverage ratio	percent.. 98	services ³ .....	..\$1,000.. 29 458
		Response coverage ratio ⁴	percent.. 87
		Cost of purchased refuse removal (including hazardous waste)	
		services ³ .....	..\$1,000.. 5 331
		Response coverage ratio ⁴	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)				
336510, RAILROAD ROLLING STOCK MFG												
All establishments	-	230	145	33 843	1 313 609	23 822	53 044	791 379	3 329 550	5 068 882	8 219 052	196 806
Establishments with 1 to 4 employees	8	34	-	72	2 938	56	97	2 119	4 184	4 834	9 097	430
Establishments with 5 to 9 employees	6	14	-	90	3 085	62	127	2 179	6 100	7 689	13 957	381
Establishments with 10 to 19 employees	3	37	-	507	15 220	380	672	10 019	33 825	40 913	74 569	1 488
Establishments with 20 to 49 employees	1	45	45	1 387	43 470	978	1 973	25 641	99 407	186 499	282 610	5 898
Establishments with 50 to 99 employees	-	29	29	2 068	68 987	1 464	2 999	38 123	163 634	217 828	382 814	16 497
Establishments with 100 to 249 employees	-	36	36	5 484	169 627	3 820	7 562	97 406	398 943	653 846	1 071 958	23 010
Establishments with 250 to 499 employees	-	20	20	6 694	231 565	4 696	9 509	132 279	593 925	998 646	1 538 629	51 957
Establishments with 500 to 999 employees	-	11	11	7 420	275 678	5 542	11 817	174 135	419 945	1 062 840	1 547 456	22 821
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	-	1	1	D	D	D	D	D	D	D	D	D
Administrative records ²	9	41	-	297	7 530	211	352	5 333	16 580	22 125	39 405	945

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)				
336510	Railroad rolling stock mfg	230	33 843	1 313 609	23 822	53 044	791 379	3 329 550	5 068 882	8 219 052	196 806
3365101	Locomotives, both new and rebuilt, and parts	26	10 892	513 015	7 657	20 239	328 377	1 569 138	1 881 357	3 369 106	85 306
3365103	New freight train and passenger train cars, excluding parts	31	12 214	430 730	9 653	20 095	284 252	774 075	2 160 458	2 981 889	43 472
3365105	Street, subway, trolley, and rapid transit cars, all rebuilt railcars, and parts for all railcars	98	9 734	341 598	5 834	11 535	159 762	929 360	956 648	1 739 484	64 780

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)
336510	Railroad equipment	N	X	X	7 651 734	N	X	X	N
3365101	Locomotives, both new and rebuilt, and parts	N	X	X	2 952 659	N	X	X	N
33651011	Locomotives, both new and rebuilt, and parts	N	X	X	2 952 659	N	X	X	N
3365101101	New and rebuilt rail locomotives powered from an external source of electricity	-	X	X	-	N	X	X	N
3365101104	New and rebuilt diesel-electric locomotives	8	X	X	D	N	X	X	N
3365101107	Other new and rebuilt rail locomotives	3	X	X	D	N	X	X	N
3365101111	Parts for locomotives, except fuel lubricating or cooling medium pumps	33	X	X	1 008 824	N	X	X	N
3365101Y	Locomotives, both new and rebuilt, and parts, nsk	N	X	X	-	N	X	X	N
3365101YVV	Locomotives, both new and rebuilt, and parts, nsk	N	X	X	-	N	X	X	N
3365103	New freight train and passenger train cars, excluding parts	N	X	X	2 889 896	N	X	X	1 491 024
33651031	New freight train and passenger train cars, excluding parts	N	X	X	2 889 896	N	X	X	N
3365103100	New freight train and passenger train cars, excluding parts	18	X	X	2 889 896	N	X	X	N
3365105	Street, subway, trolley, and rapid transit cars, all rebuilt railcars, and parts for all railcars	N	X	X	1 715 434	N	X	X	N
33651053	Street, subway, trolley, and rapid transit cars and all rebuilt railcars	N	X	X	394 981	N	X	X	N
3365105301	Rebuilt passenger and freight train cars	18	X	X	139 414	13	X	X	103 656
3365105304	Self-propelled and nonself-propelled streetcars, subway cars, rapid transit cars, trolley buses, etc.	6	X	X	255 567	9	X	X	331 316
33651054	Railway maintenance of way equipment and parts, parts for all railcars, and other work and service railway vehicles (excluding locomotive cranes)	N	X	X	1 315 990	N	X	X	N
3365105405	Railway maintenance of way equipment (rail layers, ballast spreaders, etc.), excluding rail cars	13	X	X	144 935	17	X	X	88 680
3365105407	Other work and service railroad vehicles (excluding locomotive cranes)	7	X	X	36 050	10	X	X	38 654
3365105411	Airbrake equipment for railroad and streetcars	10	X	X	164 758	9	X	X	153 584
3365105413	Other brake equipment for railroad and streetcars	7	X	X	77 127	6	X	X	18 522
3365105416	Hooks and other coupling devices, buffers, and parts thereof for railroad and streetcars	8	X	X	155 304	4	X	X	30 801
3365105419	Other railroad and streetcar parts and accessories, including truck assemblies	68	X	X	737 816	N	X	X	N
3365105Y	Street, subway, trolley, and rapid transit cars, all rebuilt railcars, and parts for all railcars, nsk	N	X	X	4 463	N	X	X	N
3365105YVV	Street, subway, trolley, and rapid transit cars, all rebuilt railcars, and parts for all railcars, nsk	N	X	X	4 463	N	X	X	N
336510W	Railroad rolling stock manufacturing, nsk, total	N	X	X	93 745	N	X	X	N
336510WY	Railroad rolling stock manufacturing, nsk, total	N	X	X	93 745	N	X	X	N
336510WYWW	Railroad rolling stock manufacturing, nsk, for nonadministrative-record establishments	N	X	X	56 634	N	X	X	N
336510WYWY	Railroad rolling stock manufacturing, nsk, for administrative-record establishments	N	X	X	37 111	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
3365101	LOCOMOTIVES, BOTH NEW AND REBUILT, AND PARTS		
	United States	2 952 659	N
	Michigan	6 720	N
	New York	53 741	N
3365103	NEW FREIGHT TRAIN AND PASSENGER TRAIN CARS, EXCLUDING PARTS		
	United States	2 889 896	1 491 024
	Illinois	433 278	N
	Pennsylvania	564 184	369 752
3365105	STREET, SUBWAY, TROLLEY, AND RAPID TRANSIT CARS, ALL REBUILT RAILCARS, AND PARTS FOR ALL RAILCARS		
	United States	1 715 434	N
	Alabama	29 096	N
	Georgia	12 522	N
	Illinois	293 456	N
	Indiana	37 429	N
	Michigan	47 986	N
	Missouri	75 541	N
	New York	107 693	N
	Ohio	54 682	N
	Pennsylvania	461 302	N
	South Carolina	133 351	N
	Wisconsin	38 253	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)
336510	RAILROAD ROLLING STOCK MFG				
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	67 945	X	N
00190090	Fluid power products	X	89 618	X	N
33210001	Forgings	X	377 128	X	N
33200063	Other fabricated metal products (except fluid power products and forgings)	X	496 475	X	N
33151001	Iron and steel castings (rough and semifinished)	X	357 545	X	N
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	385 851	X	N
33120017	Steel sheet and strip, including tin plate	X	157 248	X	N
33120019	Steel structural shapes and sheet piling (except castings, forgings, and fabricated metal products)	X	102 899	X	N
33120091	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	112 914	X	N
331000AJ	Nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	96 777	X	N
33152011	Nonferrous (aluminum, copper, etc.) castings (rough and semifinished)	X	22 405	X	N
33299103	Roller bearings (mounted or unmounted)	X	107 369	X	N
33361301	Plain bearings and bushings	X	62 459	X	N
33361200	Mechanical speed changers, gears, and industrial high-speed drives	X	52 441	X	N
33531303	Railway electrical control equipment	X	386 169	X	N
33651000	Brake equipment, truck assemblies, hooks and other coupling devices, buffers, and parts	X	573 466	X	N
00970099	All other materials and components, parts, containers, and supplies	X	888 233	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	459 068	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

336510 RAILROAD ROLLING STOCK MANUFACTURING

This U.S. industry comprises establishments primarily engaged in one or more of the following: (1) manufacturing and/or rebuilding locomotives, locomotive frames and parts; (2) manufacturing railroad, street, and rapid transit cars and car equipment for operation on rails for freight

and passenger service; and (3) manufacturing rail layers, ballast distributors, rail tamping equipment and other railway track maintenance equipment.

The data published with NAICS code 336510 include the following SIC industries:

3531 Construction machinery (pt)

3743 Railroad equipment (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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	336212123	37152	37152	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	336212123100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	336212W	37150	37150	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	336212WYWW	3715000	3715000	3363121544	3714227	3714227
3361201 pt.	37114 pt.	37114 pt.	336212WYWW	3715002	3715002	3363121571	3714241	3714241
3361201 pt.	37115 pt.	37117	3362130	37160	37160	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37118	3362130101	3716001	3716001	3363121YVV	3714200 pt.	3714200 pt.
3361201100 pt.	3711407	3711400 pt.	3362130104	3716005	3716005	3363123	37144 pt.	37144 pt.
3361201100 pt.	3711400 pt.	3711400 pt.	3362130107	3716007	3716007	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130111	3716021	3716021	3363123104	3714A03	3714A03
3361201100 pt.	3711500 pt.	3711700	3362130YWW	3716000	3716000	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711800	3362130YWW	3716002	3716002	3363123111	3714A25	3714A25
3361202 pt.	37114 pt.	37114 pt.	3362141	37921	37921	3363123121	3714A43	3714A41 pt.
3361202 pt.	37119	37119	3362141101	3792112	3792112	3363123YVV	3714A00 pt.	3714A00 pt.
3361202100 pt.	3711409	3711400 pt.	3362141104	3792114	3792114	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141207	3792116	3792116	336312WYWW	3714000 pt.	3714000 pt.
3361202100 pt.	3711900	3711900	3362141311	3792118	3792118	336312WYWW	3714002 pt.	3714002 pt.
3361203	37113	37113	3362141413	3792125	3792125	3363210	36470	36470
3361203101	3711304	3711304	3362141516	3792128	3792128	3363210100	3647000 pt.	3647000 pt.
3361203104	3711303	3711303	3362141YVV	3792100	3792100	3363210YWW	3647000 pt.	3647000 pt.
3361203YVV	3711300	3711300	3362143	37996	37996	3363210YWW	3647002	3647002
336120W	37110 pt.	37110 pt.	3362143101	3799611	3799601 pt.	3363221	36941	36941
336120WYWW	3711000 pt.	3711000 pt.	3362143105	3799613	3799602 pt.	3363221101	3694101	3694101
336120WYWW	3711002 pt.	3711002 pt.	3362143108	3799615	3799604 pt.	3363221104	3694102	3694102
3362111 pt.	37111 pt.	37111 pt.	3362143111	3799617	3799607 pt.	3363221201	3694103	3694103
3362111 pt.	37131	37131	3362143114	3799619	3799609 pt.	3363221204	3694104	3694104
3362111 pt.	37149 pt.	37149 pt.	3362143117	3799651 pt.	3799601 pt.	3363221YVV	3694100	3694100
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363223	36942	36942
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799604 pt.	3363223101	3694201	3694201
3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223104	3694202	3694202
3362111411	3713115	3713115	3362143117 pt.	3799651 pt.	3799609 pt.	3363223201	3694203	3694203
3362111413	3713116	3713116	3362143YVV	3799600	3799600	3363223204	3694204	3694204
3362111416	3713117	3713117	3362145	37922	37922	3363223YVV	3694200	3694200
3362111519	3713121	3713121	3362145101	3792242	3792242	3363225	36943	36943
3362111522	3713131	3713131	3362145204	3792244	3792244	3363225101	3694301	3694301
3362111525	3713132	3713132	3362145207	3792247	3792247	3363225104	3694302	3694302
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792261	3363225201	3694303	3694303
3362111531	3713139	3713139	3362145311 pt.	3792268 pt.	3792263	3363225YVV	3694300	3694300
3362111534	3713143	3713143	3362145YVV	3792200	3792200	3363227	36944	36944
3362111537	3713153	3713153	336214W pt.	37920	37920	3363227100	3694400	3694400
3362111541	3713155	3713155	336214W pt.	37990	37990	3363229	36947	36947
3362111543	3713161	3713161	336214WYWW pt.	3792000	3792000	3363229101	3694701	3694701
3362111546	3713162	3713162	336214WYWW pt.	3792000	3792000	3363229201	3694711	3694711
3362111549	3713163	3713163	336214WYWW pt.	3792002	3792002	3363229301	3694702	3694702
3362111552	3711171	3711171	336214WYWW pt.	3799002 pt.	3799002 pt.	3363229304	3694704	3694704
3362111555	3711181	3711181 pt.	3363111	35921	35921	3363229307	3694705	3694705
3362111558	3714925	3714925	3363111101	3592101	3592101	3363229309	3694719	3694719
3362111571 pt.	3713171	3713171	3363111103	3592102	3592102	3363229YVV	3694700	3694700
3362111YVV pt.	3711100 pt.	3711100 pt.	3363111105	3592103	3592103	336322A	36949	36949
3362111YVV pt.	3713100	3713100	3363111207	3592105	3592105	336322A101	3694901	3694901
3362111YVV pt.	3714900 pt.	3714900 pt.	3363111YVV	3592100	3592100	336322A204	3694907	3694907
3362113 pt.	37114 pt.	37114 pt.	3363113	35922	35922	336322A307	3694911	3694911
3362113 pt.	37132	37132	3363113101	3592201	3592201	336322A409	3694912	3694912
3362113101	3713201	3713201	3363113103	3592202	3592202	336322A512	3694913	3694913
3362113219	3713225	3713225	3363113205	3592203	3592203	336322A615	3694919	3694919
3362113304	3713211	3713211	3363113207	3592204	3592204	336322AYVV	3694900	3694900
3362113307	3713213	3713213	3363113209	3592205	3592205	336322C pt.	36799 pt.	36799 pt.
3362113311	3713215	3713215	3363113211	3592206	3592206	336322C pt.	37149 pt.	37149 pt.
3362113313	3713217	3713217	3363113313	3592209	3592209	336322C pt.	3714A pt.	3714A pt.
3362113316	3713218	3713218	3363113YVV	3592200	3592200	336322C102	3714913	3714913
3362113322	3713226	3713226	3363115	35923	35923	336322C104	3714914	3714914
3362113325	3713227	3713227	3363115101	3592301	3592301	336322C107	3714915	3714915
3362113328	3713241	3713239 pt.	3363115103	3592302	3592302	336322C111 pt.	3714921	3714917
3362113331 pt.	3711411	3711400 pt.	3363115YVV	3592300	3592300	336322C111 pt.	3714921 pt.	3714917
3362113331 pt.	3713243	3713239 pt.	336311W	35920	35920	336322C111 pt.	3714921 pt.	3714917
3362113YVV pt.	3711400 pt.	3711400 pt.	336311WYWW	3592000	3592000	336322C114	3714942	3714904 pt.
3362113YVV pt.	3713200	3713200	336311WYWW	3592002	3592002	336322C117	3714944	3714904 pt.
						336322C119	3679926	3679920 pt.
						336322C121	3714945	3714941 pt.
						336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127307	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	3364127YVW	3724400	3724400
3363301YVW pt	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412W	37240	37240
3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	336391B000	3585B00	3585400 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131111	3728261	3728261
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585000 pt	3585000 pt	3364131YVW	3728200	3728200
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364133	37283	37283
3363401 pt	32922	32922	3363991	37144	37144	3364133101	3728313	3728313
3363401 pt	37148	37148	3363991101	3714401	3714401	3364133104	3728315	3728315
3363401 pt	37149 pt	37149 pt	3363991104	3714402	3714402	3364133YVW	3728300	3728300
3363401101	3714801	3714801	3363991107	3714403	3714403	3364135	37285	37285
3363401104	3714802	3714802	3363991111	3714405	3714405	3364135101	3728513	3728513
3363401211	3714807	3714807	3363991113	3714407	3714407	3364135104	3728515	3728515
3363401313	3714809	3714809	3363991116	3714408	3714408	3364135207	3728594	3728594
3363401416	3714811	3714811	3363991119	3714409	3714409	3364135211	3728595	3728595
3363401519	3714813	3714813	3363991YVW	3714400	3714400	3364135313	3728598	3728598
3363401625	3714817	3714817	3363993	37145	37145	3364135416	3728599	3728599
3363401707	3714803	3714803	3363993101	3714501	3714501	3364135YVW	3728500	3728500
3363401722	3714815	3714815	3363993104	3714502	3714502	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363993107	3714503	3714503	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363993YVW	3714500	3714500	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363995	37147	37147	3364141	37611	37611
3363401745	3714912	3714912	3363995101	3714701	3714701	3364141100	3761100	3761100
3363401747 pt	3292200 pt	3292200 pt	3363995104	3714705	3714705	3364143	37613	37613
3363401747 pt	3292200 pt	3292211 pt	3363995107	3714707	3714707	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292211 pt	3363995111	3714714	3714714	3364145	37616	37616
3363401747 pt	3292200 pt	3292258 pt	3363995YVW	3714700	3714700	3364145100	3761600	3761600
3363401747 pt	3714827	3714827	3363997 pt	35199 pt	35199 pt	3364147	37612	37612
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	37142 pt	37142 pt	3364147101	3761201	3761201
3363401YVW pt	3714800	3714800	3363997 pt	37149 pt	37149 pt	3364147204	3761202	3761202
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403114	3714A35	3714A35	3363997101	3714901	3714901	336414A101	3761702	3761702
3363403117	3714A37	3714A37	3363997204	3714902	3714902	336414A104	3761703	3761703
3363403121	3714A44	3714A41 pt	3363997307	3714903	3714903	336414AYVW	3761700	3761700
3363403YVW	3714A00 pt	3714A00 pt	3363997401	3714235	3714235	336414W	37610	37610
336340W pt	32920 pt	32920 pt	3363997405	3714236	3714236	336414WYVW	3761000	3761000
336340W pt	37140 pt	37140 pt	3363997409	3519987	3519987	336414WYVW	3761002	3761002
336340WYVW pt	3292000 pt	3292000 pt	3363997514	3714909	3714909	3364151	37645	37645
336340WYVW pt	3714000 pt	3714000 pt	3363997524	3714916	3714916	3364151101	3764511	3764511
336340WYVW pt	3292002 pt	3292002 pt	3363997527	3714922	3714922	3364151204	3764513	3764513
336340WYVW pt	3714002 pt	3714002 pt	3363997531	3714923	3714923	3364151307	3764515	3764515
3363501	37146	37146	3363997534	3714931	3714931	3364151YVW	3764500	3764500
3363501101	3714603	3714603	3363997551	3714951	3714941 pt	3364153	37646	37646
3363501104	3714605	3714605	3363997554	3714A52	3714A41 pt	3364153101	3764611	3764611
3363501207	3714613	3714613	3363997YVW pt	3519900 pt	3519900 pt	3364153104	3764613	3764613
3363501211	3714615	3714615	3363997YVW pt	3714200 pt	3714200 pt	3364153107	3764615	3764615
3363501313	3714623	3714623	3363997YVW pt	3714900 pt	3714900 pt	3364153YVW	3764600	3764600
3363501316	3714625	3714625	336399W pt	35190 pt	35190 pt	3364155	37647	37647
3363501434	3714641	3714641	336399WYVW pt	3519000 pt	3519000 pt	3364155101	3764711	3764711
3363501519	3714628	3714628	336399WYVW pt	3714000 pt	3714000 pt	3364155104	3764713	3764713
3363501522	3714631	3714631	336399WYVW pt	3519002 pt	3519002 pt	3364155107	3764715	3764715
3363501525	3714633	3714633	3364111	37211	37211	3364155YVW	3764700	3764700
3363501528	3714635	3714635	3364111100	3721100	3721100	3364157	37648	37648
3363501531	3714637	3714637	3364113	37215	37215	3364157101	3764811	3764811
3363501537	3714643	3714643	3364113000	3721500	3721500	3364157104	3764813	3764813
3363501541	3714649	3714649	3364115	37217	37217	3364157107	3764815	3764815
3363501YVW	3714600	3714600	3364115101	3721711	3721711	3364157YVW	3764800	3764800
3363503	3714A pt	3714A pt	3364115104	3721751	3721751	336415W	37640	37640
3363503101	3714A04	3714A04	3364115YVW	3721700	3721700	336415WYVW	3764000	3764000
3363503104	3714A27	3714A27				336415WYVW	3764002	3764002

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3364191	37692	37692	3366115	37313	37313	3366127119	3732719	3732719
336419101	3769211	3769211	3366115101	3731315	3731315	3366127YVW	3732700	3732700
336419104	3769213	3769213	3366115107	3731335	3731335	336612W	37320 pt	37320 pt
3364191207	3769219	3769219	3366115111	3731343	3731343	336612WYVW	3732000 pt	3732000 pt
3364191311	3769225	3769225	3366115113	3731348	3731348	336612WYVW	3732002 pt	3732002 pt
3364191413	3769235	3769235	3366115116	3731357	3731357	3369911 pt	37511	37511
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336510W pt	35310 pt	35310 pt				3369993513	3799925	3799925
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336510W pt	37430 pt	37430 pt	3366125107	3732405	3732405	336999W	37990 pt	37990 pt
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			3366125213 pt	3732408 pt	3732409 pt			
			3366125YVW	3732400	3732400			
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3366111101	3731111	3731111	3366127	37327	37327			
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3366111107	3731119	3731119	3366127104	3732704	3732704			
3366111YVW	3731100	3731100	3366127107	3732706	3732706			
			3366127111	3732708	3732708			
			3366127113	3732712	3732712			
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Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336611	Ship building & repairing	648	696	96 524	3 338 358	71 199	142 834	2 147 936	6 154 737	4 286 697	10 441 434	241 691
373100	Ship building & repairing	N	696	96 524	3 338 358	71 199	142 834	2 147 936	6 154 737	4 286 697	10 441 434	241 691

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)				
336611, SHIP BUILDING & REPAIRING												
United States	-	696	276	96 524	3 338 358	71 199	142 834	2 147 936	6 154 737	4 286 697	10 441 434	241 691
Alabama	-	27	15	2 644	77 338	2 302	4 324	61 332	133 372	107 616	240 988	26 848
Florida	3	79	18	2 720	83 676	2 465	4 382	63 870	151 236	96 434	247 670	24 285
Louisiana	1	92	59	13 276	408 756	10 750	24 006	319 766	816 915	787 930	1 604 845	33 800
Maryland	1	18	4	690	21 645	464	790	11 009	31 511	30 407	61 918	1 437
Massachusetts	5	20	5	321	8 322	263	438	6 313	14 167	11 143	25 310	369
Mississippi	-	17	12	12 535	392 015	7 310	15 400	222 422	737 235	614 471	1 351 706	48 835
Missouri	-	8	4	740	16 998	681	1 105	12 618	37 457	59 175	96 632	1 878
Oregon	1	22	10	1 581	70 421	1 388	3 257	59 311	128 680	74 879	203 559	2 146
Rhode Island	2	6	2	135	4 068	110	222	3 279	5 194	2 836	8 030	32
South Carolina	4	6	4	899	25 613	633	1 392	16 102	58 469	36 911	95 380	2 679
Texas	1	71	27	3 087	93 209	2 587	4 803	66 181	176 571	174 670	351 241	14 848
Virginia	-	36	18	22 086	823 172	18 464	37 474	575 955	1 405 867	839 825	2 245 692	43 864
Washington	1	61	25	3 584	137 326	2 638	5 668	92 375	234 623	131 650	366 273	5 827

* 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
336611, SHIP BUILDING & REPAIRING		336611, SHIP BUILDING & REPAIRING—Con.	
Companies ¹	number.. 648	Value added	\$.1,000.. 6 154 737
All establishments	number.. 696	Total inventories, beginning of year	\$.1,000.. 1 354 067
Establishments with 1 to 19 employees	number.. 420	Finished goods inventories, beginning of year	\$.1,000.. 49 879
Establishments with 20 to 99 employees	number.. 170	Work-in-process inventories, beginning of year	\$.1,000.. 1 075 140
Establishments with 100 employees or more	number.. 106	Materials and supplies inventories, beginning of year	\$.1,000.. 229 048
All employees	number.. 96 524	Total inventories, end of year	\$.1,000.. 1 212 665
Total compensation ²	\$.1,000.. 4 261 398	Finished goods inventories, end of year	\$.1,000.. 65 069
Annual payroll	\$.1,000.. 3 338 358	Work-in-process inventories, end of year	\$.1,000.. 915 886
Total fringe benefits	\$.1,000.. 923 040	Materials and supplies inventories, end of year	\$.1,000.. 231 710
Production workers, average for year	number.. 71 199	Gross book value of total assets at beginning of year	\$.1,000.. 4 233 294
Production workers on March 15	number.. 71 939	Total capital expenditures (new and used)	\$.1,000.. 241 691
Production workers on May 15	number.. 72 614	Capital expenditures for buildings and other structures (new and used)	\$.1,000.. 92 357
Production workers on August 15	number.. 70 208	Capital expenditures for machinery and equipment (new and used)	\$.1,000.. 149 334
Production workers on November 15	number.. 70 035	Total retirements ²	\$.1,000.. 82 612
Production-worker hours	1,000.. 142 834	Gross book value of total assets at end of year	\$.1,000.. 4 392 373
Production-worker wages	\$.1,000.. 2 147 936	Total depreciation during year ²	\$.1,000.. 196 658
Total cost of materials	\$.1,000.. 4 286 697	Total rental payments ²	\$.1,000.. 81 252
Cost of materials, parts, containers, etc., consumed	\$.1,000.. 3 738 854	Buildings and other structures rental payments ²	\$.1,000.. 40 893
Cost of resales	\$.1,000.. 68 974	Machinery and equipment rental payments ²	\$.1,000.. 40 359
Cost of fuels	\$.1,000.. 23 723	Cost of purchased services for the repair of buildings and other structures ³	\$.1,000.. 23 912
Cost of purchased electricity	\$.1,000.. 92 218	Response coverage ratio ⁴	percent.. 87
Cost of contract work	\$.1,000.. 362 928	Cost of purchased services for the repair of machinery and equipment ³	\$.1,000.. 68 297
Quantity of electricity purchased for heat and power	1,000 kWh.. 1 735 193	Response coverage ratio ⁴	percent.. 87
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$.1,000.. 12 046
Total value of shipments	\$.1,000.. 10 441 434	Response coverage ratio ⁴	percent.. 87
Primary products value of shipments	\$.1,000.. 10 124 896	Cost of purchased legal services ³	\$.1,000.. 13 732
Secondary products value of shipments	\$.1,000.. 108 281	Response coverage ratio ⁴	percent.. 87
Total miscellaneous receipts	\$.1,000.. 208 257	Cost of purchased accounting and bookkeeping services ³	\$.1,000.. 6 879
Value of resales	\$.1,000.. 89 085	Response coverage ratio ⁴	percent.. 87
Contract receipts	\$.1,000.. 18 442	Cost of purchased advertising services ³	\$.1,000.. 8 500
Other miscellaneous receipts	\$.1,000.. 100 730	Response coverage ratio ⁴	percent.. 87
Primary products specialization ratio	percent.. 98	Cost of purchased software and other data processing services ³	\$.1,000.. 93 892
Value of primary products shipments made in all industries	\$.1,000.. 10 196 846	Response coverage ratio ⁴	percent.. 87
Value of primary products shipments made in this industry	\$.1,000.. 10 124 896	Cost of purchased refuse removal (including hazardous waste) services ³	\$.1,000.. 8 592
Value of primary products shipments made in other industries	\$.1,000.. 71 950	Response coverage ratio ⁴	percent.. 87
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)				
336611, SHIP BUILDING & REPAIRING												
All establishments	-	696	276	96 524	3 338 358	71 199	142 834	2 147 936	6 154 737	4 286 697	10 441 434	241 691
Establishments with 1 to 4 employees	7	204	-	424	11 090	384	606	8 653	19 550	16 983	36 533	626
Establishments with 5 to 9 employees	6	115	-	804	23 161	677	1 165	17 777	39 316	28 202	67 518	1 193
Establishments with 10 to 19 employees	5	101	-	1 403	41 245	1 164	2 148	31 401	74 343	52 491	126 834	1 871
Establishments with 20 to 49 employees	3	101	101	3 145	91 222	2 579	4 627	66 864	157 645	116 922	274 567	7 540
Establishments with 50 to 99 employees	1	69	69	4 851	143 621	4 006	7 618	107 157	281 615	222 122	503 737	20 515
Establishments with 100 to 249 employees	3	53	53	7 820	256 950	6 552	13 607	195 674	454 819	364 809	819 628	18 140
Establishments with 250 to 499 employees	2	32	32	11 167	347 681	9 369	18 972	258 004	670 419	574 621	1 245 040	42 138
Establishments with 500 to 999 employees	-	11	11	7 179	234 482	6 275	12 504	186 677	371 123	398 423	769 546	42 706
Establishments with 1,000 to 2,499 employees	-	4	4	5 249	174 121	4 381	9 093	128 658	314 121	251 310	565 431	14 235
Establishments with 2,500 employees or more	-	6	6	54 482	2 014 785	35 812	72 494	1 147 071	3 771 786	2 260 814	6 032 600	92 727
Administrative records ²	9	322	-	2 254	57 940	1 943	3 018	45 196	97 662	72 759	170 421	2 937

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)				
336611	Ship building & repairing .	696	96 524	3 338 358	71 199	142 834	2 147 936	6 154 737	4 286 697	10 441 434	241 691
3366111	Nonpropelled ships and barges, new construction	32	6 642	194 541	5 805	11 379	145 817	361 122	491 718	852 840	26 765
3366113	Military, self-propelled ships, including combat ships, troop transport vessels, fleet auxiliaries, and service craft, new construction	13	39 474	1 423 594	22 990	46 327	738 009	2 763 836	1 757 778	4 521 614	65 371
3366115	Self-propelled ships, nonmilitary, new construction	56	8 623	259 526	7 534	15 002	203 793	404 324	441 883	846 207	46 860
3366117	Ship repair, military	40	25 554	927 792	21 385	43 617	655 523	1 609 679	1 018 104	2 627 783	53 439
3366119	Ship repair, nonmilitary	130	9 642	357 544	7 842	17 132	268 143	714 304	367 497	1 081 801	39 656

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)
336611	Ship building and repairing	N	X	X	10 196 846	N	X	X	10 381 273
3366111	Nonpropelled ships and barges, new construction	N	X	X	878 251	N	X	X	449 281
33661111	Nonpropelled ships and barges, new construction	N	X	X	878 251	N	X	X	N
3366111101	Military and nonmilitary nonpropelled barges, all types, new construction	31	X	X	624 128	23	X	X	374 355
3366111104	Military and nonmilitary nonpropelled drilling-production platforms, new construction	5	X	X	163 974	4	X	X	N
3366111107	Other military and nonmilitary nonpropelled ships (including dredges and floating docks), new construction	7	X	X	90 149	6	X	X	N
3366111Y	Nonpropelled ships, new construction, nsk	N	X	X	-	N	X	X	N
3366111YWV	Nonpropelled ships, new construction, nsk	N	X	X	-	N	X	X	14 839
3366113	Military, self-propelled ships, including combat ships, troop transport vessels, fleet auxiliaries, and service craft, new construction	N	X	X	4 638 092	N	X	X	6 034 106
33661131	Military, self-propelled ships, including combat ships, troop transport vessels, fleet auxiliaries, and service craft, new construction	N	X	X	4 638 092	N	X	X	N
3366113100	Military, self-propelled ships, including combat ships, troop transport vessels, fleet auxiliaries, and service craft, new construction	24	X	X	4 638 092	21	X	X	6 034 106
3366115	Self-propelled ships, nonmilitary, new construction	N	X	X	953 104	N	X	X	648 328
33661151	Self-propelled ships, nonmilitary, new construction	N	X	X	947 865	N	X	X	N
3366115101	Self-propelled nonmilitary yachts, 65 ft or more in length (requires a professional crew as specified by the Coast Guard), new construction	13	X	X	195 413	14	X	X	107 834
3366115107	Self-propelled nonmilitary mobile drilling-production platforms, new construction	-	X	X	D	N	X	X	-
3366115111	Self-propelled nonmilitary commercial fishing trawlers, new construction	9	X	X	28 466	9	X	X	52 342
3366115113	Other self-propelled nonmilitary commercial fishing vessels (including seiners), new construction	5	X	X	D	14	X	X	24 374
3366115116	Self-propelled nonmilitary tugboats and towboats, including integrated tug-barge combination, new construction	15	X	X	36 071	8	X	X	10 723
3366115119	Self-propelled nonmilitary ferryboats, new construction	10	X	X	32 299	8	X	X	15 270
3366115121	Self-propelled nonmilitary fire, patrol, and pilot vessels, new construction	2	X	X	D	3	X	X	N
3366115123	Self-propelled nonmilitary support vessels for offshore drilling and mining, new construction	20	X	X	166 967	4	X	X	11 349
3366115124	Other nonmilitary ships, including container and trailer ships, dry bulk carriers, and tankers	16	X	X	479 125	N	X	X	N
3366115Y	Self-propelled ships, nonmilitary, new construction, nsk	N	X	X	5 239	N	X	X	N
3366115YWV	Self-propelled ships, nonmilitary, new construction, nsk	N	X	X	5 239	N	X	X	11 734
3366117	Ship repair, military	N	X	X	2 166 001	N	X	X	1 968 702
33661171	Ship repair, military	N	X	X	2 164 105	N	X	X	N
3366117101	Ship conversions and reconversions, military	19	X	X	1 358 831	25	X	X	384 157
3366117104	All other ship repairs, military	52	X	X	805 274	56	X	X	1 575 214
3366117Y	Ship repair, military, nsk	N	X	X	1 896	N	X	X	N
3366117YWV	Ship repair, military, nsk	N	X	X	1 896	N	X	X	9 331
3366119	Ship repair, nonmilitary	N	X	X	1 082 168	N	X	X	881 064
33661191	Ship repair, nonmilitary	N	X	X	1 078 373	N	X	X	N
3366119101	Ship conversions and reconversions, nonmilitary	34	X	X	261 532	30	X	X	117 210
3366119104	All other ship repairs, nonmilitary	150	X	X	816 841	142	X	X	724 294
3366119Y	Ship repair, nonmilitary, nsk	N	X	X	3 795	N	X	X	N
3366119YWV	Ship repair, nonmilitary, nsk	N	X	X	3 795	N	X	X	39 560
336611W	Ship building and repairing, nsk, total	N	X	X	479 230	N	X	X	399 792
336611WY	Ship building and repairing, nsk, total	N	X	X	479 230	N	X	X	N
336611WYWV	Ship building and repairing, nsk, for nonadministrative-record establishments	N	X	X	308 374	N	X	X	322 757
336611WYWY	Ship building and repairing, nsk, for administrative-record establishments	N	X	X	170 856	N	X	X	77 035

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

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	
3366111	NONPROPELLED SHIPS AND BARGES, NEW CONSTRUCTION			
	United States	878 251	449 281	
	Louisiana	307 692	203 056	
	Mississippi	88 294	59 092	
	Oregon	5 011	N	
3366113	MILITARY, SELF-PROPELLED SHIPS, INCLUDING COMBAT SHIPS, TROOP TRANSPORT VESSELS, FLEET AUXILIARIES, AND SERVICE CRAFT, NEW CONSTRUCTION			
	United States	4 638 092	6 034 106	
	Louisiana	624 393	696 196	
	Washington	15 404	N	
	Texas	192 077	N	
3366115	SELF-PROPELLED SHIPS, NONMILITARY, NEW CONSTRUCTION			
	United States	953 104	648 328	
	Alabama	72 824	56 342	
	Florida	91 760	19 486	
	Louisiana	236 001	86 116	
	Maine	10 961	5 498	
	Oregon	18 790	N	
	Texas	5 402	N	
	Washington	73 118	73 012	
	3366117	SHIP REPAIR, MILITARY		
United States		2 166 001	1 968 702	
Alabama		15 490	N	
California		363 198	437 054	
South Carolina		50 376	62 222	
Texas		38 887	19 869	
Virginia		1 404 110	893 539	
Washington		69 424	84 605	
3366119		SHIP REPAIR, NONMILITARY		
		United States	1 082 168	881 064
	California	54 148	88 267	
	Florida	66 975	86 516	
	Hawaii	7 353	8 779	
	Louisiana	207 654	134 844	
	Maryland	8 332	N	
	Mississippi	13 234	N	
	New Jersey	6 303	6 775	
	New York	30 239	N	
	Oregon	130 064	83 368	
	Texas	72 459	69 191	
	Virginia	120 090	90 693	
	Washington	142 023	92 685	

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)
336611	SHIP BUILDING & REPAIRING				
33361811	Diesel and semidiesel engines.....	X	131 061	X	96 980
33361105	Steam engines and turbines.....	X	117 340	X	N
33531221	Integral horsepower electric motors and generators (1 hp or more).....	X	45 594	X	76 454
33632200	Engine electrical equipment, including spark plugs, magnetos, generators, starters, etc.....	X	69 489	X	67 930
33361200	Mechanical speed changers, gears, and industrial high-speed drives.....	X	94 680	X	88 606
33531415	Industrial controls.....	X	46 664	X	N
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic).....	X	36 668	X	27 475
33291207	Fluid power valves (hydraulic and pneumatic).....	X	72 170	X	54 546
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic).....	X	2 823	X	1 809
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic).....	X	54 413	X	35 224
33399901	Fluid power filters (hydraulic and pneumatic).....	X	D	X	11 791
00190089	Other fluid power products (hydraulic and pneumatic).....	X	D	X	18 721
33231203	Fabricated structural metal for ships and barges (except forgings).....	X	55 632	X	113 456
332000A7	Metal boilers, condensers, and parts thereof (except forgings).....	X	6 124	X	11 396
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products.....	X	25 086	X	41 752
33200055	Other fabricated metal products (except fluid power products and forgings).....	X	73 691	X	23 739
33210001	Forgings.....	X	12 864	X	4 062
33100035	Castings (rough and semifinished).....	X	39 492	X	20 705
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products).....	X	387 682	X	281 295
33120017	Steel sheet and strip, including tin plate.....	X	27 241	X	26 135
33120019	Steel structural shapes and sheet piling (except castings, forgings, and fabricated metal products).....	X	62 003	X	64 525
33120091	All other steel shapes and forms (except castings, forgings, and fabricated metal products).....	X	18 863	X	24 849
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing.....	X	25 229	X	15 873
33100057	Other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products).....	X	5 829	X	3 033
33100077	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products).....	X	25 452	X	26 893
33300011	Construction machinery and parts thereof, including shipwinches, cranes, derricks, and capstans.....	X	44 574	X	42 873
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products.....	X	54 665	X	61 082
32100021	Dressed lumber.....	X	9 906	X	12 604
00970099	All other materials and components, parts, containers, and supplies.....	X	1 628 156	X	1 425 077
00971000	Materials, ingredients, containers, and supplies, n.s.k.....	X	542 507	X	705 420

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

336611 SHIP BUILDING AND REPAIRING

This U.S. industry comprises establishments primarily engaged in operating a shipyard. Shipyards are fixed facilities with drydocks and fabrication equipment capable of building a ship, defined as watercraft typically suitable or intended for other than personal or recreational use. Activities of shipyards include the construction of ships,

their repair, conversion and alteration, the production of prefabricated ship and barge sections, and specialized services, such as ship scaling.

The data published with NAICS code 336611 include the following SIC industry:

3731 Ship building and repairing

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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121547	3714241	3714241
3361201 pt.	37114 pt.	37114 pt.	33621213100	3715200	3715200	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37117	33621213100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201 pt.	37115 pt.	37118	3362130	37160	37160	3363123	37144 pt.	37144 pt.
3361201100 pt.	3711407	3711400 pt.	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711400 pt.	3711400 pt.	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711700	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361201100 pt.	3711500 pt.	3711800	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361202 pt.	37114 pt.	37114 pt.	3362130YWW	3716002	3716002	3363123YWW	3714A00 pt.	3714A00 pt.
3361202 pt.	37119	37119	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711409	3711400 pt.	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361202100 pt.	3711900	3711900	3362141207	3792116	3792116	3363210	36470	36470
3361203	37113	37113	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203101	3711304	3711304	3362141311	3792118	3792118	3363210YWW	3647000 pt.	3647000 pt.
3361203104	3711303	3711303	3362141413	3792125	3792125	3363210YWW	3647002	3647002
3361203YWW	3711300	3711300	3362141516	3792128	3792128	3363221	36941	36941
336120W	37110 pt.	37110 pt.	3362141YWW	3792100	3792100	3363221101	3694101	3694101
336120WYWW	3711000 pt.	3711000 pt.	3362143	37996	37996	3363221104	3694102	3694102
336120WYWW	3711002 pt.	3711002 pt.	3362143101	3799611	3799601 pt.	3363221201	3694103	3694103
3362111 pt.	37111 pt.	37111 pt.	3362143108	3799615	3799604 pt.	3363221204	3694104	3694104
3362111 pt.	37131	37131	3362143111	3799617	3799607 pt.	3363221YWW	3694100	3694100
3362111 pt.	37149 pt.	37149 pt.	3362143114	3799619	3799609 pt.	3363223	36942	36942
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799602 pt.	3363223101	3694201	3694201
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799604 pt.	3363223104	3694202	3694202
3362111307	3713112	3713112	3362143117 pt.	3799651 pt.	3799607 pt.	3363223201	3694203	3694203
3362111411	3713115	3713115	3362143117 pt.	3799651 pt.	3799609 pt.	3363223204	3694204	3694204
3362111413	3713116	3713116	3362143YWW	3799600	3799600	3363223YWW	3694200	3694200
3362111416	3713117	3713117	3362145	37922	37922	3363225	36943	36943
3362111519	3713121	3713121	3362145101	3792242	3792242	3363225101	3694301	3694301
3362111522	3713131	3713131	3362145204	3792244	3792244	3363225104	3694302	3694302
3362111525	3713132	3713132	3362145207	3792247	3792247	3363225201	3694303	3694303
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792261	3363225YWW	3694300	3694300
3362111531	3713139	3713139	3362145311 pt.	3792268 pt.	3792263	3363227	36944	36944
3362111534	3713143	3713143	3362145311 pt.	3792268 pt.	3792269	3363227100	3694400	3694400
3362111537	3713153	3713153	3362145YWW	3792200	3792200	3363229	36947	36947
3362111541	3713155	3713155	336214W pt.	37920	37920	3363229101	3694701	3694701
3362111543	3713161	3713161	336214W pt.	37990	37990	3363229201	3694711	3694711
3362111546	3713162	3713162	336214WYWW pt.	3792000	3792000	3363229301	3694702	3694702
3362111549	3713163	3713163	336214WYWW pt.	3792000 pt.	3792000 pt.	3363229304	3694704	3694704
3362111552	3711171	3711171	336214WYWW pt.	3792002	3792002	3363229307	3694705	3694705
3362111555	3711181	3711181 pt.	336214WYWW pt.	3799002 pt.	3799002 pt.	3363229309	3694719	3694719
3362111558	3714925	3714925	3363111	35921	35921	3363229YWW	3694700	3694700
3362111571 pt.	3713171	3713171	3363111101	3592101	3592101	336322A	36949	36949
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111103	3592102	3592102	336322A101	3694901	3694901
3362111YWW pt.	3713100	3713100	3363111105	3592103	3592103	336322A204	3694907	3694907
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111207	3592105	3592105	336322A307	3694911	3694911
3362113 pt.	37114 pt.	37114 pt.	3363111YWW	3592100	3592100	336322A409	3694912	3694912
3362113 pt.	37132	37132	3363113	35922	35922	336322A512	3694913	3694913
3362113101	3713201	3713201	3363113101	3592201	3592201	336322A615	3694919	3694919
3362113219	3713225	3713225	3363113103	3592202	3592202	336322AYWW	3694900	3694900
3362113304	3713211	3713211	3363113205	3592203	3592203	336322C pt.	36799 pt.	36799 pt.
3362113307	3713213	3713213	3363113207	3592204	3592204	336322C pt.	37149 pt.	37149 pt.
3362113311	3713215	3713215	3363113209	3592205	3592205	336322C pt.	37144 pt.	37144 pt.
3362113313	3713217	3713217	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113316	3713218	3713218	3363113313	3592209	3592209	336322C104	3714914	3714914
3362113322	3713226	3713226	3363113YWW	3592200	3592200	336322C107	3714915	3714915
3362113325	3713227	3713227	3363115	35923	35923	336322C111 pt.	3714921	3714921
3362113328	3713241	3713239 pt.	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714921 pt.
3362113331 pt.	3711411	3711400 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113331 pt.	3713243	3713239 pt.	3363115YWW	3592300	3592300	336322C117	3714944	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	336311W	35920	35920	336322C119	3679926	3679920 pt.
3362113YWW pt.	3713200	3713200	336311WYWW	3592000	3592000	336322C121	3714945	3714941 pt.
			336311WYWW	3592002	3592002	336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127307	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127411	3724406	3724406
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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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3366113	37312	37312	3366127116	3732717	3732717			
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Manufacturing

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U.S. Department of Commerce

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Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336612 373220	Boat building Boat building & repairing (pt)...	984 N	1 041 1 041	40 890 40 890	1 025 531 1 025 531	32 824 32 824	62 579 62 579	690 967 690 967	2 378 467 2 378 467	3 207 128 3 207 128	5 556 080 5 556 080	122 290 122 290

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)				
336612, BOAT BUILDING												
United States	1	1 041	301	40 890	1 025 531	32 824	62 579	690 967	2 378 467	3 207 128	5 556 080	122 290
Alabama	3	18	5	288	5 061	255	412	3 801	9 174	15 371	24 659	1 436
Arkansas	-	18	8	1 228	24 156	922	1 913	14 912	60 800	69 241	131 574	1 210
Florida	1	203	53	8 330	209 392	6 739	13 759	147 543	571 889	592 171	1 138 948	24 187
Louisiana	3	36	10	726	13 637	572	1 026	8 861	35 608	38 320	72 289	900
Maryland	-	19	4	808	20 803	740	1 029	17 775	64 514	95 717	159 622	922
Massachusetts	4	26	3	271	6 413	185	292	4 100	12 172	8 133	20 330	696
Mississippi	-	7	3	319	7 027	252	438	4 838	20 607	38 308	58 802	280
Missouri	-	23	11	1 839	39 248	1 445	2 791	25 503	141 382	155 274	294 091	1 832
New York	1	25	5	241	6 639	199	389	4 960	13 516	11 537	25 286	307
Oregon	1	21	6	667	16 120	569	1 110	12 109	32 628	53 240	83 220	716
Rhode Island	1	27	12	782	22 956	549	1 112	15 532	40 886	40 889	81 010	4 140
South Carolina	-	22	7	1 029	26 154	766	1 381	14 741	61 815	103 766	166 900	1 812
Texas	6	42	8	773	16 128	581	1 045	9 800	37 261	53 311	89 444	2 260
Virginia	8	13	3	138	3 236	107	193	2 145	5 795	7 582	13 426	173
Washington	1	90	23	2 532	76 295	1 980	3 241	40 641	86 762	98 707	190 741	17 419

* 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
336612, BOAT BUILDING		336612, BOAT BUILDING—Con.	
Companies ¹	number.. 984	Value added	\$1,000.. 2 378 467
All establishments	number.. 1 041	Total inventories, beginning of year	\$1,000.. 684 425
Establishments with 1 to 19 employees	number.. 740	Finished goods inventories, beginning of year	\$1,000.. 213 073
Establishments with 20 to 99 employees	number.. 201	Work-in-process inventories, beginning of year	\$1,000.. 167 105
Establishments with 100 employees or more	number.. 100	Materials and supplies inventories, beginning of year	\$1,000.. 304 247
All employees	number.. 40 890	Total inventories, end of year	\$1,000.. 731 300
Total compensation ²	\$1,000.. 1 234 728	Finished goods inventories, end of year	\$1,000.. 228 480
Annual payroll	\$1,000.. 1 025 531	Work-in-process inventories, end of year	\$1,000.. 181 213
Total fringe benefits	\$1,000.. 209 197	Materials and supplies inventories, end of year	\$1,000.. 321 607
Production workers, average for year	number.. 32 824	Gross book value of total assets at beginning of year	\$1,000.. 956 681
Production workers on March 15	number.. 32 633	Total capital expenditures (new and used)	\$1,000.. 122 290
Production workers on May 15	number.. 32 976	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 33 188
Production workers on August 15	number.. 32 470	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 89 102
Production workers on November 15	number.. 33 217	Total retirements ²	\$1,000.. 27 396
Production-worker hours	1,000.. 62 579	Gross book value of total assets at end of year	\$1,000.. 1 051 575
Production-worker wages	\$1,000.. 690 967	Total depreciation during year ²	\$1,000.. 86 663
Total cost of materials	\$1,000.. 3 207 128	Total rental payments ²	\$1,000.. 56 288
Cost of materials, parts, containers, etc., consumed	\$1,000.. 2 941 116	Buildings and other structures rental payments ²	\$1,000.. 24 893
Cost of resales	\$1,000.. 212 338	Machinery and equipment rental payments ²	\$1,000.. 31 395
Cost of fuels	\$1,000.. 12 671	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 6 184
Cost of purchased electricity	\$1,000.. 21 932	Response coverage ratio ⁴	percent.. 81
Cost of contract work	\$1,000.. 19 071	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 13 927
Quantity of electricity purchased for heat and power	1,000 kWh.. 367 738	Response coverage ratio ⁴	percent.. 81
Quantity of electricity generated less sold for heat and power	1,000 kWh.. D	Cost of purchased communications services ³	\$1,000.. 7 896
Total value of shipments	\$1,000.. 5 556 080	Response coverage ratio ⁴	percent.. 81
Primary products value of shipments	\$1,000.. 5 107 550	Cost of purchased legal services ³	\$1,000.. 7 491
Secondary products value of shipments	\$1,000.. 142 238	Response coverage ratio ⁴	percent.. 81
Total miscellaneous receipts	\$1,000.. 306 292	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 3 219
Value of resales	\$1,000.. 276 356	Response coverage ratio ⁴	percent.. 81
Contract receipts	\$1,000.. 3 801	Cost of purchased advertising services ³	\$1,000.. 39 143
Other miscellaneous receipts	\$1,000.. 26 135	Response coverage ratio ⁴	percent.. 81
Primary products specialization ratio	percent.. 97	Cost of purchased software and other data processing services ³	\$1,000.. 2 957
Value of primary products shipments made in all industries	\$1,000.. 5 129 849	Response coverage ratio ⁴	percent.. 81
Value of primary products shipments made in this industry	\$1,000.. 5 107 550	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 6 843
Value of primary products shipments made in other industries	\$1,000.. 22 299	Response coverage ratio ⁴	percent.. 81
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)				
336612, BOAT BUILDING												
All establishments	1	1 041	301	40 890	1 025 531	32 824	62 579	690 967	2 378 467	3 207 128	5 556 080	122 290
Establishments with 1 to 4 employees	8	414	—	876	18 090	725	1 068	12 560	39 889	47 594	88 451	1 336
Establishments with 5 to 9 employees	4	177	—	1 221	26 667	979	1 498	18 304	60 680	73 462	133 521	1 982
Establishments with 10 to 19 employees	3	149	—	2 011	47 332	1 590	2 693	32 445	100 668	107 349	201 756	8 036
Establishments with 20 to 49 employees	2	128	128	3 874	93 459	3 097	5 573	65 082	218 798	204 462	413 257	8 902
Establishments with 50 to 99 employees	2	73	73	5 044	116 447	4 065	7 941	79 946	240 325	290 077	526 875	9 924
Establishments with 100 to 249 employees	1	54	54	8 994	228 278	7 206	13 939	154 829	503 650	745 067	1 244 873	24 485
Establishments with 250 to 499 employees	—	36	36	12 505	321 298	10 233	20 404	225 685	827 272	1 208 883	2 028 573	37 985
Establishments with 500 to 999 employees	—	10	10	6 365	173 960	4 929	9 463	102 116	387 185	530 234	918 774	29 640
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	353	—	1 203	22 660	989	1 379	15 890	50 508	59 223	110 091	1 756

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)				
336612	Boat building	1 041	40 890	1 025 531	32 824	62 579	690 967	2 378 467	3 207 128	5 556 080	122 290
3366121	Outboard motorboats, including commercial and military (except sailboats and lifeboats)	167	12 293	295 781	9 630	18 500	193 155	668 430	1 047 039	1 719 127	28 098
3366123	Inboard motorboats, including commercial and military (except sailboats and lifeboats)	98	9 999	279 336	8 260	16 602	185 766	681 787	672 468	1 341 306	45 623
3366125	Inboard-outdrive boats, including commercial and military (except sailboats and lifeboats)	88	10 441	253 491	8 634	15 927	181 119	609 730	1 046 855	1 639 474	31 171
3366127	All other boats, nec (excluding military and commercial)	99	3 998	104 883	2 988	6 046	68 576	208 980	200 894	410 897	10 555

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)
336612	Boat building	N	X	X	5 129 849	N	X	X	N
3366121	Outboard motorboats, including commercial and military (except sailboats and lifeboats)	N	X	X	1 598 439	N	X	X	1 163 871
33661211	Outboard wood or metal motorboats, including commercial and military (except sailboats and lifeboats)	N	X	X	612 981	N	X	X	N
3366121101	Outboard wood or metal runabouts	4	X	P2 065.0	25 450	19	X	*19 919.0	74 701
3366121104	Outboard wood or metal utility boats	18	X	P30 683.0	57 767	21	X	*52 222.0	38 115
3366121107	Outboard wood or metal pontoon boats	29	X	P31 971.0	244 121	35	X	*32 497.0	161 556
3366121111	Outboard wood or metal bass boats	16	X	P16 899.0	99 927	12	X	S	86 717
3366121113	Outboard wood or metal fish and ski boats	12	X	*8 015.0	56 984	N	X	X	N
3366121116	Outboard wood or metal other fish boats	18	X	*30 153.0	115 659	N	X	X	N
3366121119	Other outboard wood or metal motor boats, including cabin cruisers and center consoles	10	X	X	13 073	N	X	X	N
33661212	Outboard plastics (reinforced), fiberglass motor boats, including commercial and military (except sailboats and lifeboats)	N	X	X	616 663	N	X	X	N
3366121222	Outboard plastics (reinforced), fiberglass runabouts	21	X	*14 375.0	151 833	36	X	P14 562.0	120 334
3366121225	Outboard plastics (reinforced), fiberglass utility boats	7	X	743.0	8 257	13	X	S	32 036
3366121228	Outboard plastics (reinforced), fiberglass cabin cruisers	9	X	P1 359.0	30 359	18	X	X	25 418
3366121231	Outboard plastics (reinforced), fiberglass center console motorboats	30	X	P10 855.0	130 348	45	X	P9 376.0	129 108
3366121234	Outboard plastics (reinforced), fiberglass deck boats	14	X	P2 078.0	27 626	N	X	X	N
3366121239	Outboard plastics (reinforced), fiberglass fish and ski boats (except bass boats)	26	X	P12 523.0	126 320	N	X	X	N
3366121243	Outboard plastics (reinforced), fiberglass other fish boats (except bass boats)	20	X	P6 970.0	127 630	N	X	X	N
3366121246	Other plastics (reinforced), fiberglass outboard motorboats	6	X	X	14 290	N	X	X	N
33661213	Outboard plastics (reinforced), fiberglass bass boats	N	X	X	296 822	N	X	X	N
3366121337	Outboard plastics (reinforced), fiberglass bass boats	20	X	27 813.0	296 822	31	X	*29 199.0	246 679
3366121Y	Outboard motorboats, including commercial and military (except sailboats and lifeboats), nsk	N	X	X	71 973	N	X	X	N
3366121YWV	Outboard motorboats, including commercial and military (except sailboats and lifeboats), nsk	N	X	X	71 973	N	X	X	37 008
3366123	Inboard motorboats, including commercial and military (except sailboats and lifeboats)	N	X	X	1 285 343	N	X	X	732 208
33661231	Inboard cabin cruisers, including commercial and military (except sailboats and lifeboats)	N	X	X	975 903	N	X	X	N
3366123104	Inboard cabin cruisers, less than 40 ft (12.19 m) in length	39	X	4 376.0	475 769	45	X	P3 502.0	250 732
3366123107	Inboard cabin cruisers, 40 ft (12.19 m) or more in length (professional crew not required by Coast Guard)	42	X	P1 553.0	500 134	29	X	X	177 794
33661232	Other inboard motorboats, including commercial and military (except sailboats and lifeboats)	N	X	X	298 726	N	X	X	N
3366123201	Inboard runabouts	23	X	P13 506.0	226 651	22	X	X	138 210
3366123211	Other inboard motorboats (including houseboats)	25	X	X	72 075	15	X	X	57 190
3366123Y	Inboard motorboats, including commercial and military (except sailboats and lifeboats), nsk	N	X	X	10 714	N	X	X	N
3366123YWV	Inboard motorboats, including commercial and military (except sailboats and lifeboats), nsk	N	X	X	10 714	N	X	X	108 282
3366125	Inboard-outdrive boats, including commercial and military (except sailboats and lifeboats)	N	X	X	1 452 698	N	X	X	1 039 961
33661251	Inboard-outdrive cabin cruisers	N	X	X	360 693	N	X	X	N
3366125107	Inboard-outdrive cabin cruisers	36	X	P10 656.0	360 693	29	X	X	287 802
33661252	Other inboard-outdrive boats, including commercial and military (except sailboats and lifeboats)	N	X	X	1 069 171	N	X	X	N
3366125201	Inboard-outdrive houseboats	12	X	P1 244.0	58 573	11	X	P688.0	32 504
3366125204	Inboard-outdrive runabouts	34	X	P53 163.0	831 729	47	X	X	605 738
3366125211	Inboard-outdrive fish boats	20	X	*3 218.0	48 944	N	X	X	N
3366125213	Other inboard-outdrive boats, including center consoles	21	X	X	129 925	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)
336612	Boat building—Con.								
3366125	Inboard-outdrive boats, including commercial and military (except sailboats and lifeboats)—Con.								
3366125Y	Inboard-outdrive boats, including commercial and military (except sailboats and lifeboats), nsk	N	X	X	22 834	N	X	X	N
3366125YWV	Inboard-outdrive boats, including commercial and military (except sailboats and lifeboats), nsk	N	X	X	22 834	N	X	X	36 329
3366127	All other boats, nec (excluding military and commercial)	N	X	X	376 515	N	X	X	259 095
33661271	All other boats (excluding military and commercial)	N	X	X	372 782	N	X	X	N
3366127101	Sailboats without auxiliary motor, all sizes (excluding military and commercial)	16	X	96 453.0	17 956	16	X	95 760.0	16 533
3366127104	Sailboats with auxiliary motor, not more than 6.5 m (21.33 ft) in length (excluding military and commercial)	6	X	1 146.0	22 564	6	X	9512.0	10 078
3366127107	Sailboats with auxiliary motor, more than 6.5 m (21.33 ft) but not more than 9.0 m (29.53 ft) in length (excluding military and commercial)	14	X	9761.0	28 680	11	X	X	24 269
3366127111	Sailboats with auxiliary motor, more than 9.0 m (29.53 ft) but not more than 12.0 m (39.03 ft) in length (excluding military and commercial)	19	X	9754.0	69 772	17	X	X	46 480
3366127113	Sailboats with auxiliary motor, more than 12.0 m (39.03 ft) in length (excluding military and commercial)	31	X	9517.0	109 727	25	X	9280.0	52 390
3366127116	Canoes (made from all types of materials) (excluding military and commercial)	15	X	973 555.0	32 570	12	X	954 712.0	24 497
3366127119	All other boats, nec (excluding military and commercial)	46	X	X	91 513	50	X	X	77 153
3366127Y	All other boats (excluding military and commercial), nsk	N	X	X	3 733	N	X	X	N
3366127YWV	All other boats (excluding military and commercial), nsk	N	X	X	3 733	N	X	X	7 695
336612W	Boat building, nsk, total	N	X	X	416 854	N	X	X	N
336612WY	Boat building, nsk, total	N	X	X	416 854	N	X	X	N
336612WYWV	Boat building, nsk, for nonadministrative-record establishments	N	X	X	314 263	N	X	X	N
336612WYWY	Boat building, nsk, for administrative-record establishments	N	X	X	102 591	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
3366121	OUTBOARD MOTORBOATS, INCLUDING COMMERCIAL AND MILITARY (EXCEPT SAILBOATS AND LIFEBOATS)		
	United States	1 598 439	1 163 871
	Alabama	12 462	N
	Arkansas	99 492	91 110
	California	23 849	19 870
	Florida	237 829	138 633
	Georgia	10 834	N
	Indiana	195 609	147 806
	Louisiana	21 350	19 069
	Massachusetts	2 051	N
	Michigan	52 712	29 518
	Minnesota	91 070	56 800

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
3366121	OUTBOARD MOTORBOATS, INCLUDING COMMERCIAL AND MILITARY (EXCEPT SAILBOATS AND LIFEBOATS)—Con.		
	Mississippi	44 707	N
	Missouri	269 215	146 929
	North Carolina	67 771	40 112
	Oklahoma	13 847	N
	Oregon	28 164	14 168
	South Carolina	65 650	23 792
	Tennessee	174 714	N
	Texas	43 785	16 700
	Washington	26 808	22 802
	Wisconsin	9 867	5 581
3366123	INBOARD MOTORBOATS, INCLUDING COMMERCIAL AND MILITARY (EXCEPT SAILBOATS AND LIFEBOATS)		
	United States	1 285 343	732 208
	California	64 172	27 812
	Florida	474 378	228 741
	Louisiana	6 620	N
	Maine	26 882	15 583
	Massachusetts	3 024	N
	New Jersey	100 465	41 959
	New York	3 655	N
	North Carolina	10 256	N
	Tennessee	238 100	168 833
	Washington	74 366	53 435
	Wisconsin	156 812	N
3366125	INBOARD-OUTDRIVE BOATS, INCLUDING COMMERCIAL AND MILITARY (EXCEPT SAILBOATS AND LIFEBOATS)		
	United States	1 452 698	1 039 961
	California	17 444	13 922
	Florida	168 632	152 197
	Indiana	104 928	113 413
	Kentucky	50 331	26 229
	Maine	2 755	N
	Minnesota	153 806	N
	North Carolina	52 489	N
	Oregon	28 730	38 516
	Tennessee	134 767	46 841
	Washington	42 646	36 587
	Wisconsin	27 125	N
3366127	ALL OTHER BOATS, NEC (EXCLUDING MILITARY AND COMMERCIAL)		
	United States	376 515	259 095
	California	48 863	52 848
	Florida	97 455	63 700
	Louisiana	3 969	4 782
	Maine	33 698	24 603
	Maryland	9 727	N
	Massachusetts	2 188	N
	Minnesota	5 349	4 150
	Rhode Island	46 104	20 025
	South Carolina	46 474	23 601
	Washington	8 895	9 887

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)
336612	BOAT BUILDING				
33361811	Diesel and semidiesel engines	X	117 573	X	N
33361807	Gasoline and other internal combustion engines	X	665 808	X	N
33531221	Integral horsepower electric motors and generators (1 hp or more)	X	57 985	X	N
00190088	Boat propellers	X	22 986	X	N
33251013	Marine metal hardware (including shackles, rope shackles, rope sockets, tackle blocks) (except forgings)	X	70 383	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	23 583	X	N
33200061	Other fabricated metal products (except forgings)	X	45 863	X	N
33210001	Forgings	X	2 605	X	N
33100035	Castings (rough and semifinished)	X	6 989	X	N
33120001	Steel shapes and forms (except castings, forgings, and fabricated metal products)	X	10 327	X	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)
336612	BOAT BUILDING—Con.				
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing	X	57 912	X	N
33131600	Aluminum and aluminum-base alloy extruded shapes, including extruded rod, bar, pipe, tube, etc.	X	34 777	X	N
33100049	Other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	37 356	X	N
33100077	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	1 712	X	N
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	129 970	X	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	68 450	X	N
32721205	Glass fiber, textile type, bonded mat type, etc.	X	115 828	X	N
32100021	Dressed lumber	X	37 129	X	N
32121003	Plywood	X	62 108	X	N
31411003	Carpeting	X	29 017	X	N
31491200	Canvas products.	X	29 479	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	28 144	X	N
33451101	Marine nautical and navigation equipment operating by radio signal	X	45 965	X	N
33391105	Bilge pumps.	X	11 281	X	N
00970099	All other materials and components, parts, containers, and supplies	X	732 740	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	495 146	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

336612 BOAT BUILDING

This U.S. industry comprises establishments primarily engaged in building boats. Boats are defined as watercraft not built in shipyards and typically of the type suitable or intended for personal use.

The data published with NAICS code 336612 include the following SIC industry:

3732 Boat building and repairing (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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621213100	3715200	3715200	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	33621213100	3715200	3715200	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	33621213100	3715200	3715200	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121544	3714227	3714227
3361120YWW	3711002 pt.	3711002 pt.	33621213100	3715200	3715200	3363121547	3714227	3714227
3361201 pt.	37114 pt.	37114 pt.	33621213100	3715200	3715200	3363121571	3714241	3714241
3361201 pt.	37115 pt.	37117	33621213100	3715200	3715200	3363121574	3714249	3714249
3361201 pt.	37115 pt.	37118	33621213100	3715200	3715200	3363121YWW	3714200 pt.	3714200 pt.
3361201100 pt.	3711407	3711400 pt.	3362130	37160	37160	33631213100	3714200 pt.	3714200 pt.
3361201100 pt.	3711400 pt.	3711400 pt.	3362130101	3716001	3716001	3363123101	3714A02	3714A02
3361201100 pt.	3711400 pt.	3711400 pt.	3362130104	3716005	3716005	3363123104	3714A03	3714A03
3361201100 pt.	3711500 pt.	3711700	3362130107	3716007	3716007	3363123107	3714A23	3714A23
3361201100 pt.	3711500 pt.	3711800	3362130111	3716021	3716021	3363123111	3714A25	3714A25
3361202 pt.	37114 pt.	37114 pt.	3362130YWW	3716000	3716000	3363123121	3714A43	3714A41 pt.
3361202 pt.	37119	37119	3362130YWW	3716002	3716002	3363123YWW	3714A00 pt.	3714A00 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141	37921	37921	336312W	37140 pt.	37140 pt.
3361202100 pt.	3711900	3711900	3362141101	3792112	3792112	336312WYWW	3714000 pt.	3714000 pt.
3361203	37113	37113	3362141104	3792114	3792114	336312WYWW	3714002 pt.	3714002 pt.
3361203101	3711304	3711304	3362141207	3792116	3792116	3363210	36470	36470
3361203104	3711303	3711303	3362141311	3792118	3792118	3363210100	3647000 pt.	3647000 pt.
3361203YWW	3711300	3711300	3362141413	3792125	3792125	3363210YWW	3647000 pt.	3647000 pt.
336120W	37110 pt.	37110 pt.	3362141416	3792128	3792128	3363210YWW	3647002	3647002
336120WYWW	3711000 pt.	3711000 pt.	3362141413	3792128	3792128	3363221	36941	36941
336120WYWW	3711002 pt.	3711002 pt.	3362141413	3792128	3792128	3363221101	3694101	3694101
3362111 pt.	37111 pt.	37111 pt.	3362141413	3792128	3792128	3363221104	3694102	3694102
3362111 pt.	37131	37131	3362141413	3792128	3792128	3363221201	3694103	3694103
3362111 pt.	37149 pt.	37149 pt.	3362141413	3792128	3792128	3363221204	3694104	3694104
3362111101	3713101	3713101	3362141413	3792128	3792128	3363221YWW	3694100	3694100
3362111204	3713102	3713102	3362141413	3792128	3792128	3363223	36942	36942
3362111307	3713112	3713112	3362141413	3792128	3792128	3363223101	3694201	3694201
3362111411	3713115	3713115	3362141413	3792128	3792128	3363223104	3694202	3694202
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3362111416	3713117	3713117	3362141413	3792128	3792128	3363223204	3694204	3694204
3362111519	3713121	3713121	3362141413	3792128	3792128	3363223YWW	3694200	3694200
3362111522	3713131	3713131	3362141413	3792128	3792128	3363225	36943	36943
3362111525	3713132	3713132	3362141413	3792128	3792128	3363225101	3694301	3694301
3362111528	3713135	3713135	3362141413	3792128	3792128	3363225104	3694302	3694302
3362111531	3713139	3713139	3362141413	3792128	3792128	3363225201	3694303	3694303
3362111534	3713143	3713143	3362141413	3792128	3792128	3363225YWW	3694300	3694300
3362111537	3713153	3713153	3362141413	3792128	3792128	3363227	36944	36944
3362111541	3713155	3713155	3362141413	3792128	3792128	3363227100	3694400	3694400
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3362111546	3713162	3713162	3362141413	3792128	3792128	3363229101	3694701	3694701
3362111549	3713163	3713163	3362141413	3792128	3792128	3363229201	3694711	3694711
3362111552	3711171	3711171	3362141413	3792128	3792128	3363229301	3694702	3694702
3362111555	3711181	3711181	3362141413	3792128	3792128	3363229304	3694704	3694704
3362111558	3714925	3714925	3362141413	3792128	3792128	3363229307	3694705	3694705
3362111571 pt.	3713171	3713171	3362141413	3792128	3792128	3363229309	3694719	3694719
3362111571 pt.	3714924	3714941 pt.	3362141413	3792128	3792128	3363229YWW	3694700	3694700
3362111YWW pt.	3711100 pt.	3711100 pt.	3363111	35921	35921	336322A	36949	36949
3362111YWW pt.	3713100	3713100	3363111101	3592101	3592101	336322A101	3694901	3694901
3362111YWW pt.	3714900 pt.	3714900 pt.	3363111103	3592102	3592102	336322A204	3694907	3694907
3362113 pt.	37114 pt.	37114 pt.	3363111105	3592103	3592103	336322A307	3694911	3694911
3362113 pt.	37132	37132	3363111207	3592105	3592105	336322A409	3694912	3694912
3362113101	3713201	3713201	3363111YWW	3592100	3592100	336322A512	3694913	3694913
3362113219	3713225	3713225	3363113	35922	35922	336322A615	3694919	3694919
3362113304	3713211	3713211	3363113101	3592201	3592201	336322AYWW	3694900	3694900
3362113307	3713213	3713213	3363113103	3592202	3592202	336322C pt.	36799 pt.	36799 pt.
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3362113313	3713217	3713217	3363113207	3592204	3592204	336322C pt.	3714A pt.	3714A pt.
3362113316	3713218	3713218	3363113211	3592206	3592206	336322C102	3714913	3714913
3362113322	3713226	3713226	3363113313	3592209	3592209	336322C104	3714914	3714914
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3362113328	3713241	3713239 pt.	3363115	35923	35923	336322C111 pt.	3714921	3714917
3362113331 pt.	3711411	3711400 pt.	3363115101	3592301	3592301	336322C111 pt.	3714921 pt.	3714941 pt.
3362113331 pt.	3713243	3713239 pt.	3363115103	3592302	3592302	336322C114	3714942	3714904 pt.
3362113YWW pt.	3711400 pt.	3711400 pt.	3363115YWW	3592300	3592300	336322C117	3714944	3714904 pt.
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			336311WYWW	3592000	3592000	336322C121	3714945	3714941 pt.
			336311WYWW	3592002	3592002	336322C122	3714946	3714941 pt.
						336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
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336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
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336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
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336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
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3363301 pt	37142 pt	37142 pt	3363606W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	3363606W pt	25310 pt	25310 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	3363606WYVW pt	2396000 pt	2396000 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	3363606WYVW pt	2399000 pt	2399000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	3363606WYVW pt	2531000 pt	2531000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	3363606WYVW pt	2396002 pt	2396002 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	3363606WYVW pt	2399002 pt	2399002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	3363606WYVW pt	2531002 pt	2531002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	3363700	34650	34650	3364127104	3724402	3724402
3363301524	3714919	3714941 pt	3363700100	3465000 pt	3465000 pt	3364127204	3724402	3724402
3363301526	3714228	3714228	3363700YVW	3465000 pt	3465000 pt	3364127307	3724405	3724405
3363301528	3714911	3714911	3363700YVW	3465002	3465002	3364127411	3724406	3724406
3363301531	3714926	3714941 pt	3363917	35857	35851 pt	3364127YVW	3724400	3724400
3363301YVW pt	3714200 pt	3714200 pt	3363917010	3585705	3585100 pt	336412W	37240	37240
3363301YVW pt	3714900 pt	3714900 pt	3363917020	3585707	3585100 pt	336412WYVW	3724000	3724000
3363303	3714A pt	3714A pt	3363917030	3585719	3585100 pt	336412WYVW	3724002	3724002
3363303101	3714A06	3714A06	3363917YVW	3585700	3585100 pt	3364131	37282	37282
3363303104	3714A39	3714A39	336391B	3585B	35854 pt	3364131101	3728210	3728210
3363303121	3714A47	3714A41 pt	336391B000	3585B00	3585400 pt	3364131104	3728231	3728231
3363303YVW	3714A00 pt	3714A00 pt	336391W	35850 pt	35850 pt	3364131107	3728251	3728251
336330W	37140 pt	37140 pt	336391WYVW	3585000 pt	3585000 pt	3364131111	3728261	3728261
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364131YVW	3728200	3728200
336330WYVW	3714002 pt	3714002 pt	3363991	37144	37144	3364133	37283	37283
3363401 pt	32922	32922	3363991101	3714401	3714401	3364133101	3728313	3728313
3363401 pt	37148	37148	3363991104	3714402	3714402	3364133104	3728315	3728315
3363401 pt	37149 pt	37149 pt	3363991107	3714404	3714404	3364133YVW	3728300	3728300
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3363401211	3714807	3714807	3363991116	3714408	3714408	3364135104	3728515	3728515
3363401313	3714809	3714809	3363991119	3714409	3714409	3364135207	3728594	3728594
3363401313	3714809	3714809	3363991YVW	3714400	3714400	3364135211	3728595	3728595
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3363401519	3714813	3714813	3363993101	3714501	3714501	3364135313	3728598	3728598
3363401625	3714817	3714817	3363993104	3714502	3714502	3364135416	3728599	3728599
3363401707	3714803	3714803	3363993107	3714503	3714503	3364135YVW	3728500	3728500
3363401722	3714815	3714815	3363993YVW	3714500	3714500	336413W	37280 pt	37280 pt
3363401737	3714821	3714821	3363995	37147	37147	336413WYVW	3728000 pt	3728000 pt
3363401741	3714823	3714823	3363995101	3714701	3714701	336413WYVW	3728002 pt	3728002 pt
3363401744	3714825	3714825	3363995104	3714705	3714705	3364141	37611	37611
3363401745	3714912	3714912	3363995107	3714707	3714707	3364141100	3761100	3761100
3363401747 pt	3292200 pt	3292200 pt	3363995111	3714714	3714714	3364143	37613	37613
3363401747 pt	3292200 pt	3292211 pt	3363995YVW	3714700	3714700	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292215 pt	3363997 pt	35199 pt	35199 pt	3364145	37616	37616
3363401747 pt	3292200 pt	3292221 pt	3363997 pt	37142 pt	37142 pt	3364145100	3761600	3761600
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3363401747 pt	3292200 pt	3292258 pt	3363997 pt	37149 pt	37149 pt	3364147101	3761201	3761201
3363401747 pt	3714827	3714827	3363997 pt	37149 pt	37149 pt	3364147204	3761202	3761202
3363401747 pt	3292200 pt	3292200 pt	3363997 pt	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363401YVW pt	3714800	3714800	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	336414A101	3761702	3761702
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A104	3761703	3761703
3363403114	3714A35	3714A35	3363997 pt	37149 pt	37149 pt	336414AYVW	3761700	3761700
3363403117	3714A37	3714A37	3363997 pt	37149 pt	37149 pt	336414W	37610	37610
3363403121	3714A44	3714A41 pt	3363997 pt	37149 pt	37149 pt	336414WYVW	3761000	3761000
3363403YVW	3714A00 pt	3714A00 pt	3363997 pt	37149 pt	37149 pt	336414WYVW	3761002	3761002
336340W pt	32920 pt	32920 pt	3363997 pt	37149 pt	37149 pt	3364151	37645	37645
336340W pt	37140 pt	37140 pt	3363997 pt	37149 pt	37149 pt	3364151101	3764511	3764511
336340WYVW pt	3292000 pt	3292000 pt	3363997 pt	37149 pt	37149 pt	3364151204	3764513	3764513
336340WYVW pt	3714000 pt	3714000 pt	3363997 pt	37149 pt	37149 pt	3364151307	3764515	3764515
336340WYVW pt	3292002 pt	3292002 pt	3363997 pt	37149 pt	37149 pt	3364151YVW	3764500	3764500
336340WYVW pt	3714002 pt	3714002 pt	3363997 pt	37149 pt	37149 pt	3364153	37646	37646
3363501	37146	37146	3363997 pt	37149 pt	37149 pt	3364153101	3764611	3764611
3363501101	3714603	3714603	3363997 pt	37149 pt	37149 pt	3364153104	3764613	3764613
3363501104	3714605	3714605	3363997 pt	37149 pt	37149 pt	3364153107	3764615	3764615
3363501207	3714613	3714613	3363997 pt	37149 pt	37149 pt	3364153YVW	3764600	3764600
3363501211	3714615	3714615	3363997 pt	37149 pt	37149 pt	3364155	37647	37647
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3363501434	3714641	3714641	3363997 pt	37149 pt	37149 pt	3364155107	3764715	3764715
3363501519	3714628	3714628	3363997 pt	37149 pt	37149 pt	3364155YVW	3764700	3764700
3363501522	3714631	3714631	3363997 pt	37149 pt	37149 pt	3364157	37648	37648
3363501525	3714633	3714633	3363997 pt	37149 pt	37149 pt	3364157101	3764811	3764811
3363501528	3714635	3714635	3363997 pt	37149 pt	37149 pt	3364157104	3764813	3764813
3363501531	3714637	3714637	3363997 pt	37149 pt	37149 pt	3364157107	3764815	3764815
3363501537	3714643	3714643	3363997 pt	37149 pt	37149 pt	3364157YVW	3764800	3764800
3363501541	3714649	3714649	3363997 pt	37149 pt	37149 pt	336415W	37640	37640
3363501YVW	3714600	3714600	3363997 pt	37149 pt	37149 pt	336415WYVW	3764000	3764000
3363503	3714A pt	3714A pt	3363997 pt					

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
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336419101	3769211	3769211	3366115101	3731315	3731315	3366127YVW	3732700	3732700
336419104	3769213	3769213	3366115107	3731335	3731335	336612W	37320 pt	37320 pt
3364191207	3769219	3769219	3366115111	3731343	3731343	336612WYVW	3732000 pt	3732000 pt
3364191311	3769225	3769225	3366115113	3731348	3731348	336612WYVWY	3732002 pt	3732002 pt
3364191413	3769235	3769235	3366115116	3731357	3731357	3369911 pt	37511	37511
3364191YVW	3769200	3769200	3366115119	3731321	3731321	3369911 pt	39443 pt	39443 pt
			3366115121	3731332	3731332	3369911101 pt	3751148 pt	3751139
3364193	37694	37694	3366115123	3731333	3731333	3369911101 pt	3751148 pt	3751141
3364193101	3769414	3769414	3366115124 pt	3731361 pt	3731324	3369911101 pt	3751148 pt	3751143
3364193104	3769419	3769419	3366115124 pt	3731361 pt	3731326	3369911101 pt	3751148 pt	3751145
3364193107	3769425	3769425	3366115124 pt	3731361 pt	3731328	3369911101 pt	3751148 pt	3751147
3364193111	3769435	3769435	3366115YVW	3731300	3731300	3369911101 pt	3751148 pt	3751149
3364193YVW	3769400	3769400				3369911101 pt	3751148 pt	3751155
			3366117	37314	37314	3369911104 pt	3751109	3751109
336419W	37690	37690	3366117101	3731441	3731441	3369911104 pt	3944336	3944346 pt
336419WYVW	3769000	3769000	3366117104	3731449	3731449	3369911109	3751110	3751110
336419WYVWY	3769002	3769002	3366117YVW	3731400	3731400	3369911113	3751112	3751112
						3369911116	3751115	3751115
3365101	37431 pt	37431 pt	3366119	37316	37316	3369911119	3751116	3751116
3365101101	3743102	3743101 pt	3366119101	3731601	3731601	3369911122 pt	3751124 pt	3751113
3365101104	3743104	3743101 pt	3366119104	3731602	3731602	3369911122 pt	3751124 pt	3751114
3365101107	3743105	3743101 pt	3366119YVW	3731600	3731600	3369911122 pt	3751124 pt	3751123
3365101111	3743113	3743103 pt	336611W	37310	37310	3369911YVW pt	3751100	3751100
3365101YVW	3743100 pt	3743100 pt	336611WYVW	3731000	3731000	3369911YVWY pt	3944300 pt	3944300 pt
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3365103	37432	37432	3366121	37322	37322	3369913100 pt	3751200 pt	3751200
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3365103100 pt	3743200 pt	3743241	3366121113	3732209	3732219 pt	3369919YVW pt	3751000	3751000
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3365105 pt	3531X pt	3531M pt	3366121225	3732221	3732221	3369919YVWY pt	3944002 pt	3944002 pt
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3365105419 pt	3743319	3743319	3366123104	3732311	3732311	3369991101	3799382	3799382
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336510W pt	35310 pt	35310 pt	3366125	37324	37324	3369993204	3799904	3799904
			3366125107	3732405	3732405	3369993307	3799905	3799905
336510WYVW pt	3531000 pt	3531000 pt	3366125201	3732401	3732401	3369993414	3799916	3799923 pt
336510WYVW pt	3743000 pt	3743000 pt	3366125204	3732403	3732403	3369993417	3799915	3799923 pt
336510WYVWY pt	3531002 pt	3531002 pt	3366125211	3732406	3732409 pt	3369993421	3799920	3799923 pt
336510WYVWY pt	3743002 pt	3743002 pt	3366125213 pt	3732408 pt	3732407	3369993513	3799925	3799925
			3366125213 pt	3732408 pt	3732409 pt	3369993YVW	3799900 pt	3799900 pt
3366111	37311	37311	3366125YVW	3732400	3732400	3369999W	37990 pt	37990 pt
3366111101	3731111	3731111				3369999YVW	3799000 pt	3799000 pt
3366111104	3731107	3731107	3366127	37327	37327	3369999YVWY	3799002 pt	3799002 pt
3366111107	3731119	3731119	3366127101	3732702	3732702			
3366111YVW	3731100	3731100	3366127104	3732704	3732704			
			3366127107	3732706	3732706			
			3366127111	3732708	3732708			
3366113	37312	37312	3366127113	3732712	3732712			
3366113100	3731200	3731200	3366127116	3732717	3732717			

Motorcycle, Bicycle, and Parts Manufacturing

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Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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 shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
336991	Motorcycle, bicycle, & parts mfg	371	387	17 074	567 520	12 734	24 266	364 795	1 617 497	1 797 470	3 411 677	103 730
375100	Motorcycles, bicycles, & parts	N	383	D	D	D	D	D	D	D	D	D
394410	Games, toys, & children's vehicles (pt)	N	4	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)				
336991, MOTORCYCLE, BICYCLE, & PARTS MFG												
United States	-	387	98	17 074	567 520	12 734	24 266	364 795	1 617 497	1 797 470	3 411 677	103 730
California	3	159	41	3 255	90 799	2 346	4 330	50 123	255 020	212 820	465 592	16 163
Illinois	-	10	7	2 009	38 933	1 697	3 250	28 718	85 142	107 922	183 753	5 469
Wisconsin	-	13	11	4 388	195 789	2 589	5 427	111 067	493 139	723 443	1 223 601	44 468

* 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
336991, MOTORCYCLE, BICYCLE, & PARTS MFG		336991, MOTORCYCLE, BICYCLE, & PARTS MFG	
Companies ¹	number.. 371	— Con.	
All establishments	number.. 387	Value added	\$1,000.. 1 617 497
Establishments with 1 to 19 employees	number.. 289	Total inventories, beginning of year	\$1,000.. 391 610
Establishments with 20 to 99 employees	number.. 71	Finished goods inventories, beginning of year	\$1,000.. 211 996
Establishments with 100 employees or more	number.. 27	Work-in-process inventories, beginning of year	\$1,000.. 69 332
All employees	number.. 17 074	Materials and supplies inventories, beginning of year	\$1,000.. 110 282
Total compensation ²	\$1,000.. 692 964	Total inventories, end of year	\$1,000.. 409 475
Annual payroll	\$1,000.. 567 520	Finished goods inventories, end of year	\$1,000.. 227 363
Total fringe benefits	\$1,000.. 125 444	Work-in-process inventories, end of year	\$1,000.. 57 255
Production workers, average for year	number.. 12 734	Materials and supplies inventories, end of year	\$1,000.. 124 857
Production workers on March 15	number.. 12 624	Gross book value of total assets at beginning of year	\$1,000.. 808 774
Production workers on May 15	number.. 12 787	Total capital expenditures (new and used)	\$1,000.. 103 730
Production workers on August 15	number.. 12 876	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 19 463
Production workers on November 15	number.. 12 649	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 84 267
Production-worker hours	1,000.. 24 266	Total retirements ²	\$1,000.. 9 066
Production-worker wages	\$1,000.. 364 795	Gross book value of total assets at end of year	\$1,000.. 903 438
Total cost of materials	\$1,000.. 1 797 470	Total depreciation during year ²	\$1,000.. 67 751
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 502 421	Total rental payments ²	\$1,000.. 16 798
Cost of resales	\$1,000.. 211 114	Buildings and other structures rental payments ²	\$1,000.. 7 727
Cost of fuels	\$1,000.. 8 577	Machinery and equipment rental payments ²	\$1,000.. 9 071
Cost of purchased electricity	\$1,000.. 16 537	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 3 684
Cost of contract work	\$1,000.. 58 821	Response coverage ratio ⁴	percent.. 83
Quantity of electricity purchased for heat and power	1,000 kWh.. 284 051	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 11 714
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Response coverage ratio ⁴	percent.. 83
Total value of shipments	\$1,000.. 3 411 677	Cost of purchased communications services ³	\$1,000.. 5 716
Primary products value of shipments	\$1,000.. 2 711 091	Response coverage ratio ⁴	percent.. 83
Secondary products value of shipments	\$1,000.. 343 507	Cost of purchased legal services ³	\$1,000.. 3 037
Total miscellaneous receipts	\$1,000.. 357 079	Response coverage ratio ⁴	percent.. 83
Value of resales	\$1,000.. 266 813	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 1 289
Contract receipts	\$1,000.. D	Response coverage ratio ⁴	percent.. 83
Other miscellaneous receipts	\$1,000.. D	Cost of purchased advertising services ³	\$1,000.. 21 860
Primary products specialization ratio	percent.. 88	Response coverage ratio ⁴	percent.. 83
Value of primary products shipments made in all industries	\$1,000.. 3 073 197	Cost of purchased software and other data processing services ³	\$1,000.. 1 943
Value of primary products shipments made in this industry	\$1,000.. 2 711 091	Response coverage ratio ⁴	percent.. 83
Value of primary products shipments made in other industries	\$1,000.. 362 106	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 2 613
Coverage ratio	percent.. 88	Response coverage ratio ⁴	percent.. 83

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)				
336991, MOTORCYCLE, BICYCLE, & PARTS MFG												
All establishments	-	387	98	17 074	567 520	12 734	24 266	364 795	1 617 497	1 797 470	3 411 677	103 730
Establishments with 1 to 4 employees	8	169	-	312	7 189	270	455	5 308	15 505	15 749	33 588	1 502
Establishments with 5 to 9 employees	7	66	-	437	10 750	346	646	7 866	26 335	25 149	51 551	2 244
Establishments with 10 to 19 employees	4	54	-	725	17 364	542	956	10 924	40 935	38 098	79 408	2 668
Establishments with 20 to 49 employees	2	53	53	1 639	42 436	1 242	2 327	27 334	105 554	76 823	182 227	5 964
Establishments with 50 to 99 employees	1	18	18	1 252	34 737	913	1 879	20 182	87 015	80 916	164 773	3 061
Establishments with 100 to 249 employees	-	16	16	2 350	66 486	1 660	3 279	37 688	248 121	192 255	436 757	11 683
Establishments with 250 to 499 employees	1	5	5	1 602	47 303	1 261	2 326	27 419	134 582	161 417	294 485	8 927
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	-	3	3	4 660	176 640	3 248	6 698	111 138	531 886	541 515	1 045 153	41 154
Establishments with 2,500 employees or more	-	1	1	D	D	D	D	D	D	D	D	D
Administrative records ²	9	208	-	749	17 413	627	1 107	13 010	41 661	36 079	77 750	3 765

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)				
336991	Motorcycle, bicycle, & parts mfg	387	17 074	567 520	12 734	24 266	364 795	1 617 497	1 797 470	3 411 677	103 730
3369911	Bicycles and parts (excluding children's two-wheel sidewalk cycles with solid or semipneumatic tires) ...	66	7 578	188 054	5 915	11 147	109 901	537 346	803 011	1 325 093	25 788
3369913	Motorcycles, including three-wheel, motorbikes, motor scooters, mopeds, and parts (including sidecars)	48	7 446	332 713	5 181	10 270	221 266	885 664	891 762	1 786 763	69 400

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)
336991	Motorcycles, bicycles, and parts	N	X	X	3 073 197	N	X	X	N
3369911	Bicycles and parts (excluding children's two-wheel sidewalk cycles with solid or semipneumatic tires)	N	X	X	1 199 078	N	X	X	N
33699111	Bicycles and parts (excluding children's two-wheel sidewalk cycles with solid or semipneumatic tires)	N	X	X	1 192 701	N	X	X	N
3369911101	Bicycles, complete; wheels of all diameter and all speeds (including lightweight, road, mountain, all terrain, and cruiser type)	22	X	X	811 307	N	X	X	N
3369911104	Other cycles, including unicycles, adult tricycles, and children's tricycles of metal tubular construction (excluding children's sidewalk bikes with solid or semipneumatic tires)	6	X	X	19 899	N	X	X	N
3369911109	Frames, forks, and parts thereof for bicycles, unicycles, and adult tricycles	28	X	X	187 030	20	X	X	44 520
3369911113	Wheel rims and spokes for bicycles, unicycles, and adult tricycles	10	X	X	16 154	10	X	X	18 265
3369911116	Seats (saddles) for bicycles, unicycles, and adult tricycles	8	X	X	9 106	5	X	X	14 408
3369911119	Pedals and crankgear and parts thereof for bicycles, unicycles, and adult tricycles	4	X	X	21 649	7	X	X	N
3369911122	Other parts for bicycles, unicycles, and adult tricycles (including hubs, brakes, freewheel sprocket wheels, and parts thereof)	36	X	X	127 556	N	X	X	N
3369911Y	Bicycles and parts (excluding children's two-wheel sidewalk cycles with solid or semipneumatic tires), nsk	N	X	X	6 377	N	X	X	N
3369911YWV	Bicycles and parts (excluding children's two-wheel sidewalk cycles with solid or semipneumatic tires), nsk	N	X	X	6 377	N	X	X	N
3369913	Motorcycles, including three-wheel, motorbikes, motor scooters, mopeds, and parts (including sidecars)	N	X	X	1 679 406	N	X	X	968 354
33699131	Motorcycles, including three-wheel, motorbikes, motor scooters, mopeds, and parts (including sidecars)	N	X	X	1 679 406	N	X	X	N
3369913100	Motorcycles, including three-wheel, motorbikes, motor scooters, mopeds, and parts (including sidecars)	56	X	X	1 679 406	N	X	X	N
336991W	Motorcycle, bicycle, and parts manufacturing, nsk, total	N	X	X	194 713	N	X	X	N
336991WY	Motorcycle, bicycle, and parts manufacturing, nsk, total	N	X	X	194 713	N	X	X	N
336991WYWW	Motorcycle, bicycle, and parts manufacturing, nsk, for nonadministrative-record establishments	N	X	X	122 238	N	X	X	N
336991WYWY	Motorcycle, bicycle, and parts manufacturing, nsk, for administrative-record establishments	N	X	X	72 475	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
3369911	BICYCLES AND PARTS (EXCLUDING CHILDREN'S TWO-WHEEL SIDEWALK CYCLES WITH SOLID OR SEMIPNEUMATIC TIRES)		
	United States	1 199 078	N
	California	225 699	N
	Illinois	154 281	N
	Oregon	15 687	N
	Washington	65 885	N

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
3369913	MOTORCYCLES, INCLUDING THREE-WHEEL, MOTORBIKES, MOTOR SCOOTERS, MOPEDS, AND PARTS (INCLUDING SIDECARS)		
	United States	1 679 406	968 354
	California	126 750	51 001
	Wisconsin	598 662	185 496

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

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)
336991	MOTORCYCLE, BICYCLE, & PARTS MFG				
33699101	Frames, forks, and parts thereof, bicycle	X	92 162	X	N
33699103	Wheel rims and spokes, bicycle	X	33 494	X	N
33699109	Seats (saddles), bicycle	X	15 573	X	N
32621003	Pneumatic tires and inner tubes	X	49 593	X	N
33699115	Other bicycle parts	X	143 439	X	N
33200081	Fabricated metal products (except forgings)	X	D	X	N
33210001	Forgings	X	D	X	N
33100035	Castings (rough and semifinished)	X	D	X	N
33100033	Metal shapes and forms, except castings, forgings, and fabricated metal products	X	D	X	N
00970099	All other materials and components, parts, containers, and supplies	X	238 717	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	241 626	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

336991 MOTORCYCLE, BICYCLE, AND PARTS MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing motorcycles, bicycles, tricycles and similar equipment, and parts.

The data published with NAICS code 336991 include the following SIC industries:

3751 Motorcycles, bicycles, and parts
3944 Games, toys, and children's vehicles (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
3361110 pt.....	37110 pt.....	37110 pt	336211W pt.....	37110 pt.....	37110 pt	3363121.....	37142 pt.....	37142 pt
3361110 pt.....	37111 pt.....	37111 pt	336211W pt.....	37130.....	37130	3363121101.....	3714201.....	3714201
3361110 pt.....	37114 pt.....	37114 pt	336211W pt.....	37140 pt.....	37140 pt	3363121224.....	3714218.....	3714218
3361110100 pt.....	3711100 pt.....	3711100 pt	336211WYWW pt.....	3711000 pt.....	3711000 pt	3363121351.....	3714231.....	3714231
3361110100 pt.....	3711111.....	3711111 pt	336211WYWW pt.....	3713000.....	3713000	3363121354.....	3714232.....	3714232
3361110100 pt.....	3711151.....	3711151	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121457.....	3714234.....	3714234
3361110100 pt.....	3711400 pt.....	3711400 pt	336211WYWW pt.....	3711002 pt.....	3711002 pt	3363121467.....	3714237.....	3714237
3361110100 pt.....	3711403.....	3711400 pt	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121504.....	3714206.....	3714206
3361110YWW.....	3711000 pt.....	3711000 pt	336211WYWW pt.....	3713002.....	3713002	3363121507.....	3714207.....	3714207
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3714002 pt.....	3714002 pt	3363121511.....	3714208.....	3714208
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3715002.....	3715002	3363121514.....	3714209.....	3714209
3361120 pt.....	37110 pt.....	37110 pt	3362121.....	37151.....	37151	3363121517.....	3714215.....	3714215
3361120 pt.....	37114 pt.....	37114 pt	3362121000.....	3715100.....	3715100	3363121521.....	3714216.....	3714216
3361120 pt.....	37116.....	37116	336212123.....	37152.....	37152	3363121527.....	3714217.....	3714217
3361120100 pt.....	3711405.....	3711400 pt	33621213100.....	3715200.....	3715200	3363121531.....	3714222.....	3714222
3361120100 pt.....	3711400 pt.....	3711400 pt	33621213.....	37152.....	37152	3363121534.....	3714224.....	3714224
3361120100 pt.....	3711600.....	3711600	33621212W.....	37150.....	37150	3363121537.....	3714225.....	3714225
3361120YWW.....	3711000 pt.....	3711000 pt	33621212WYWW.....	3715000.....	3715000	3363121541.....	3714226.....	3714226
3361120YWW.....	3711002 pt.....	3711002 pt	33621212WYWW.....	3715002.....	3715002	3363121544.....	3714227.....	3714227
3361201 pt.....	37114 pt.....	37114 pt	336212130.....	37160.....	37160	3363121571.....	3714241.....	3714241
3361201 pt.....	37115 pt.....	37117	3362130101.....	3716001.....	3716001	3363121574.....	3714249.....	3714249
3361201 pt.....	37115 pt.....	37118	3362130104.....	3716005.....	3716005	3363121YVW.....	3714200 pt.....	3714200 pt
3361201100 pt.....	3711407.....	3711400 pt	3362130107.....	3716007.....	3716007	3363123.....	37144 pt.....	37144 pt
3361201100 pt.....	3711400 pt.....	3711400 pt	3362130111.....	3716021.....	3716021	3363123101.....	3714A02.....	3714A02
3361201100 pt.....	3711500 pt.....	3711700	3362130YWW.....	3716000.....	3716000	3363123104.....	3714A03.....	3714A03
3361201100 pt.....	3711500 pt.....	3711800	3362130YWW.....	3716002.....	3716002	3363123107.....	3714A23.....	3714A23
3361202 pt.....	37114 pt.....	37114 pt	3362141.....	37921.....	37921	3363123111.....	3714A25.....	3714A25
3361202 pt.....	37119.....	37119	3362141101.....	3792112.....	3792112	3363123121.....	3714A43.....	3714A41 pt
3361202100 pt.....	3711409.....	3711400 pt	3362141104.....	3792114.....	3792114	3363123YVW.....	3714A00 pt.....	3714A00 pt
3361202100 pt.....	3711400 pt.....	3711400 pt	3362141207.....	3792116.....	3792116	336312W.....	37140 pt.....	37140 pt
3361202100 pt.....	3711900.....	3711900	3362141311.....	3792118.....	3792118	336312WYWW.....	3714000 pt.....	3714000 pt
3361203.....	37113.....	37113	3362141311.....	3792118.....	3792118	336312WYWW.....	3714002 pt.....	3714002 pt
3361203101.....	3711304.....	3711304	3362141413.....	3792125.....	3792125	3363210.....	36470.....	36470
3361203104.....	3711303.....	3711303	3362141516.....	3792128.....	3792128	3363210100.....	3647000 pt.....	3647000 pt
3361203YVW.....	3711300.....	3711300	3362141YVW.....	3792100.....	3792100	3363210YWW.....	3647000 pt.....	3647000 pt
336120W.....	37110 pt.....	37110 pt	3362143.....	37996.....	37996	3363210YVW.....	3647002.....	3647002
336120WYWW.....	3711000 pt.....	3711000 pt	3362143101.....	3799611.....	3799601 pt	3363221.....	36941.....	36941
336120WYVW.....	3711002 pt.....	3711002 pt	3362143105.....	3799613.....	3799602 pt	3363221101.....	3694101.....	3694101
3362111 pt.....	37111 pt.....	37111 pt	3362143108.....	3799615.....	3799604 pt	3363221104.....	3694102.....	3694102
3362111 pt.....	37131.....	37131	3362143111.....	3799617.....	3799607 pt	3363221201.....	3694103.....	3694103
3362111 pt.....	37149 pt.....	37149 pt	3362143114.....	3799619.....	3799609 pt	3363221204.....	3694104.....	3694104
3362111101.....	3713101.....	3713101	3362143117.....	3799651 pt.....	3799601 pt	3363221YVW.....	3694100.....	3694100
3362111204.....	3713102.....	3713102	3362143117 pt.....	3799651 pt.....	3799602 pt	3363223.....	36942.....	36942
3362111307.....	3713112.....	3713112	3362143117 pt.....	3799651 pt.....	3799604 pt	3363223101.....	3694201.....	3694201
3362111411.....	3713115.....	3713115	3362143117 pt.....	3799651 pt.....	3799607 pt	3363223104.....	3694202.....	3694202
3362111413.....	3713116.....	3713116	3362143117 pt.....	3799651 pt.....	3799609 pt	3363223201.....	3694203.....	3694203
3362111416.....	3713117.....	3713117	3362143117 pt.....	3799651 pt.....	3799609 pt	3363223204.....	3694204.....	3694204
3362111519.....	3713121.....	3713121	3362143YVW.....	3799600.....	3799600	3363223YVW.....	3694200.....	3694200
3362111522.....	3713131.....	3713131	3362145.....	37922.....	37922	3363225.....	36943.....	36943
3362111525.....	3713132.....	3713132	3362145101.....	3792242.....	3792242	3363225101.....	3694301.....	3694301
3362111528.....	3713135.....	3713135	3362145204.....	3792244.....	3792244	3363225104.....	3694302.....	3694302
3362111531.....	3713139.....	3713139	3362145207.....	3792247.....	3792247	3363225201.....	3694303.....	3694303
3362111534.....	3713143.....	3713143	3362145311 pt.....	3792268 pt.....	3792261	3363225YVW.....	3694300.....	3694300
3362111537.....	3713153.....	3713153	3362145311 pt.....	3792268 pt.....	3792263	3363227.....	36944.....	36944
3362111541.....	3713155.....	3713155	3362145311 pt.....	3792268 pt.....	3792269	3363227100.....	3694400.....	3694400
3362111543.....	3713161.....	3713161	3362145YVW.....	3792200.....	3792200	3363229.....	36947.....	36947
3362111546.....	3713162.....	3713162	336214W pt.....	37920.....	37920	3363229101.....	3694701.....	3694701
3362111549.....	3713163.....	3713163	336214W pt.....	37990.....	37990	3363229201.....	3694711.....	3694711
3362111552.....	3711171.....	3711171	336214WYWW pt.....	3792000.....	3792000	3363229301.....	3694702.....	3694702
3362111555.....	3711181.....	3711181 pt	336214WYVW pt.....	3792002.....	3792002	3363229304.....	3694704.....	3694704
3362111558.....	3714925.....	3714925	336214WYVW pt.....	3799002 pt.....	3799002 pt	3363229307.....	3694705.....	3694705
3362111571 pt.....	3713171.....	3713171	3363111.....	35921.....	35921	3363229309.....	3694719.....	3694719
3362111571 pt.....	3714924.....	3714941 pt	3363111101.....	3592101.....	3592101	3363229YVW.....	3694700.....	3694700
3362111YVW pt.....	3711100 pt.....	3711100 pt	3363111103.....	3592102.....	3592102	336322A.....	36949.....	36949
3362111YVW pt.....	3713100.....	3713100	3363111105.....	3592103.....	3592103	336322A101.....	3694901.....	3694901
3362111YVW pt.....	3714900 pt.....	3714900 pt	3363111207.....	3592105.....	3592105	336322A204.....	3694907.....	3694907
3362113 pt.....	37114 pt.....	37114 pt	3363111YVW.....	3592100.....	3592100	336322A307.....	3694911.....	3694911
3362113 pt.....	37132.....	37132	3363113.....	35922.....	35922	336322A409.....	3694912.....	3694912
3362113101.....	3713201.....	3713201	3363113101.....	3592201.....	3592201	336322A512.....	3694913.....	3694913
3362113219.....	3713225.....	3713225	3363113103.....	3592202.....	3592202	336322A615.....	3694919.....	3694919
3362113304.....	3713211.....	3713211	3363113105.....	3592203.....	3592203	336322AYVW.....	3694900.....	3694900
3362113307.....	3713213.....	3713213	3363113205.....	3592204.....	3592204	336322C pt.....	36799 pt.....	36799 pt
3362113311.....	3713215.....	3713215	3363113207.....	3592204.....	3592204	336322C pt.....	37149 pt.....	37149 pt
3362113313.....	3713217.....	3713217	3363113209.....	3592205.....	3592205	336322C pt.....	3714A pt.....	3714A pt
3362113316.....	3713218.....	3713218	3363113211.....	3592206.....	3592206	336322C102.....	3714913.....	3714913
3362113322.....	3713226.....	3713226	3363113313.....	3592209.....	3592209	336322C104.....	3714914.....	3714914
3362113325.....	3713227.....	3713227	3363113YVW.....	3592200.....	3592200	336322C107.....	3714915.....	3714915
3362113328.....	3713241.....	3713239 pt	3363115.....	35923.....	35923	336322C111 pt.....	3714921.....	3714917
3362113331 pt.....	3711411.....	3711400 pt	3363115101.....	3592301.....	3592301	336322C111 pt.....	3714921 pt.....	3714941 pt
3362113331 pt.....	3713243.....	3713239 pt	3363115103.....	3592302.....	3592302	336322C114.....	3714942.....	3714904 pt
3362113YVW pt.....	3711400 pt.....	3711400 pt	3363115YVW.....	3592300.....	3592300	336322C117.....	3714944.....	3714904 pt
3362113YVW pt.....	3713200.....	3713200	336311W.....	35920.....	35920	336322C119.....	3679926.....	3679920 pt
			336311WYWW.....	3592000.....	3592000	336322C121.....	3714945.....	3714941 pt
			336311WYVW.....	3592002.....	3592002	336322C122.....	3714946.....	3714941 pt
						336322C124.....	3714A05.....	3714A41 pt
						336322C127.....	3714A40.....	3714A41 pt

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	336350W	371400 pt	371400 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	336350WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	336350WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	336360W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	336360W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	336360W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	336360W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	336360WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	336360WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	336360WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	336360WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	336360WYVW pt	2399002 pt	2399002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	336360WYVW pt	2531002 pt	2531002 pt	3364127307	3724405	3724405
3363301526	3714228	3714228	3363700	34650	34650	3364127411	3724406	3724406
3363301528	3714911	3714911	3363700100	3465000 pt	3465000 pt	3364127YVW	3724400	3724400
3363301531	3714926	3714941 pt	3363700YVW	3465000 pt	3465000 pt	336412W	37240	37240
3363301YVW pt	3714200 pt	3714200 pt	3363700YVW	3465002	3465002	336412WYVW	3724000	3724000
3363301YVW pt	3714900 pt	3714900 pt	3363917	35857	35851 pt	336412WYVW	3724002	3724002
3363303	3714A pt	3714A pt	3363917010	3585705	3585100 pt	3364131	37282	37282
3363303101	3714A06	3714A06	3363917020	3585707	3585100 pt	3364131101	3728210	3728210
3363303104	3714A39	3714A39	3363917030	3585719	3585100 pt	3364131104	3728231	3728231
3363303121	3714A47	3714A41 pt	3363917YVW	3585700	3585100 pt	3364131107	3728251	3728251
3363303YVW	3714A00 pt	3714A00 pt	336391B	3585B	35854 pt	3364131111	3728261	3728261
336330W	37140 pt	37140 pt	336391B000	3585B00	3585400 pt	3364131YVW	3728200	3728200
336330WYVW	3714000 pt	3714000 pt	336391W	35850 pt	35850 pt	3364133	37283	37283
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585000 pt	3585000 pt	3364133101	3728313	3728313
3363401 pt	32922	32922	336391WYVW	3585002 pt	3585002 pt	3364133104	3728315	3728315
3363401 pt	37148	37148	336391YVW	3585002 pt	3585002 pt	3364133YVW	3728300	3728300
3363401 pt	37149 pt	37149 pt	3363991	37144	37144	3364135	37285	37285
3363401101	3714801	3714801	3363991101	3714401	3714401	3364135101	3728513	3728513
3363401104	3714802	3714802	3363991104	3714402	3714402	3364135104	3728515	3728515
3363401211	3714807	3714807	3363991107	3714404	3714404	3364135207	3728594	3728594
3363401313	3714809	3714809	3363991111	3714405	3714405	3364135211	3728595	3728595
3363401416	3714811	3714811	3363991113	3714407	3714407	3364135313	3728598	3728598
3363401519	3714813	3714813	3363991116	3714408	3714408	3364135416	3728599	3728599
3363401625	3714817	3714817	3363991119	3714409	3714409	3364135YVW	3728500	3728500
3363401707	3714803	3714803	3363991YVW	3714400	3714400	336413W	37280 pt	37280 pt
3363401722	3714815	3714815	3363993	37145	37145	336413WYVW	3728000 pt	3728000 pt
3363401737	3714821	3714821	3363993101	3714501	3714501	336413WYVW	3728002 pt	3728002 pt
3363401741	3714823	3714823	3363993104	3714502	3714502	3364141	37611	37611
3363401744	3714825	3714825	3363993107	3714503	3714503	3364141100	3761100	3761100
3363401745	3714912	3714912	3363993YVW	3714500	3714500	3364143	37613	37613
3363401747 pt	3292200 pt	3292200 pt	3363995	37147	37147	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292211 pt	3363995101	3714701	3714701	3364145	37616	37616
3363401747 pt	3292200 pt	3292215 pt	3363995104	3714705	3714705	3364145100	3761600	3761600
3363401747 pt	3292200 pt	3292221 pt	3363995107	3714707	3714707	3364147	37612	37612
3363401747 pt	3292200 pt	3292258 pt	3363995111	3714714	3714714	3364147101	3761201	3761201
3363401747 pt	3714827	3714827	3363995YVW	3714700	3714700	3364147204	3761202	3761202
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	35199 pt	35199 pt	3364147YVW	3761200	3761200
3363401YVW pt	3714800	3714800	3363997 pt	37142 pt	37142 pt	3364149	37614	37614
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	336414A101	3761702	3761702
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A104	3761703	3761703
3363403114	3714A35	3714A35	336399701	3714901	3714901	336414AYVW	3761700	3761700
3363403117	3714A37	3714A37	3363997204	3714902	3714902	336414W	37610	37610
3363403117	3714A37	3714A37	3363997307	3714903	3714903	336414WYVW	3761000	3761000
3363403121	3714A44	3714A41 pt	3363997401	3714235	3714235	336414WYVW	3761002	3761002
3363403YVW	3714A00 pt	3714A00 pt	3363997405	3714236	3714236	3364151	37645	37645
336340W pt	32920 pt	32920 pt	3363997409	3519987	3519987	3364151101	3764511	3764511
336340W pt	37140 pt	37140 pt	3363997514	3714909	3714909	3364151204	3764513	3764513
336340WYVW pt	3292000 pt	3292000 pt	3363997524	3714916	3714916	3364151307	3764515	3764515
336340WYVW pt	3714000 pt	3714000 pt	3363997527	3714922	3714922	3364151YVW	3764500	3764500
336340WYVW pt	3292002 pt	3292002 pt	3363997531	3714923	3714923	3364153	37646	37646
336340WYVW pt	3714002 pt	3714002 pt	3363997534	3714931	3714931	3364153101	3764611	3764611
3363501	37146	37146	3363997551	3714951	3714941 pt	3364153104	3764613	3764613
3363501101	3714603	3714603	3363997554	3714A52	3714A41 pt	3364153107	3764615	3764615
3363501104	3714605	3714605	3363997YVW pt	3519900 pt	3519900 pt	3364153YVW	3764600	3764600
3363501207	3714613	3714613	3363997YVW pt	3714200 pt	3714200 pt	3364155	37647	37647
3363501211	3714615	3714615	3363997YVW pt	3714900 pt	3714900 pt	3364155101	3764711	3764711
3363501313	3714623	3714623	3363997YVW pt	3714A00 pt	3714A00 pt	3364155104	3764713	3764713
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3363501541	3714649	3714649	33641113	37215	37215	336415WYVW	3764000	3764000
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336510WYVW pt	3743000 pt	3743000 pt	3366125201	3732401	3732401	3369993101	3799903	3799903
336510WYVW pt	3531002 pt	3531002 pt	3366125204	3732403	3732403	3369993204	3799904	3799904
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Manufacturing

Industry Series



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Industry Series



U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for

Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336992	Military armored vehicle, tank, & tank component mfg	39	44	5 982	238 241	2 913	5 426	108 165	552 762	495 679	1 095 422	17 819
371150	Motor vehicles & car bodies (pt)	N	6	D	D	D	D	D	D	D	D	D
379500	Tanks & tank components	N	38	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)				
336992, MILITARY ARMORED VEHICLE, TANK, & TANK COMPONENT MFG												
United States	-	44	23	5 982	238 241	2 913	5 426	108 165	552 762	495 679	1 095 422	17 819
California	-	7	5	2 129	90 599	820	1 739	38 297	182 319	75 224	291 925	5 330
Michigan	-	10	4	352	19 030	177	447	8 807	46 568	26 885	74 564	1 359

* 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
336992, MILITARY ARMORED VEHICLE, TANK, & TANK COMPONENT MFG		336992, MILITARY ARMORED VEHICLE, TANK, & TANK COMPONENT MFG—Con.	
Companies ¹	number.. 39	Value added	\$1,000.. 552 762
All establishments	number.. 44	Total inventories, beginning of year	\$1,000.. 291 948
Establishments with 1 to 19 employees	number.. 21	Finished goods inventories, beginning of year	\$1,000.. 6 763
Establishments with 20 to 99 employees	number.. 13	Work-in-process inventories, beginning of year	\$1,000.. 237 127
Establishments with 100 employees or more	number.. 10	Materials and supplies inventories, beginning of year	\$1,000.. 48 058
All employees	number.. 5 982	Total inventories, end of year	\$1,000.. 254 923
Total compensation ²	\$1,000.. 321 840	Finished goods inventories, end of year	\$1,000.. 9 196
Annual payroll	\$1,000.. 238 241	Work-in-process inventories, end of year	\$1,000.. 187 713
Total fringe benefits	\$1,000.. 83 599	Materials and supplies inventories, end of year	\$1,000.. 58 014
Production workers, average for year	number.. 2 913	Gross book value of total assets at beginning of year	\$1,000.. 337 596
Production workers on March 15	number.. 3 121	Total capital expenditures (new and used)	\$1,000.. 17 819
Production workers on May 15	number.. 3 084	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 6 013
Production workers on August 15	number.. 2 967	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 11 806
Production workers on November 15	number.. 2 480	Total retirements ²	\$1,000.. 16 042
Production-worker hours	1,000.. 5 426	Gross book value of total assets at end of year	\$1,000.. 339 373
Production-worker wages	\$1,000.. 108 165	Total depreciation during year ²	\$1,000.. 21 123
Total cost of materials	\$1,000.. 495 679	Total rental payments ²	\$1,000.. 20 097
Cost of materials, parts, containers, etc., consumed	\$1,000.. 454 583	Buildings and other structures rental payments ²	\$1,000.. 15 631
Cost of resales	\$1,000.. 3 929	Machinery and equipment rental payments ²	\$1,000.. 4 466
Cost of fuels	\$1,000.. 1 996	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 2 116
Cost of purchased electricity	\$1,000.. 10 681	Response coverage ratio ⁴	percent.. 72
Cost of contract work	\$1,000.. 24 490	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 5 092
Quantity of electricity purchased for heat and power	1,000 kWh.. 188 605	Response coverage ratio ⁴	percent.. 72
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 1 335
Total value of shipments	\$1,000.. 1 095 422	Response coverage ratio ⁴	percent.. 72
Primary products value of shipments	\$1,000.. 1 005 917	Cost of purchased legal services ³	\$1,000.. 304
Secondary products value of shipments	\$1,000.. 83 599	Response coverage ratio ⁴	percent.. 72
Total miscellaneous receipts	\$1,000.. 5 906	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 496
Value of resales	\$1,000.. 4 373	Response coverage ratio ⁴	percent.. 72
Contract receipts	\$1,000.. 361	Cost of purchased advertising services ³	\$1,000.. 533
Other miscellaneous receipts	\$1,000.. 1 172	Response coverage ratio ⁴	percent.. 72
Primary products specialization ratio	percent.. 92	Cost of purchased software and other data processing services ³	\$1,000.. 3 840
Value of primary products shipments made in all industries	\$1,000.. 1 220 108	Response coverage ratio ⁴	percent.. 72
Value of primary products shipments made in this industry	\$1,000.. 1 005 917	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 1 101
Value of primary products shipments made in other industries	\$1,000.. 214 191	Response coverage ratio ⁴	percent.. 72
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)				
336992, MILITARY ARMORED VEHICLE, TANK, & TANK COMPONENT MFG												
All establishments	-	44	23	5 982	238 241	2 913	5 426	108 165	552 762	495 679	1 095 422	17 819
Establishments with 1 to 4 employees	6	9	-	16	475	13	17	345	1 161	1 339	2 603	37
Establishments with 5 to 9 employees	4	8	-	55	2 066	41	81	1 108	5 969	7 478	13 558	197
Establishments with 10 to 19 employees	-	4	-	60	2 226	40	87	1 287	3 423	2 535	6 147	D
Establishments with 20 to 49 employees	1	9	9	305	12 931	175	347	6 073	32 535	41 076	75 681	1 882
Establishments with 50 to 99 employees	-	4	4	306	13 394	170	459	7 054	35 840	29 746	65 885	1 120
Establishments with 100 to 249 employees	-	4	4	739	29 985	436	858	15 333	51 880	44 349	100 203	1 427
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	-	2	2	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	9	3	-	5	101	5	4	85	383	804	1 189	25

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)				
336992	Military armored vehicle, tank, & tank component mfg	44	5 982	238 241	2 913	5 426	108 165	552 762	495 679	1 095 422	17 819

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)
336992	Military armored vehicles, tanks, and tank components	N	X	X	1 220 108	N	X	X	N
3369920	Military armored vehicles, tank, and tank components	N	X	X	1 220 108	N	X	X	N
33699201	Tanks and parts	N	X	X	904 474	N	X	X	N
3369920111	Tanks and parts	41	X	X	904 474	61	X	X	1 623 549
33699202	Self-propelled weapons and parts and other full-tracked combat vehicles and armored utility vehicles, including parts	N	X	X	286 495	N	X	X	N
3369920214	Self-propelled weapons and parts	6	X	X	D	12	X	X	N
3369920216	Military armored vehicles, including armored combat vehicles and armored wheeled tactical vehicles or carriers	1	X	X	D	N	X	X	N
3369920217	Other full-tracked combat vehicles and armored utility vehicles, including parts	17	X	X	213 818	18	X	X	N
3369920Y	Military armored vehicle, tank and tank component manufacturing, nsk, total	N	X	X	29 139	N	X	X	N
3369920YWW	Military armored vehicle, tank and tank component manufacturing, nsk, for nonadministrative-record establishments	N	X	X	27 981	N	X	X	N
3369920YWY	Military armored vehicle, tank and tank component manufacturing, nsk, for administrative-record establishments	N	X	X	1 158	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)
336992	MILITARY ARMORED VEHICLE, TANK, & TANK COMPONENT MFG				
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	15 426	X	N
33200095	Other fabricated metal products (except forgings)	X	181 005	X	N
33151001	Iron and steel castings (rough and semifinished)	X	3 756	X	N
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	D	X	N
33152003	Other nonferrous castings (rough and semifinished)	X	D	X	N
33211101	Iron and steel forgings	X	D	X	N
33211203	Aluminum and aluminum-base alloy forgings	X	D	X	N
33211207	Other nonferrous forgings	X	-	X	N
33120001	Steel shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	N
33142111	Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	N
33100039	Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	D	X	N
33100083	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	-	X	N
00970099	All other materials and components, parts, containers, and supplies	X	126 848	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	36 184	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

336992 MILITARY ARMORED VEHICLE, TANK, AND TANK COMPONENT MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing complete military armored vehicles, combat tanks, specialized components for combat tanks, and self-propelled weapons.

The data published with NAICS code 336992 include the following SIC industries:

- 3711 Motor vehicles and car bodies (pt)
- 3795 Tanks and tank components

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
3361110 pt.	37110 pt.	37110 pt.	336211W pt.	37110 pt.	37110 pt.	3363121	37142 pt.	37142 pt.
3361110 pt.	37111 pt.	37111 pt.	336211W pt.	37130	37130	3363121101	3714201	3714201
3361110 pt.	37114 pt.	37114 pt.	336211W pt.	37140 pt.	37140 pt.	3363121224	3714218	3714218
3361110100 pt.	3711100 pt.	3711100 pt.	336211WYWW pt.	3711000 pt.	3711000 pt.	3363121351	3714231	3714231
3361110100 pt.	3711111	3711111	336211WYWW pt.	3713000	3713000	3363121354	3714232	3714232
3361110100 pt.	3711151	3711151	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121457	3714234	3714234
3361110100 pt.	3711400 pt.	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121467	3714237	3714237
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3714000 pt.	3714000 pt.	3363121504	3714206	3714206
3361110100 pt.	3711403	3711400 pt.	336211WYWW pt.	3711002 pt.	3711002 pt.	3363121507	3714207	3714207
3361110YWW	3711000 pt.	3711000 pt.	336211WYWW pt.	3713002	3713002	3363121511	3714208	3714208
3361110YWW	3711002 pt.	3711002 pt.	336211WYWW pt.	3714002 pt.	3714002 pt.	3363121514	3714209	3714209
3361120 pt.	37110 pt.	37110 pt.	3362121	37151	37151	3363121517	3714215	3714215
3361120 pt.	37114 pt.	37114 pt.	3362121000	3715100	3715100	3363121521	3714216	3714216
3361120 pt.	37116	37116	336212123	37152	37152	3363121527	3714217	3714217
3361120100 pt.	3711405	3711400 pt.	33621213100	3715200	3715200	3363121531	3714222	3714222
3361120100 pt.	3711400 pt.	3711400 pt.	33621212W	37150	37150	3363121534	3714224	3714224
3361120100 pt.	3711600	3711600	336212WYWW	3715000	3715000	3363121537	3714225	3714225
3361120YWW	3711000 pt.	3711000 pt.	336212WYWW	3715002	3715002	3363121541	3714226	3714226
3361120YWW	3711002 pt.	3711002 pt.	3362130	37160	37160	3363121544	3714227	3714227
3361201 pt.	37114 pt.	37114 pt.	3362130101	3716001	3716001	3363121571	3714241	3714241
3361201 pt.	37115 pt.	37117	3362130104	3716005	3716005	3363121574	3714249	3714249
3361201100 pt.	3711407	3711400 pt.	3362130107	3716007	3716007	3363121YVW	3714200 pt.	3714200 pt.
3361201100 pt.	3711400 pt.	3711400 pt.	3362130111	3716021	3716021	3363123	37144 pt.	37144 pt.
3361201100 pt.	3711500 pt.	3711700	3362130YWW	3716000	3716000	3363123101	3714A02	3714A02
3361201100 pt.	3711500 pt.	3711800	3362141	37921	37921	3363123104	3714A03	3714A03
3361202 pt.	37114 pt.	37114 pt.	3362141101	3792112	3792112	3363123107	3714A23	3714A23
3361202 pt.	37119	37119	3362141104	3792114	3792114	3363123111	3714A25	3714A25
3361202100 pt.	3711409	3711400 pt.	3362141207	3792116	3792116	3363123121	3714A43	3714A41 pt.
3361202100 pt.	3711400 pt.	3711400 pt.	3362141311	3792118	3792118	3363123YVW	3714A00 pt.	3714A00 pt.
3361202100 pt.	3711900	3711900	3362141413	3792125	3792125	336312W	37140 pt.	37140 pt.
3361203	37113	37113	3362141516	3792128	3792128	336312WYWW	3714000 pt.	3714000 pt.
3361203101	3711304	3711304	3362141YVW	3792100	3792100	336312WYVW	3714002 pt.	3714002 pt.
3361203104	3711303	3711303	3362143	37996	37996	3363210	36470	36470
3361203YVW	3711300	3711300	3362143101	3799611	3799601 pt.	3363210100	3647000 pt.	3647000 pt.
336120W	37110 pt.	37110 pt.	3362143105	3799613	3799602 pt.	3363210YWW	3647000 pt.	3647000 pt.
336120WYWW	3711000 pt.	3711000 pt.	3362143108	3799615	3799604 pt.	3363210YVW	3647002	3647002
336120WYVW	3711002 pt.	3711002 pt.	3362143111	3799617	3799607 pt.	3363221	36941	36941
3362111 pt.	37111 pt.	37111 pt.	3362143114	3799619	3799609 pt.	3363221101	3694101	3694101
3362111 pt.	37131	37131	3362143117 pt.	3799651 pt.	3799602 pt.	3363221104	3694102	3694102
3362111 pt.	37149 pt.	37149 pt.	3362143117 pt.	3799651 pt.	3799604 pt.	3363221201	3694103	3694103
3362111101	3713101	3713101	3362143117 pt.	3799651 pt.	3799607 pt.	3363221204	3694104	3694104
3362111204	3713102	3713102	3362143117 pt.	3799651 pt.	3799609 pt.	3363221YVW	3694100	3694100
3362111307	3713112	3713112	3362143YVW	3799600	3799600	3363223	36942	36942
3362111411	3713115	3713115	3362145	37922	37922	3363223101	3694201	3694201
3362111413	3713116	3713116	3362145101	3792242	3792242	3363223104	3694202	3694202
3362111416	3713117	3713117	3362145204	3792244	3792244	3363223201	3694203	3694203
3362111519	3713121	3713121	3362145207	3792247	3792247	3363223204	3694204	3694204
3362111522	3713131	3713131	3362145311 pt.	3792268 pt.	3792261	3363223YVW	3694200	3694200
3362111525	3713132	3713132	3362145311 pt.	3792268 pt.	3792263	3363225	36943	36943
3362111528	3713135	3713135	3362145311 pt.	3792268 pt.	3792269	3363225101	3694301	3694301
3362111531	3713139	3713139	3362145YVW	3792200	3792200	3363225104	3694302	3694302
3362111534	3713143	3713143	336214W pt.	37920	37920	3363225201	3694303	3694303
3362111537	3713153	3713153	336214W pt.	37990 pt.	37990 pt.	3363225YVW	3694300	3694300
3362111541	3713155	3713155	336214WYWW pt.	3792000	3792000	3363227	36944	36944
3362111543	3713161	3713161	336214WYWW pt.	3792002	3792002	3363227100	3694400	3694400
3362111546	3713162	3713162	336214WYVW pt.	3799002 pt.	3799002 pt.	3363229	36947	36947
3362111549	3713163	3713163	3363111	35921	35921	3363229101	3694701	3694701
3362111552	3711171	3711171	3363111101	3592101	3592101	3363229201	3694711	3694711
3362111555	3711181	3711181 pt.	3363111103	3592102	3592102	3363229301	3694702	3694702
3362111558	3714925	3714925	3363111105	3592103	3592103	3363229304	3694704	3694704
3362111571 pt.	3713171	3713171	3363111207	3592105	3592105	3363229307	3694705	3694705
3362111571 pt.	3714924	3714941 pt.	3363111YVW	3592100	3592100	3363229309	3694719	3694719
3362111YVW pt.	3711100 pt.	3711100 pt.	3363113	35922	35922	3363229YVW	3694700	3694700
3362111YVW pt.	3713100	3713100	3363113101	3592201	3592201	336322A	36949	36949
3362111YVW pt.	3714900 pt.	3714900 pt.	3363113103	3592202	3592202	336322A101	3694901	3694901
3362113 pt.	37114 pt.	37114 pt.	3363113205	3592203	3592203	336322A204	3694907	3694907
3362113 pt.	37132	37132	3363113207	3592204	3592204	336322A307	3694911	3694911
3362113101	3713201	3713201	3363113209	3592205	3592205	336322A409	3694912	3694912
3362113219	3713225	3713225	3363113211	3592206	3592206	336322A512	3694913	3694913
3362113304	3713211	3713211	3363113313	3592209	3592209	336322A615	3694919	3694919
3362113307	3713213	3713213	3363113YVW	3592200	3592200	336322AYVW	3694900	3694900
3362113311	3713215	3713215	3363113101	3592201	3592201	336322C pt.	36799 pt.	36799 pt.
3362113313	3713217	3713217	3363113103	3592202	3592202	336322C pt.	37149 pt.	37149 pt.
3362113316	3713218	3713218	3363113205	3592203	3592203	336322C pt.	3714A pt.	3714A pt.
3362113322	3713226	3713226	3363113207	3592204	3592204	336322C102	3714913	3714913
3362113325	3713227	3713227	3363113209	3592205	3592205	336322C104	3714914	3714914
3362113328	3713241	3713239 pt.	3363113211	3592206	3592206	336322C107	3714915	3714915
3362113331 pt.	3711411	3711400 pt.	3363113313	3592209	3592209	336322C111 pt.	3714921 pt.	3714917
3362113331 pt.	3713243	3713239 pt.	3363113YVW	3592200	3592200	336322C111 pt.	3714921 pt.	3714917
3362113YVW pt.	3711400 pt.	3711400 pt.	3363115	35923	35923	336322C111 pt.	3714921 pt.	3714917
3362113YVW pt.	3713200	3713200	3363115101	3592301	3592301	336322C114	3714942	3714904 pt.
			3363115103	3592302	3592302	336322C117	3714944	3714904 pt.
			3363115YVW	3592300	3592300	336322C119	3679926	3679920 pt.
			336311W	35920	35920	336322C121	3714945	3714941 pt.
			336311WYWW	3592000	3592000	336322C122	3714946	3714941 pt.
			336311WYVW	3592002	3592002	336322C124	3714A05	3714A41 pt.
						336322C127	3714A40	3714A41 pt.

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	3363505W	3714000 pt	3714000 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	3363506W	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	3363507W	3714000 pt	3714000 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363508W	3714002 pt	3714002 pt	3364117111	3721855	3721855
336322W pt	36940	36940	3363509W	3714002 pt	3714002 pt	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363601	23962	23962	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363601100	2396200	2396200	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363602	23990 pt	23990 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363602100	2399025	2399025	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603	25312 pt	25312 pt	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603101	2531213	2531213	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	3363603104	2531215	2531215	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	3363603YVW	2531200 pt	2531200 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	3363606W pt	23960 pt	23960 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	3363606W pt	2396000 pt	2396000 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	3363606WYVW pt	2399000 pt	2399000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	3363606WYVW pt	2531000 pt	2531000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	3363606WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	3363606WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	3363606WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	3363606WYVW pt	2399002 pt	2399002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363606WYVW pt	2531002 pt	2531002 pt	3364127307	3724405	3724405
3363301526	3714228	3714228	3363700	34650	34650	3364127411	3724406	3724406
3363301528	3714911	3714911	3363700100	3465000 pt	3465000 pt	3364127YVW	3724400	3724400
3363301531	3714926	3714941 pt	3363700YVW	3465000 pt	3465000 pt	336412W	37240	37240
3363301YVW pt	3714200 pt	3714200 pt	3363700YVW	3465002	3465002	336412WYVW	3724000	3724000
3363301YVW pt	3714900 pt	3714900 pt	3363700YVW	3465002	3465002	336412WYVW	3724002	3724002
3363303	3714A pt	3714A pt	3363917	35857	35851 pt	3364131	37282	37282
3363303101	3714A06	3714A06	3363917010	3585705	3585100 pt	3364131101	3728210	3728210
3363303104	3714A39	3714A39	3363917020	3585707	3585100 pt	3364131104	3728231	3728231
3363303121	3714A47	3714A41 pt	3363917030	3585719	3585100 pt	3364131107	3728251	3728251
3363303YVW	3714A00 pt	3714A00 pt	3363917YVW	3585700	3585100 pt	3364131111	3728261	3728261
336330W	37140 pt	37140 pt	336391B	3585B	35854 pt	3364131YVW	3728200	3728200
336330WYVW	3714000 pt	3714000 pt	336391B000	3585B00	3585400 pt	3364133	37283	37283
336330WYVW	3714002 pt	3714002 pt	336391W	35850 pt	35850 pt	3364133101	3728313	3728313
3363401 pt	32922	32922	336391WYVW	3585000 pt	3585000 pt	3364133104	3728315	3728315
3363401 pt	37148	37148	336391WYVW	3585002 pt	3585002 pt	3364133YVW	3728300	3728300
3363401 pt	37149 pt	37149 pt	3363991	37144	37144	3364135	37285	37285
3363401101	3714801	3714801	3363991101	3714401	3714401	3364135101	3728513	3728513
3363401104	3714802	3714802	3363991104	3714402	3714402	3364135104	3728515	3728515
3363401211	3714807	3714807	3363991107	3714404	3714404	3364135207	3728594	3728594
3363401313	3714809	3714809	3363991111	3714405	3714405	3364135211	3728595	3728595
3363401416	3714811	3714811	3363991113	3714407	3714407	3364135313	3728598	3728598
3363401519	3714813	3714813	3363991116	3714408	3714408	3364135416	3728599	3728599
3363401625	3714817	3714817	3363991119	3714409	3714409	3364135YVW	3728500	3728500
3363401707	3714803	3714803	3363991YVW	3714400	3714400	336413W	37280 pt	37280 pt
3363401722	3714815	3714815	3363993	37145	37145	336413WYVW	3728000 pt	3728000 pt
3363401737	3714821	3714821	3363993101	3714501	3714501	336413WYVW	3728002 pt	3728002 pt
3363401741	3714823	3714823	3363993104	3714502	3714502	3364141	37611	37611
3363401744	3714825	3714825	3363993107	3714503	3714503	3364141100	3761100	3761100
3363401745	3714912	3714912	3363993YVW	3714500	3714500	3364143	37613	37613
3363401747 pt	3292200 pt	3292200 pt	3363995	37147	37147	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292211 pt	3363995101	3714701	3714701	3364145	37616	37616
3363401747 pt	3292200 pt	3292215 pt	3363995104	3714705	3714705	3364145100	3761600	3761600
3363401747 pt	3292200 pt	3292221 pt	3363995107	3714707	3714707	3364147	37612	37612
3363401747 pt	3292200 pt	3292258 pt	3363995111	3714714	3714714	3364147101	3761201	3761201
3363401747 pt	3714827	3714827	3363995YVW	3714700	3714700	3364147204	3761202	3761202
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	35199 pt	35199 pt	3364147YVW	3761200	3761200
3363401YVW pt	3714800	3714800	3363997 pt	37142 pt	37142 pt	3364149	37614	37614
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	336414A101	3761702	3761702
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A104	3761703	3761703
3363403114	3714A35	3714A35	3363997 pt	37149 pt	37149 pt	336414AYVW	3761700	3761700
3363403117	3714A37	3714A37	3363997 pt	37149 pt	37149 pt	336414W	37610	37610
3363403121	3714A44	3714A41 pt	3363997 pt	37149 pt	37149 pt	336414WYVW	3761000	3761000
3363403YVW	3714A00 pt	3714A00 pt	3363997 pt	37149 pt	37149 pt	336414WYVW	3761002	3761002
336340W pt	32920 pt	32920 pt	3363997534	3714931	3714931	3364151	37645	37645
336340W pt	37140 pt	37140 pt	3363997551	3714951	3714941 pt	3364151101	3764511	3764511
336340WYVW pt	3292000 pt	3292000 pt	3363997554	3714A52	3714A41 pt	3364151204	3764513	3764513
336340WYVW pt	3714000 pt	3714000 pt	3363997YVW pt	3519900 pt	3519900 pt	3364151307	3764515	3764515
336340WYVW pt	3292002 pt	3292002 pt	3363997YVW pt	3714200 pt	3714200 pt	3364151YVW	3764500	3764500
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3366113	37312	37312	3366127116	3732717	3732717			
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All Other Transportation Equipment Manufacturing

1997

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1997 Economic Census

Manufacturing

Industry Series



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U.S. Department of Commerce

William M. Daley,

Secretary

Robert L. Mallett,

Deputy Secretary

Economics

and Statistics

Administration

Robert J. Shapiro,

Under Secretary for
Economic Affairs

U.S. CENSUS BUREAU

Kenneth Prewitt,

Director



**Economics
and Statistics
Administration**

Robert J. Shapiro,
Under Secretary
for Economic Affairs



U.S. CENSUS BUREAU

Kenneth Prewitt,
Director

William G. Barron,
Deputy Director

Paula J. Schneider,
Principal Associate Director
for Programs

Frederick T. Knickerbocker,
Associate Director
for Economic Programs

Thomas L. Mesenbourg,
Assistant Director
for Economic Programs

William G. Bostic Jr.,
Chief, Manufacturing
and Construction Division

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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)				
336999	All other transportation equipment mfg	353	374	19 290	504 886	13 879	24 926	291 721	1 679 527	2 875 923	4 527 441	98 858
379930	Transportation equipment, n.e.c. (pt)	N	374	19 290	504 886	13 879	24 926	291 721	1 679 527	2 875 923	4 527 441	98 858

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)				
336999, ALL OTHER TRANSPORTATION EQUIPMENT MFG												
United States	-	374	136	19 290	504 886	13 879	24 926	291 721	1 679 527	2 875 923	4 527 441	98 858
Florida	2	19	5	226	5 786	131	253	2 790	10 314	12 463	22 213	659
Indiana	2	27	13	1 398	40 461	1 107	1 958	24 681	84 508	121 793	207 601	5 000
Iowa	-	11	6	1 019	22 257	844	1 588	15 815	53 360	133 729	194 062	2 914
Massachusetts	2	6	4	176	5 181	104	230	2 282	8 292	8 402	16 937	218
Michigan	1	17	8	1 631	42 989	1 187	2 107	23 013	120 756	91 707	209 024	5 497
Minnesota	-	24	7	3 667	72 085	2 671	4 114	44 288	507 559	850 991	1 314 166	14 605
Ohio	-	10	7	1 011	35 994	841	1 986	27 555	156 856	229 996	387 258	10 714
Oregon	-	15	7	566	13 620	456	957	9 838	31 502	32 978	63 859	601
Utah	1	9	1	172	5 586	115	286	3 422	3 245	13 261	18 057	167

* 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
336999, ALL OTHER TRANSPORTATION EQUIPMENT MFG		336999, ALL OTHER TRANSPORTATION EQUIPMENT MFG—Con.	
Companies ¹	number.. 353	Value added	\$1,000.. 1 679 527
All establishments	number.. 374	Total inventories, beginning of year	\$1,000.. 539 803
Establishments with 1 to 19 employees	number.. 238	Finished goods inventories, beginning of year	\$1,000.. 200 943
Establishments with 20 to 99 employees	number.. 103	Work-in-process inventories, beginning of year	\$1,000.. 77 562
Establishments with 100 employees or more	number.. 33	Materials and supplies inventories, beginning of year	\$1,000.. 261 298
All employees	number.. 19 290	Total inventories, end of year	\$1,000.. 559 471
Total compensation ²	\$1,000.. 623 863	Finished goods inventories, end of year	\$1,000.. 239 161
Annual payroll	\$1,000.. 504 886	Work-in-process inventories, end of year	\$1,000.. 67 353
Total fringe benefits	\$1,000.. 118 977	Materials and supplies inventories, end of year	\$1,000.. 252 957
Production workers, average for year	number.. 13 879	Gross book value of total assets at beginning of year	\$1,000.. 795 080
Production workers on March 12	number.. 14 109	Total capital expenditures (new and used)	\$1,000.. 98 858
Production workers on May 12	number.. 14 003	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 24 301
Production workers on August 12	number.. 13 657	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 74 557
Production workers on November 12	number.. 13 747	Total retirements ²	\$1,000.. 15 456
Production-worker hours	1,000.. 24 926	Gross book value of total assets at end of year	\$1,000.. 878 482
Production-worker wages	\$1,000.. 291 721	Total depreciation during year ²	\$1,000.. 69 457
Total cost of materials	\$1,000.. 2 875 923	Total rental payments ²	\$1,000.. 26 219
Cost of materials, parts, containers, etc., consumed	\$1,000.. 2 684 404	Buildings and other structures rental payments ²	\$1,000.. 12 125
Cost of resales	\$1,000.. 128 005	Machinery and equipment rental payments ²	\$1,000.. 14 094
Cost of fuels	\$1,000.. 8 570	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 4 811
Cost of purchased electricity	\$1,000.. 13 943	Response coverage ratio ⁴	percent.. 85
Cost of contract work	\$1,000.. 41 001	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 10 550
Quantity of electricity purchased for heat and power	1,000 kWh.. 277 244	Response coverage ratio ⁴	percent.. 85
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S	Cost of purchased communications services ³	\$1,000.. 5 896
Total value of shipments	\$1,000.. 4 527 441	Response coverage ratio ⁴	percent.. 85
Primary products value of shipments	\$1,000.. 3 956 096	Cost of purchased legal services ³	\$1,000.. 3 951
Secondary products value of shipments	\$1,000.. 367 652	Response coverage ratio ⁴	percent.. 85
Total miscellaneous receipts	\$1,000.. 203 693	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 11 500
Value of resales	\$1,000.. 176 917	Response coverage ratio ⁴	percent.. 85
Contract receipts	\$1,000.. 12 869	Cost of purchased advertising services ³	\$1,000.. 19 189
Other miscellaneous receipts	\$1,000.. 13 907	Response coverage ratio ⁴	percent.. 85
Primary products specialization ratio	percent.. 91	Cost of purchased software and other data processing services ³	\$1,000.. 3 545
Value of primary products shipments made in all industries	\$1,000.. 4 169 920	Response coverage ratio ⁴	percent.. 85
Value of primary products shipments made in this industry	\$1,000.. 3 956 096	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 1 692
Value of primary products shipments made in other industries	\$1,000.. 213 824	Response coverage ratio ⁴	percent.. 85
Coverage ratio	percent.. 94		

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)				
336999. ALL OTHER TRANSPORTATION EQUIPMENT MFG												
All establishments	-	374	136	19 290	504 886	13 879	24 926	291 721	1 679 527	2 875 923	4 527 441	98 858
Establishments with 1 to 4 employees	7	97	-	189	3 739	148	210	2 181	6 856	13 265	20 062	653
Establishments with 5 to 9 employees	6	76	-	492	11 478	348	608	6 482	18 602	36 169	54 847	2 080
Establishments with 10 to 19 employees	4	65	-	920	22 024	674	1 212	13 442	39 411	61 371	101 582	1 924
Establishments with 20 to 49 employees	4	73	73	2 224	58 760	1 576	3 016	32 127	119 520	177 538	296 326	8 226
Establishments with 50 to 99 employees	1	30	30	1 995	53 276	1 474	2 924	31 001	125 372	181 489	304 173	8 564
Establishments with 100 to 249 employees	1	20	20	3 056	78 501	2 571	4 811	50 954	170 832	235 319	409 049	9 642
Establishments with 250 to 499 employees	-	6	6	2 252	61 662	1 702	3 264	36 554	178 398	264 494	446 233	13 787
Establishments with 500 to 999 employees	-	3	3	2 061	68 952	1 596	3 218	51 352	252 056	759 910	1 016 235	29 865
Establishments with 1,000 to 2,499 employees	-	4	4	6 101	146 494	3 790	5 663	67 628	768 480	1 146 368	1 878 934	24 117
Establishments with 2,500 employees or more	-	-	-	-	-	-	-	-	-	-	-	-
Administrative records ²	9	89	-	419	8 770	327	535	5 453	14 734	29 437	44 741	1 442

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)				
336999	All other transportation equipment mfg	374	19 290	504 886	13 879	24 926	291 721	1 679 527	2 875 923	4 527 441	98 858
3369991	Self-propelled golf carts and industrial in-plant personnel carriers, and parts	9	3 099	92 270	1 555	2 422	32 180	300 679	398 314	706 673	11 840
3369993	Transportation equipment, nec, including all-terrain vehicles	167	13 669	351 753	10 374	18 906	221 324	1 267 914	2 269 844	3 499 917	77 217

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)
336999	Transportation equipment, nec	N	X	X	4 169 920	N	X	X	N
3369991	Self-propelled golf carts and industrial in-plant personnel carriers, and parts	N	X	X	767 512	N	X	X	382 352
33699911	Self-propelled golf carts and industrial in-plant personnel carriers, and parts	N	X	X	756 110	N	X	X	N
3369991101	Self-propelled golf carts (electric and gasoline) for carrying passengers and-or industrial in-plant personnel carriers	9	X	X	636 275	8	X	X	341 544
3369991104	Parts for self-propelled golf carts and-or industrial in-plant personnel carriers	6	X	X	119 835	10	X	X	38 448
3369991Y	Self-propelled golf carts and industrial in-plant personnel carriers, and parts, nsk	N	X	X	11 402	N	X	X	N
3369991YWV	Self-propelled golf carts and industrial in-plant personnel carriers, and parts, nsk	N	X	X	11 402	N	X	X	2 360
3369993	Transportation equipment, nec, including all-terrain vehicles	N	X	X	3 107 264	N	X	X	N
33699931	All-terrain vehicles, gasoline or electric, for transport of people or goods designed to traverse all types of terrain	N	X	X	934 085	N	X	X	N
3369993101	All-terrain vehicles, gasoline or electric, for transport of people or goods designed to traverse all types of terrain	14	X	X	934 085	17	X	X	340 847
33699932	Parts for all-terrain vehicles	N	X	X	34 533	N	X	X	N
3369993204	Parts for all-terrain vehicles	15	X	X	34 533	13	X	X	12 077
33699933	Trailer hitches (for travel trailers, automobile trailers, and light duty truck trailers)	N	X	X	224 888	N	X	X	N
3369993307	Trailer hitches (for travel trailers, automobile trailers, and light duty truck trailers)	30	X	X	224 888	23	X	X	141 239
33699934	Other miscellaneous transportation equipment (including snowmobiles and personal watercraft)	N	X	X	1 467 396	N	X	X	N
3369993414	Snowmobiles	10	X	X	D	N	X	X	N
3369993417	Personal watercraft	15	X	X	464 459	N	X	X	N
3369993421	Other miscellaneous transportation equipment	66	X	X	D	N	X	X	N
33699935	Parts for automobile and light truck trailers and other transportation equipment	N	X	X	434 917	N	X	X	N
3369993513	Parts for automobile and light truck trailers and other transportation equipment	91	X	X	434 917	68	X	X	200 028
3369993Y	Transportation equipment, nec, including all-terrain vehicles, nsk	N	X	X	11 445	N	X	X	N
3369993YWV	Transportation equipment, nec, including all-terrain vehicles, nsk	N	X	X	11 445	N	X	X	N
336999W	Other miscellaneous transportation equipment manufacturing, nsk, total	N	X	X	295 144	N	X	X	N
336999WY	Other miscellaneous transportation equipment manufacturing, nsk, total	N	X	X	295 144	N	X	X	N
336999WYWW	Other miscellaneous transportation equipment manufacturing, nsk, for nonadministrative-record establishments	N	X	X	253 631	N	X	X	N
336999WYWY	Other miscellaneous transportation equipment manufacturing, nsk, for administrative-record establishments	N	X	X	41 513	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
3369991	SELF-PROPELLED GOLF CARTS AND INDUSTRIAL IN-PLANT PERSONNEL CARRIERS, AND PARTS		
	United States	767 512	382 352
	Georgia	696 738	329 898
	Wisconsin	13 629	N
3369993	TRANSPORTATION EQUIPMENT, NEC, INCLUDING ALL-TERRAIN VEHICLES		
	United States	3 107 264	N
	Alabama	33 588	N
	California	62 271	N
	Florida	10 371	N
	Illinois	20 852	N
	Indiana	133 732	N
	Kansas	7 312	N
	Massachusetts	12 825	N
	Michigan	197 683	N
	Missouri	63 997	N
	New York	24 746	N
	North Carolina	4 820	N
	Oklahoma	23 133	N
	Oregon	58 337	N
	Pennsylvania	7 048	N
	Texas	69 825	N
	Washington	2 562	N
	Wisconsin	63 496	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)
336999	ALL OTHER TRANSPORTATION EQUIPMENT MFG				
33600003	Trailer axles, wheels, brakes, undercarriages, and other metal vehicular parts	X	214 413	X	N
33361801	Internal combustion engines, gasoline	X	592 957	X	N
32621003	Pneumatic tires and inner tubes	X	48 874	X	N
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	X	207 712	X	N
32551003	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	X	60 567	X	N
33200081	Fabricated metal products (except forgings)	X	188 360	X	N
33210001	Forgings	X	18 485	X	N
33100035	Castings (rough and semifinished)	X	56 456	X	N
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	51 925	X	N
33120017	Steel sheet and strip, including tin plate	X	84 254	X	N
33120019	Steel structural shapes and sheet piling (except castings, forgings, and fabricated metal products)	X	86 293	X	N
33120091	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	32 331	X	N
33100039	Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	39 221	X	N
33100077	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	6 773	X	N
00970099	All other materials and components, parts, containers, and supplies	X	691 022	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	304 764	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

336999 ALL OTHER TRANSPORTATION EQUIPMENT MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing transportation equipment (except motor vehicles, motor vehicle parts, boats, ships, railroad rolling stock, aerospace products, motorcycles, bicycles, armored vehicles and tanks).

The data published with NAICS code 336999 include the following SIC industry:

3799 Transportation equipment, 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
3361110 pt.....	37110 pt.....	37110 pt	336211W pt.....	37110 pt.....	37110 pt	3363121.....	37142 pt.....	37142 pt
3361110 pt.....	37111 pt.....	37111 pt	336211W pt.....	37130.....	37130	3363121101.....	3714201.....	3714201
3361110 pt.....	37114 pt.....	37114 pt	336211W pt.....	37140 pt.....	37140 pt	3363121224.....	3714218.....	3714218
3361110100 pt.....	3711100 pt.....	3711100 pt	336211WYWW pt.....	3711000 pt.....	3711000 pt	3363121351.....	3714231.....	3714231
3361110100 pt.....	3711111.....	3711111	336211WYWW pt.....	3713000.....	3713000	3363121354.....	3714232.....	3714232
3361110100 pt.....	3711151.....	3711151	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121457.....	3714234.....	3714234
3361110100 pt.....	3711400 pt.....	3711400 pt	336211WYWW pt.....	3711002 pt.....	3711002 pt	3363121467.....	3714237.....	3714237
3361110100 pt.....	3711403.....	3711400 pt	336211WYWW pt.....	3714000 pt.....	3714000 pt	3363121504.....	3714206.....	3714206
3361110100 pt.....	3711000 pt.....	3711000 pt	336211WYWW pt.....	3713002.....	3713002	3363121507.....	3714207.....	3714207
3361110YWW.....	3711000 pt.....	3711000 pt	336211WYWW pt.....	3714002 pt.....	3714002 pt	3363121511.....	3714208.....	3714208
3361110YWW.....	3711002 pt.....	3711002 pt	336211WYWW pt.....	3714002 pt.....	3714002 pt	3363121514.....	3714209.....	3714209
3361120 pt.....	37110 pt.....	37110 pt	3362121.....	37151.....	37151	3363121517.....	3714215.....	3714215
3361120 pt.....	37114 pt.....	37114 pt	3362121000.....	3715100.....	3715100	3363121521.....	3714216.....	3714216
3361120 pt.....	37116.....	37116	336212123.....	37152.....	37152	3363121527.....	3714217.....	3714217
3361120100 pt.....	3711405.....	3711400 pt	33621213100.....	3715200.....	3715200	3363121531.....	3714222.....	3714222
3361120100 pt.....	3711400 pt.....	3711400 pt	33621213.....	37152.....	37152	3363121534.....	3714224.....	3714224
3361120100 pt.....	3711600.....	3711600	33621212W.....	37150.....	37150	3363121537.....	3714225.....	3714225
3361120YWW.....	3711000 pt.....	3711000 pt	33621212WYWW.....	3715000.....	3715000	3363121541.....	3714226.....	3714226
3361120YWW.....	3711002 pt.....	3711002 pt	33621212WYWW.....	3715002.....	3715002	3363121544.....	3714227.....	3714227
3361201 pt.....	37114 pt.....	37114 pt	336212130.....	37160.....	37160	3363121571.....	3714241.....	3714241
3361201 pt.....	37115 pt.....	37117	3362130101.....	3716001.....	3716001	3363121574.....	3714249.....	3714249
3361201 pt.....	37115 pt.....	37118	3362130104.....	3716005.....	3716005	3363121YVW.....	3714200 pt.....	3714200 pt
3361201100 pt.....	3711407.....	3711400 pt	3362130107.....	3716007.....	3716007	3363123.....	37144 pt.....	37144 pt
3361201100 pt.....	3711400 pt.....	3711400 pt	3362130111.....	3716021.....	3716021	3363123101.....	3714A02.....	3714A02
3361201100 pt.....	3711500 pt.....	3711700	3362130YVW.....	3716000.....	3716000	3363123104.....	3714A03.....	3714A03
3361201100 pt.....	3711500 pt.....	3711800	3362130YVW.....	3716002.....	3716002	3363123107.....	3714A23.....	3714A23
3361202 pt.....	37114 pt.....	37114 pt	3362141.....	37921.....	37921	3363123111.....	3714A25.....	3714A25
3361202 pt.....	37119.....	37119	3362141101.....	3792112.....	3792112	3363123121.....	3714A43.....	3714A41 pt
3361202100 pt.....	3711409.....	3711400 pt	3362141104.....	3792114.....	3792114	3363123YVW.....	3714A00 pt.....	3714A00 pt
3361202100 pt.....	3711400 pt.....	3711400 pt	3362141207.....	3792116.....	3792116	336312W.....	37140 pt.....	37140 pt
3361202100 pt.....	3711900.....	3711900	3362141311.....	3792118.....	3792118	336312WYVW.....	3714000 pt.....	3714000 pt
3361203.....	37113.....	37113	3362141413.....	3792125.....	3792125	336312WYVW.....	3714002 pt.....	3714002 pt
3361203101.....	3711304.....	3711304	3362141516.....	3792128.....	3792128	3363210.....	36470.....	36470
3361203104.....	3711303.....	3711303	3362141YVW.....	3792100.....	3792100	3363210100.....	3647000 pt.....	3647000 pt
3361203YVW.....	3711300.....	3711300	3362143.....	37996.....	37996	3363210YVW.....	3647000 pt.....	3647000 pt
336120W.....	37110 pt.....	37110 pt	3362143101.....	3799611.....	3799601 pt	3363221.....	36941.....	36941
336120WYVW.....	3711000 pt.....	3711000 pt	3362143105.....	3799613.....	3799602 pt	3363221101.....	3694101.....	3694101
336120WYVW.....	3711002 pt.....	3711002 pt	3362143108.....	3799615.....	3799604 pt	3363221104.....	3694102.....	3694102
3362111 pt.....	37111 pt.....	37111 pt	3362143111.....	3799617.....	3799607 pt	3363221201.....	3694103.....	3694103
3362111 pt.....	37131.....	37131	3362143114.....	3799619.....	3799609 pt	3363221204.....	3694104.....	3694104
3362111 pt.....	37149 pt.....	37149 pt	3362143117.....	3799651 pt.....	3799601 pt	3363221YVW.....	3694100.....	3694100
3362111101.....	3713101.....	3713101	3362143117 pt.....	3799651 pt.....	3799602 pt	3363223.....	36942.....	36942
3362111204.....	3713102.....	3713102	3362143117 pt.....	3799651 pt.....	3799604 pt	3363223101.....	3694201.....	3694201
3362111307.....	3713112.....	3713112	3362143117 pt.....	3799651 pt.....	3799607 pt	3363223104.....	3694202.....	3694202
3362111411.....	3713115.....	3713115	3362143117 pt.....	3799651 pt.....	3799609 pt	3363223201.....	3694203.....	3694203
3362111413.....	3713116.....	3713116	3362143117 pt.....	3799651 pt.....	3799609 pt	3363223204.....	3694204.....	3694204
3362111416.....	3713117.....	3713117	3362143YVW.....	3799600.....	3799600	3363223YVW.....	3694200.....	3694200
3362111519.....	3713121.....	3713121	3362145.....	37922.....	37922	3363225.....	36943.....	36943
3362111522.....	3713131.....	3713131	3362145101.....	3792242.....	3792242	3363225101.....	3694301.....	3694301
3362111525.....	3713132.....	3713132	3362145204.....	3792244.....	3792244	3363225104.....	3694302.....	3694302
3362111528.....	3713135.....	3713135	3362145207.....	3792246.....	3792247	3363225201.....	3694303.....	3694303
3362111531.....	3713139.....	3713139	3362145311 pt.....	3792268 pt.....	3792261	3363225YVW.....	3694300.....	3694300
3362111534.....	3713143.....	3713143	3362145311 pt.....	3792268 pt.....	3792263	3363227.....	36944.....	36944
3362111537.....	3713153.....	3713153	3362145311 pt.....	3792268 pt.....	3792269	3363227100.....	3694400.....	3694400
3362111541.....	3713155.....	3713155	3362145YVW.....	3792200.....	3792200	3363229.....	36947.....	36947
3362111543.....	3713161.....	3713161	336214W pt.....	37920.....	37920	3363229101.....	3694701.....	3694701
3362111546.....	3713162.....	3713162	336214W pt.....	37990 pt.....	37990 pt	3363229201.....	3694711.....	3694711
3362111549.....	3713163.....	3713163	336214WYVW pt.....	3792000.....	3792000	3363229301.....	3694702.....	3694702
3362111552.....	3711171.....	3711171	336214WYVW pt.....	3792002.....	3792002	3363229304.....	3694704.....	3694704
3362111555.....	3711181.....	3711181 pt	336214WYVW pt.....	3799002 pt.....	3799002 pt	3363229307.....	3694705.....	3694705
3362111558.....	3714925.....	3714925	3363111.....	35921.....	35921	3363229309.....	3694719.....	3694719
3362111571 pt.....	3713171.....	3713171	3363111101.....	3592101.....	3592101	3363229YVW.....	3694700.....	3694700
3362111YVW pt.....	3711100 pt.....	3711100 pt	3363111103.....	3592102.....	3592102	336322A.....	36949.....	36949
3362111YVW pt.....	3713100.....	3713100	3363111105.....	3592103.....	3592103	336322A101.....	3694901.....	3694901
3362111YVW pt.....	3714900 pt.....	3714900 pt	3363111207.....	3592105.....	3592105	336322A204.....	3694907.....	3694907
3362113 pt.....	37114 pt.....	37114 pt	3363111YVW.....	3592100.....	3592100	336322A307.....	3694911.....	3694911
3362113 pt.....	37132.....	37132	3363113.....	35922.....	35922	336322A409.....	3694912.....	3694912
3362113101.....	3713201.....	3713201	3363113101.....	3592201.....	3592201	336322A512.....	3694913.....	3694913
3362113219.....	3713225.....	3713225	3363113103.....	3592202.....	3592202	336322A615.....	3694919.....	3694919
3362113304.....	3713211.....	3713211	3363113105.....	3592203.....	3592203	336322AYVW.....	3694900.....	3694900
3362113307.....	3713213.....	3713213	3363113205.....	3592204.....	3592204	336322C pt.....	36799 pt.....	36799 pt
3362113311.....	3713215.....	3713215	3363113207.....	3592205.....	3592205	336322C pt.....	37149 pt.....	37149 pt
3362113313.....	3713217.....	3713217	3363113211.....	3592206.....	3592206	336322C pt.....	3714A pt.....	3714A pt
3362113316.....	3713218.....	3713218	3363113313.....	3592209.....	3592209	336322C102.....	3714913.....	3714913
3362113322.....	3713226.....	3713226	3363113YVW.....	3592200.....	3592200	336322C104.....	3714914.....	3714914
3362113325.....	3713227.....	3713227	3363115.....	35923.....	35923	336322C107.....	3714915.....	3714915
3362113328.....	3713241.....	3713239 pt	3363115101.....	3592301.....	3592301	336322C111 pt.....	3714921 pt.....	3714917
3362113331 pt.....	3711411.....	3711400 pt	3363115103.....	3592302.....	3592302	336322C111 pt.....	3714921 pt.....	3714917
3362113331 pt.....	3713243.....	3713239 pt	3363115YVW.....	3592300.....	3592300	336322C114.....	3714942.....	3714904 pt
3362113YVW pt.....	3711400 pt.....	3711400 pt	336311W.....	35920.....	35920	336322C117.....	3714944.....	3714904 pt
3362113YVW pt.....	3713200.....	3713200	336311WYVW.....	3592000.....	3592000	336322C119.....	3679926.....	3679920 pt
			336311WYVW.....	3592002.....	3592002	336322C121.....	3714945.....	3714941 pt
						336322C122.....	3714946.....	3714941 pt
						336322C124.....	3714A05.....	3714A41 pt
						336322C127.....	3714A40.....	3714A41 pt

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
336322C130	3714A51	3714A41 pt	3363503YVW	3714A00 pt	3714A00 pt	3364117	37218	37218
336322CYVW pt	3679000 pt	3679000 pt	3363505W	3714000 pt	3714000 pt	3364117101	3721813	3721813
336322CYVW pt	3714900 pt	3714900 pt	3363506WYVW	3714000 pt	3714000 pt	3364117104	3721815	3721815
336322CYVW pt	3714A00 pt	3714A00 pt	3363507WYVW	3714002 pt	3714002 pt	3364117107	3721853	3721853
336322W pt	36790 pt	36790 pt	3363601	23962	23962	3364117111	3721855	3721855
336322W pt	36940	36940	3363601100	2396200	2396200	3364117YVW	3721800	3721800
336322W pt	37140 pt	37140 pt	3363602	23990 pt	23990 pt	336411W	37210	37210
336322WYVW pt	3679000 pt	3679000 pt	3363602100	2399025	2399025	336411WYVW	3721000	3721000
336322WYVW pt	3694000	3694000	3363603	25312 pt	25312 pt	336411WYVW	3721002	3721002
336322WYVW pt	3714000 pt	3714000 pt	3363603101	2531213	2531213	3364121	37241	37241
336322WYVW pt	3679002 pt	3679002 pt	3363603104	2531215	2531215	3364121100	3724100	3724100
336322WYVW pt	3694002	3694002	3363603YVW	2531200 pt	2531200 pt	3364123	37242	37242
336322WYVW pt	3714002 pt	3714002 pt	3363606W pt	23960 pt	23960 pt	3364123000	3724200	3724200
3363301 pt	37142 pt	37142 pt	3363606W pt	23990 pt	23990 pt	3364125	37243	37243
3363301 pt	37149 pt	37149 pt	3363606W pt	23990 pt	23990 pt	3364125101	3724321	3724321
3363301101	3714905	3714905	3363606W pt	25310 pt	25310 pt	3364125104	3724323	3724323
3363301204	3714906	3714906	3363606WYVW pt	2396000 pt	2396000 pt	3364125107	3724331	3724331
3363301307	3714907	3714907	3363606WYVW pt	2399000 pt	2399000 pt	3364125111	3724333	3724333
3363301417	3714920	3714920	3363606WYVW pt	2531000 pt	2531000 pt	3364125YVW	3724300	3724300
3363301511	3714908	3714908	3363606WYVW pt	2396002 pt	2396002 pt	3364127	37244	37244
3363301514	3714943	3714941 pt	3363606WYVW pt	2399002 pt	2399002 pt	3364127101	3724401	3724401
3363301521	3714918	3714941 pt	3363606WYVW pt	2531002 pt	2531002 pt	3364127204	3724402	3724402
3363301524	3714919	3714941 pt	3363700	34650	34650	3364127207	3724405	3724405
3363301526	3714228	3714228	3363700100	3465000 pt	3465000 pt	3364127411	3724406	3724406
3363301528	3714911	3714911	3363700YVW	3465000 pt	3465000 pt	3364127YVW	3724400	3724400
3363301531	3714926	3714941 pt	3363700YVW	3465002	3465002	336412W	37240	37240
3363301YVW pt	3714200 pt	3714200 pt	3363917	35857	35851 pt	336412WYVW	3724000	3724000
3363301YVW pt	3714900 pt	3714900 pt	3363917010	3585705	3585100 pt	336412WYVW	3724002	3724002
3363303	3714A pt	3714A pt	3363917020	3585707	3585100 pt	3364131	37282	37282
3363303101	3714A06	3714A06	3363917030	3585719	3585100 pt	3364131101	3728210	3728210
3363303104	3714A39	3714A39	3363917YVW	3585700	3585100 pt	3364131104	3728231	3728231
3363303121	3714A47	3714A41 pt	336391B	3585B	35854 pt	3364131107	3728251	3728251
3363303YVW	3714A00 pt	3714A00 pt	336391B000	3585B00	3585400 pt	3364131111	3728261	3728261
336330W	37140 pt	37140 pt	336391W	35850 pt	35850 pt	3364131YVW	3728200	3728200
336330WYVW	3714000 pt	3714000 pt	336391WYVW	3585000 pt	3585000 pt	3364133	37283	37283
336330WYVW	3714002 pt	3714002 pt	336391WYVW	3585002 pt	3585002 pt	3364133101	3728313	3728313
3363401 pt	32922	32922	3363991	37144	37144	3364133104	3728315	3728315
3363401 pt	37148	37148	3363991101	3714401	3714401	3364133YVW	3728300	3728300
3363401 pt	37149 pt	37149 pt	3363991104	3714402	3714402	3364135	37285	37285
3363401101	3714801	3714801	3363991107	3714403	3714403	3364135101	3728513	3728513
3363401104	3714802	3714802	3363991111	3714405	3714405	3364135104	3728515	3728515
3363401211	3714807	3714807	3363991113	3714407	3714407	3364135207	3728594	3728594
3363401313	3714809	3714809	3363991116	3714408	3714408	3364135211	3728595	3728595
3363401416	3714811	3714811	3363991119	3714409	3714409	3364135313	3728598	3728598
3363401519	3714813	3714813	3363991YVW	3714400	3714400	3364135416	3728599	3728599
3363401625	3714817	3714817	3363993	37145	37145	3364135YVW	3728500	3728500
3363401707	3714803	3714803	3363993101	3714501	3714501	336413W	37280 pt	37280 pt
3363401722	3714815	3714815	3363993104	3714502	3714502	336413WYVW	3728000 pt	3728000 pt
3363401737	3714821	3714821	3363993107	3714503	3714503	336413WYVW	3728002 pt	3728002 pt
3363401741	3714823	3714823	3363993YVW	3714500	3714500	3364141	37611	37611
3363401744	3714825	3714825	3363995	37147	37147	3364141100	3761100	3761100
3363401745	3714912	3714912	3363995101	3714701	3714701	3364143	37613	37613
3363401747 pt	3292200 pt	3292200 pt	3363995104	3714705	3714705	3364143100	3761300	3761300
3363401747 pt	3292200 pt	3292211 pt	3363995107	3714707	3714707	3364145	37616	37616
3363401747 pt	3292200 pt	3292211 pt	3363995111	3714714	3714714	3364145100	3761600	3761600
3363401747 pt	3292200 pt	3292258 pt	3363995YVW	3714700	3714700	3364147	37612	37612
3363401747 pt	3714827	3714827	3363997 pt	35199 pt	35199 pt	3364147101	3761201	3761201
3363401YVW pt	3292200 pt	3292200 pt	3363997 pt	37142 pt	37142 pt	3364147204	3761202	3761202
3363401YVW pt	3714800	3714800	3363997 pt	37149 pt	37149 pt	3364147YVW	3761200	3761200
3363401YVW pt	3714900 pt	3714900 pt	3363997 pt	37149 pt	37149 pt	3364149	37614	37614
3363403	3714A pt	3714A pt	3363997 pt	37149 pt	37149 pt	3364149101	3761401	3761401
3363403101	3714A09	3714A09	3363997 pt	37149 pt	37149 pt	3364149104	3761402	3761402
3363403104	3714A10	3714A10	3363997 pt	37149 pt	37149 pt	3364149YVW	3761400	3761400
3363403107	3714A11	3714A11	3363997 pt	37149 pt	37149 pt	336414A	37617	37617
3363403111	3714A33	3714A33	3363997 pt	37149 pt	37149 pt	336414A101	3761702	3761702
3363403114	3714A35	3714A35	336399701	3714901	3714901	336414A104	3761703	3761703
3363403117	3714A37	3714A37	3363997204	3714902	3714902	336414AYVW	3761700	3761700
3363403114	3714A37	3714A37	3363997307	3714903	3714903	336414W	37610	37610
3363403121	3714A44	3714A41 pt	3363997401	3714235	3714235	336414WYVW	3761000	3761000
3363403YVW	3714A00 pt	3714A00 pt	3363997405	3714236	3714236	336414WYVW	3761002	3761002
336340W pt	32920 pt	32920 pt	3363997409	3519987	3519987	3364151	37645	37645
336340W pt	37140 pt	37140 pt	3363997514	3714909	3714909	3364151101	3764511	3764511
336340WYVW pt	3292000 pt	3292000 pt	3363997524	3714916	3714916	3364151204	3764513	3764513
336340WYVW pt	3714000 pt	3714000 pt	3363997527	3714922	3714922	3364151307	3764515	3764515
336340WYVW pt	3292002 pt	3292002 pt	3363997531	3714923	3714923	3364151YVW	3764500	3764500
336340WYVW pt	3714002 pt	3714002 pt	3363997534	3714931	3714931	3364153	37646	37646
3363501	37146	37146	3363997551	3714951	3714941 pt	3364153101	3764611	3764611
3363501101	3714603	3714603	3363997554	3714A52	3714A41 pt	3364153104	3764613	3764613
3363501104	3714605	3714605	3363997YVW pt	3519900 pt	3519900 pt	3364153107	3764615	3764615
3363501207	3714613	3714613	3363997YVW pt	3714200 pt	3714200 pt	3364153YVW	3764600	3764600
3363501211	3714615	3714615	3363997YVW pt	3714900 pt	3714900 pt	3364155	37647	37647
3363501313	3714623	3714623	3363997YVW pt	3714A00 pt	3714A00 pt	3364155101	3764711	3764711
3363501316	3714625	3714625	3363999W pt	35190 pt	35190 pt	3364155104	3764713	3764713
3363501434	3714641	3714641	3363999WYVW pt	3519002 pt	3519002 pt	3364155107	3764715	3764715
3363501519	3714628	3714628	3364111	37211	37211	3364155YVW	3764700	3764700
3363501522	3714631	3714631	3364111100	3721100	3721100	3364157	37648	37648
3363501525	3714633	3714633	3364113	37215	37215	3364157101	3764811	3764811
3363501528	3714635	3714635	3364113000	3721500	3721500	3364157104	3764813	3764813
3363501531	3714637	3714637	3364115	37217	37217	3364157107	3764815	3764815
3363501537	3714643	3714643	3364115101	3721711	3721711	3364157YVW	3764800	3764800
3363501541	3714649	3714649	3364115104	3721751	3721751	336415W	37640	37640
3363501YVW	3714600	3714600	3364115YVW	3721700	3721700	336415WYVW	3764000	3764000
3363503	3714A pt	3714A pt				336415WYVW	3764002	3764002
3363503101	3714A04	3714A04						
3363503104	3714A27	3714						

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3364191	37692	37692	3366115	37313	37313	3366127119	3732719	3732719
336419101	3769211	3769211	3366115101	3731315	3731315	3366127YVW	3732700	3732700
336419104	3769213	3769213	3366115107	3731335	3731335	336612W	37320 pt	37320 pt
3364191207	3769219	3769219	3366115111	3731343	3731343	336612WYVW	3732000 pt	3732000 pt
3364191311	3769225	3769225	3366115113	3731348	3731348	336612WYVWY	3732002 pt	3732002 pt
3364191413	3769235	3769235	3366115116	3731357	3731357	3369911 pt	37511	37511
3364191YVW	3769200	3769200	3366115119	3731321	3731321	3369911 pt	39443 pt	39443 pt
			3366115121	3731332	3731332	3369911101 pt	3751148 pt	3751139
3364193	37694	37694	3366115123	3731333	3731333	3369911101 pt	3751148 pt	3751141
3364193101	3769414	3769414	3366115124 pt	3731361 pt	3731324	3369911101 pt	3751148 pt	3751143
3364193104	3769419	3769419	3366115124 pt	3731361 pt	3731326	3369911101 pt	3751148 pt	3751145
3364193107	3769425	3769425	3366115124 pt	3731361 pt	3731328	3369911101 pt	3751148 pt	3751147
3364193111	3769435	3769435	3366115YVW	3731300	3731300	3369911101 pt	3751148 pt	3751149
3364193YVW	3769400	3769400				3369911101 pt	3751148 pt	3751155
			3366117	37314	37314	3369911104 pt	3751109	3751109
336419W	37690	37690	3366117101	3731441	3731441	3369911104 pt	3944336	3944346 pt
336419WYVW	3769000	3769000	3366117104	3731449	3731449	3369911109	3751110	3751110
336419WYVWY	3769002	3769002	3366117YVW	3731400	3731400	3369911113	3751112	3751112
						3369911116	3751115	3751115
3365101	37431 pt	37431 pt	3366119	37316	37316	3369911119	3751116	3751116
3365101101	3743102	3743101 pt	3366119101	3731601	3731601	3369911122 pt	3751124 pt	3751113
3365101104	3743104	3743101 pt	3366119104	3731602	3731602	3369911122 pt	3751124 pt	3751114
3365101107	3743105	3743101 pt	3366119YVW	3731600	3731600	3369911122 pt	3751124 pt	3751123
3365101111	3743113	3743103 pt				3369911YVW pt	3751100	3751100
3365101YVW	3743100 pt	3743100 pt	336611W	37310	37310	3369911YVWY pt	3944300 pt	3944300 pt
			336611WYVW	3731000	3731000	3369913	37512	37512
3365103	37432	37432	336611WYVWY	3731002	3731002	3369913100 pt	3751200 pt	3751200
3365103100	3743200 pt	3743200				3369913100 pt	3751200 pt	3751201
3365103100 pt	3743200 pt	3743211	3366121	37322	37322	3369913100 pt	3751200 pt	3751209
3365103100 pt	3743200 pt	3743215	3366121101	3732201	3732201	3369919 pt	37510	37510
3365103100 pt	3743200 pt	3743235	3366121104	3732202	3732202	3369919 pt	39440 pt	39440 pt
3365103100 pt	3743200 pt	3743241	3366121107	3732211	3732211	3369919YVWY pt	3751002	3751002
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			3366121113	3732209	3732219 pt	3369920 pt	37110 pt	37110 pt
3365105 pt	3531X pt	3531M pt	3366121116	3732210	3732219 pt	3369920 pt	37114 pt	37114 pt
			3366121119	3732220	3732219 pt	3369920 pt	37950	37950
			3366121225	3732221	3732221	3369920111	3795001	3795001
3365105 pt	3531X pt	3531P pt	3366121225	3732223	3732223	3369920214	3795051	3795051
			3366121228	3732225	3732225	3369920216	3711401	3711400 pt
						3369920217	3795098	3795098
3365105 pt	37433	37433	3366121231	3732227	3732227	3369920YVW pt	3711000 pt	3711000 pt
3365105301	3743301	3743301	3366121234	3732226	3732229 pt	3369920YVW pt	3711400 pt	3711400 pt
3365105304	3743305	3743305	3366121239	3732222	3732229 pt	3369920YVWY pt	3795000	3795000
3365105405	3531X21	3531P21	3366121243	3732224	3732229 pt	3369920YVWY pt	3711002 pt	3711002 pt
3365105407	3743304	3743304	3366121246	3732231	3732228 pt	3369920YVWY pt	3795002	3795002
3365105411	3743311	3743311	3366121248	3732228	3732228	3369991	37993	37993
3365105413	3743312	3743312	3366121337	3732228	3732228	3369991101	3799382	3799382
3365105416	3743314	3743314	3366121YVW	3732200	3732200	3369991104	3799384	3799384
3365105419 pt	3531X80	3531M21 pt				3369991YVW	3799300	3799300
3365105419 pt	3743319	3743319	3366123	37323	37323	3369993	37999 pt	37999 pt
3365105YVW pt	3531X00 pt	3531M00 pt	3366123104	3732311	3732311	3369993101	3799903	3799903
3365105YVW pt	3531X00 pt	3531P00 pt	3366123107	3732316	3732316	3369993204	3799904	3799904
3365105YVW pt	3743300	3743300	3366123201	3732304	3732304	3369993307	3799905	3799905
			3366123211	3732321	3732321	33699933414	3799916	3799923 pt
336510W pt	35310 pt	35310 pt	3366123YVW	3732300	3732300	3369993417	3799915	3799923 pt
						3369993421	3799920	3799923 pt
336510W pt	37430 pt	37430 pt	3366125	37324	37324	3369993513	3799925	3799925
336510WYVW pt	3531000 pt	3531000 pt	3366125107	3732405	3732405	3369993YVW	3799900 pt	3799900 pt
336510WYVW pt	3743000 pt	3743000 pt	3366125201	3732401	3732401	336999W	37990 pt	37990 pt
336510WYVWY pt	3531002 pt	3531002 pt	3366125204	3732403	3732403	336999WYVW	3799000 pt	3799000 pt
336510WYVWY pt	3743002 pt	3743002 pt	3366125211	3732406	3732409 pt	336999WYVWY	3799002 pt	3799002 pt
			3366125213 pt	3732408 pt	3732407			
			3366125213 pt	3732408 pt	3732409 pt			
			3366125YVW	3732400	3732400			
3366111	37311	37311						
3366111101	3731111	3731111	3366127	37327	37327			
3366111104	3731107	3731107	3366127101	3732702	3732702			
3366111107	3731119	3731119	3366127104	3732704	3732704			
3366111YVW	3731100	3731100	3366127107	3732706	3732706			
			3366127111	3732708	3732708			
			3366127113	3732712	3732712			
3366113	37312	37312	3366127116	3732717	3732717			
3366113100	3731200	3731200						

