

Power, Distribution, and Specialty Transformer Manufacturing

1997

Issued September 1999

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1997 Economic Census

Manufacturing

Industry Series



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

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-- 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) | | | | |
| 335311 | Power, distribution, & specialty transformer mfg | 276 | 318 | 26 644 | 819 605 | 19 918 | 41 039 | 513 997 | 2 558 928 | 2 169 865 | 4 716 216 | 131 271 |
| 354820 | Welding apparatus (pt) | N | | | | | | | | | | |
| 361200 | Transformers | N | 318 | 26 644 | 819 605 | 19 918 | 41 039 | 513 997 | 2 558 928 | 2 169 865 | 4 716 216 | 131 271 |

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) | | | | |
| 335311, POWER, DISTRIBUTION, & SPECIALTY TRANSFORMER MFG | | | | | | | | | | | | |
| United States | - | 318 | 148 | 26 644 | 819 605 | 19 918 | 41 039 | 513 997 | 2 558 928 | 2 169 865 | 4 716 216 | 131 271 |
| Arkansas | - | 6 | 4 | 1 126 | 27 694 | 924 | 2 025 | 20 877 | 58 880 | 77 734 | 136 820 | 1 951 |
| California | 2 | 39 | 12 | 1 309 | 47 365 | 965 | 1 855 | 30 908 | 131 881 | 79 102 | 191 773 | 4 049 |
| Colorado | - | 5 | 2 | 153 | 4 916 | 87 | 189 | 1 963 | 11 138 | 13 254 | 23 805 | 361 |
| Florida | 3 | 15 | 5 | 850 | 18 833 | 691 | 1 096 | 12 698 | 36 699 | 22 170 | 59 869 | 2 847 |
| Illinois | - | 24 | 15 | 2 470 | 69 632 | 1 701 | 3 474 | 32 361 | 248 119 | 172 035 | 413 308 | 12 176 |
| Indiana | - | 7 | 5 | 964 | 42 393 | 710 | 1 607 | 28 262 | 97 308 | 85 788 | 185 403 | 2 095 |
| Massachusetts | 4 | 8 | 3 | 203 | 5 987 | 129 | 226 | 2 760 | 14 932 | 8 203 | 22 333 | 707 |
| Michigan | 3 | 5 | 3 | 285 | 7 928 | 170 | 314 | 3 530 | 17 959 | 16 204 | 35 061 | 482 |
| Minnesota | 4 | 9 | 3 | 105 | 2 655 | 75 | 136 | 1 556 | 5 535 | 3 405 | 8 872 | 230 |
| Mississippi | - | 8 | 6 | 3 868 | 101 909 | 3 129 | 7 860 | 66 790 | 457 995 | 278 220 | 739 281 | 28 602 |
| Missouri | - | 8 | 6 | 1 474 | 51 168 | 1 189 | 1 747 | 36 820 | 135 415 | 175 723 | 309 507 | 8 661 |
| New Hampshire | 4 | 4 | 2 | 129 | 4 243 | 86 | 172 | 1 926 | 9 580 | 8 025 | 17 022 | 384 |
| New Jersey | 3 | 19 | 7 | 630 | 20 383 | 492 | 1 108 | 14 098 | 46 021 | 38 047 | 85 305 | 3 950 |
| New York | 3 | 11 | 4 | 346 | 11 042 | 195 | 437 | 4 802 | 23 961 | 13 855 | 39 681 | 658 |
| North Carolina | - | 9 | 5 | 1 160 | 39 312 | 821 | 1 632 | 22 269 | 107 403 | 83 439 | 188 477 | 12 624 |
| Ohio | 5 | 7 | 4 | 329 | 9 489 | 243 | 528 | 6 038 | 18 207 | 14 473 | 32 903 | 1 287 |
| Pennsylvania | 4 | 10 | 4 | 142 | 3 493 | 97 | 177 | 2 101 | 6 454 | 7 825 | 14 304 | 549 |
| Tennessee | - | 9 | 6 | 773 | 21 369 | 525 | 1 089 | 11 671 | 61 939 | 65 959 | 128 815 | 2 329 |
| Texas | - | 27 | 8 | 797 | 22 681 | 563 | 1 108 | 13 518 | 58 272 | 120 832 | 182 397 | 5 851 |
| Virginia | - | 12 | 6 | 1 331 | 39 967 | 844 | 1 788 | 22 265 | 118 341 | 105 996 | 224 540 | 11 291 |

* 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 |
|----------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|---------------------|
| 335311, POWER, DISTRIBUTION, & SPECIALTY TRANSFORMER MFG | | 335311, POWER, DISTRIBUTION, & SPECIALTY TRANSFORMER MFG—Con. | |
| Companies ¹ | number.. 276 | Value added | \$1,000.. 2 558 928 |
| All establishments | number.. 318 | Total inventories, beginning of year | \$1,000.. 507 927 |
| Establishments with 1 to 19 employees | number.. 170 | Finished goods inventories, beginning of year | \$1,000.. 123 287 |
| Establishments with 20 to 99 employees | number.. 80 | Work-in-process inventories, beginning of year | \$1,000.. 164 453 |
| Establishments with 100 employees or more | number.. 68 | Materials and supplies inventories, beginning of year | \$1,000.. 220 187 |
| All employees | number.. 26 644 | Total inventories, end of year | \$1,000.. 526 052 |
| Total compensation ² | \$1,000.. 1 031 538 | Finished goods inventories, end of year | \$1,000.. 135 609 |
| Annual payroll | \$1,000.. 819 605 | Work-in-process inventories, end of year | \$1,000.. 164 708 |
| Total fringe benefits | \$1,000.. 211 933 | Materials and supplies inventories, end of year | \$1,000.. 225 735 |
| Production workers, average for year | number.. 19 918 | Gross book value of total assets at beginning of year | \$1,000.. 1 112 720 |
| Production workers on March 12 | number.. 20 040 | Total capital expenditures (new and used) | \$1,000.. 131 271 |
| Production workers on May 12 | number.. 20 010 | Capital expenditures for buildings and other structures (new and used) | \$1,000.. 31 078 |
| Production workers on August 12 | number.. 19 743 | Capital expenditures for machinery and equipment (new and used) | \$1,000.. 100 193 |
| Production workers on November 12 | number.. 19 879 | Total retirements ² | \$1,000.. 39 721 |
| Production-worker hours | 1,000.. 41 039 | Gross book value of total assets at end of year | \$1,000.. 1 204 270 |
| Production-worker wages | \$1,000.. 513 997 | Total depreciation during year ² | \$1,000.. 80 360 |
| Total cost of materials | \$1,000.. 2 169 865 | Total rental payments ² | \$1,000.. 47 748 |
| Cost of materials, parts, containers, etc., consumed | \$1,000.. 2 037 242 | Buildings and other structures rental payments ² | \$1,000.. 16 959 |
| Cost of resales | \$1,000.. 76 130 | Machinery and equipment rental payments ² | \$1,000.. 30 789 |
| Cost of fuels | \$1,000.. 12 063 | Cost of purchased services for the repair of buildings and other structures ³ | \$1,000.. 19 567 |
| Cost of purchased electricity | \$1,000.. 31 574 | Response coverage ratio ⁴ | percent.. 93 |
| Cost of contract work | \$1,000.. 12 856 | Cost of purchased services for the repair of machinery and equipment ³ | \$1,000.. 54 066 |
| Quantity of electricity purchased for heat and power | 1,000 kWh.. 587 590 | Response coverage ratio ⁴ | percent.. 93 |
| Quantity of electricity generated less sold for heat and power | 1,000 kWh.. D | Cost of purchased communications services ³ | \$1,000.. 22 599 |
| Total value of shipments | \$1,000.. 4 716 216 | Response coverage ratio ⁴ | percent.. 93 |
| Primary products value of shipments | \$1,000.. 4 473 791 | Cost of purchased legal services ³ | \$1,000.. 12 351 |
| Secondary products value of shipments | \$1,000.. 98 967 | Response coverage ratio ⁴ | percent.. 93 |
| Total miscellaneous receipts | \$1,000.. 143 458 | Cost of purchased accounting and bookkeeping services ³ | \$1,000.. 8 024 |
| Value of resales | \$1,000.. 99 396 | Response coverage ratio ⁴ | percent.. 93 |
| Contract receipts | \$1,000.. 8 053 | Cost of purchased advertising services ³ | \$1,000.. 30 945 |
| Other miscellaneous receipts | \$1,000.. 36 009 | Response coverage ratio ⁴ | percent.. 93 |
| Primary products specialization ratio | percent.. 97 | Cost of purchased software and other data processing services ³ | \$1,000.. 3 927 |
| Value of primary products shipments made in all industries | \$1,000.. 4 626 284 | Response coverage ratio ⁴ | percent.. 93 |
| Value of primary products shipments made in this industry | \$1,000.. 4 473 791 | Cost of purchased refuse removal (including hazardous waste) services ³ | \$1,000.. 5 142 |
| Value of primary products shipments made in other industries | \$1,000.. 152 493 | Response coverage ratio ⁴ | percent.. 93 |
| 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) | | | | |
| 335311, POWER, DISTRIBUTION, & SPECIALTY TRANSFORMER MFG | | | | | | | | | | | | |
| All establishments | - | 318 | 148 | 26 644 | 819 605 | 19 918 | 41 039 | 513 997 | 2 558 928 | 2 169 865 | 4 716 216 | 131 271 |
| Establishments with 1 to 4 employees | 8 | 73 | - | 160 | 6 326 | 123 | 222 | 4 351 | 10 742 | 10 692 | 21 858 | 697 |
| Establishments with 5 to 9 employees | 8 | 46 | - | 319 | 8 819 | 244 | 444 | 5 725 | 21 060 | 18 351 | 40 198 | 1 220 |
| Establishments with 10 to 19 employees | 6 | 51 | - | 706 | 17 924 | 523 | 890 | 11 347 | 56 825 | 34 211 | 88 927 | 1 722 |
| Establishments with 20 to 49 employees | 2 | 44 | 44 | 1 397 | 37 325 | 1 028 | 2 038 | 22 647 | 96 675 | 94 251 | 193 263 | 4 476 |
| Establishments with 50 to 99 employees | - | 36 | 36 | 2 497 | 70 887 | 1 773 | 3 672 | 40 875 | 190 580 | 181 225 | 374 484 | 9 090 |
| Establishments with 100 to 249 employees | 1 | 37 | 37 | 6 031 | 177 506 | 4 238 | 8 589 | 98 012 | 428 838 | 426 094 | 856 129 | 23 657 |
| Establishments with 250 to 499 employees | - | 21 | 21 | 7 317 | 264 254 | 5 379 | 11 357 | 168 214 | 736 132 | 708 124 | 1 420 071 | 48 665 |
| Establishments with 500 to 999 employees | - | 9 | 9 | D | D | D | D | D | D | D | D | D |
| Establishments with 1,000 to 2,499 employees | - | 1 | 1 | D | D | D | D | D | D | D | D | D |
| Establishments with 2,500 employees or more | - | - | - | - | - | - | - | - | - | - | - | - |
| Administrative records ² | 9 | 132 | - | 871 | 21 398 | 675 | 1 159 | 14 831 | 46 500 | 47 857 | 96 208 | 2 504 |

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) | | | | |
| 335311 | Power, distribution, & specialty transformer mfg | 318 | 26 644 | 819 605 | 19 918 | 41 039 | 513 997 | 2 558 928 | 2 169 865 | 4 716 216 | 131 271 |
| 3353111 | Power and distribution transformers, except parts | 56 | 13 231 | 465 886 | 9 858 | 21 509 | 307 732 | 1 057 909 | 1 321 672 | 2 367 812 | 85 227 |
| 3353113 | Specialty transformers, except fluorescent lamp ballasts | 32 | 3 965 | 91 893 | 3 240 | 6 175 | 60 034 | 405 300 | 189 028 | 587 335 | 11 103 |
| 3353115 | Fluorescent lamp ballasts | 15 | 3 536 | 84 868 | 2 752 | 5 404 | 47 726 | 562 058 | 309 612 | 866 330 | 13 058 |
| 3353117 | Commercial, institutional, and industrial general-purpose transformers, all voltages | 27 | 2 314 | 66 426 | 1 701 | 3 292 | 40 966 | 200 838 | 130 790 | 335 329 | 6 292 |
| 3353119 | Power regulators, boosters, and other transformers and parts for all transformers | 21 | 1 938 | 66 060 | 1 101 | 2 414 | 27 281 | 252 148 | 135 046 | 390 661 | 11 172 |

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) |
| 335311 | Power, distribution, and specialty transformers | N | X | X | 4 626 284 | N | X | X | N |
| 3353111 | Power and distribution transformers, except parts | N | X | X | 2 174 325 | N | X | X | 2 157 439 |
| 33531111 | Distribution transformers, except parts, overhead type, single-phase, liquid-immersed; 500 kVA and smaller (excluding general-purpose) | N | X | X | 521 083 | N | X | X | N |
| 3353111101 | Distribution transformers, except parts, overhead type, single-phase, liquid-immersed; 500 kVA and smaller (excluding general-purpose) | 18 | X | X | 521 083 | 18 | X | X | 463 202 |
| 33531112 | Distribution transformers, except parts, compartmentalized pad-mounted, single-phase, liquid-immersed; 500 kVA and smaller (excluding general-purpose) | N | X | X | 230 351 | N | X | X | N |
| 3353111204 | Distribution transformers, compartmentalized pad-mounted, single-phase, liquid-immersed; 500 kVA and smaller (excluding general-purpose and parts) | 13 | X | X | 230 351 | 15 | X | X | 215 802 |
| 33531113 | Other distribution transformers, except parts, including network transformers, single-phase, and liquid-immersed (all voltages) (excluding general-purpose) | N | X | X | 328 335 | N | X | X | N |
| 3353111307 | Distribution transformers, except parts, subsurface and subway types, single-phase, liquid-immersed; 500 kVA and smaller (excluding general-purpose) | 4 | X | X | 14 944 | 6 | X | X | 15 540 |
| 3353111311 | Distribution three-phase transformers, except parts, 500 kVA and smaller, liquid-immersed (all voltages) (excluding general-purpose) | 15 | X | X | 184 808 | 16 | X | X | 136 493 |
| 3353111313 | Distribution network transformers, except parts, all ratings, excluding network protectors (excluding general-purpose) | 4 | X | X | D | 6 | X | X | 39 922 |
| 3353111316 | Distribution transformers, except parts, single-phase and three-phase, pad-mounted (dry); 500 kVA and smaller (excluding general-purpose) | 9 | X | X | D | 10 | X | X | D |
| 33531114 | Small conventional and power transformers; single- and three-phase (all voltages); primary and secondary unit substations | N | X | X | 683 934 | N | X | X | N |
| 3353111419 | Small power transformers, single- and three-phase, all voltages, compartmentalized pad-mounted and subsurface underground and conventional subway type 501 kVA through 2500 kVA liquid-immersed | 12 | X | X | 288 745 | 16 | X | X | 75 964 |
| 3353111422 | Small conventional transformers and autotransformers, single- and three-phase, all voltages, primary unit substation and single circuit unit substations 501 kVA through 2500 kVA liquid-immersed | 9 | X | X | 80 914 | 13 | X | X | D |
| 3353111425 | Small power transformers, single- and three-phase, all voltages, liquid-immersed conventionals, primary unit and single circuit unit substations, 2501 kVA through 10,000 kVA, liquid and nonliquid | 14 | X | X | 108 202 | 14 | X | X | 106 984 |
| 3353111428 | Dry-type small power transformers, conventional, primary unit substation, and core and coil units, single- and three-phase, all voltages | 10 | X | X | 93 125 | 21 | X | X | 96 656 |
| 3353111431 | Secondary unit substation power transformers, liquid-immersed, all kVA ratings | 5 | X | X | 65 617 | 6 | X | X | D |
| 3353111434 | Secondary unit substation power transformers, dry-type, all kVA ratings | 6 | X | X | 47 331 | 8 | X | X | 57 844 |
| 33531115 | Large liquid-immersed power transformers with and without load-tap-changing | N | X | X | 398 727 | N | X | X | N |
| 3353111537 | Large power transformers with load-tap-changing, 10,001 kVA, OA to 30,000 kVA, OA (50,000 kVA, top FOA), liquid-immersed | 7 | X | X | 152 792 | 11 | X | X | 189 587 |
| 3353111541 | Large power transformers without load-tap-changing, 10,001 kVA, OA to 30,000 kVA, OA (50,000 kVA, top FOA), liquid-immersed | 8 | X | X | D | 9 | X | X | 84 641 |
| 3353111543 | Large liquid-immersed power transformers with load-tap-changing, 30,001 kVA, OA (50,000 kVA, top FOA) to 100,000 kVA, OA (167,000 kVA, top FOA) | 4 | X | X | 22 849 | 7 | X | X | 65 733 |

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) |
| 335311 | Power, distribution, and specialty transformers—Con. | | | | | | | | |
| 3353111 | Power and distribution transformers, except parts—Con. | | | | | | | | |
| 33531115 | Large liquid-immersed power transformers with and without load-tap-changing—Con. | | | | | | | | |
| 3353111546 | Large liquid-immersed power transformers without load-tap-changing, 30,001 kVA, OA (50,001 kVA, top FOA) to 100,000 kVA, OA (167,000 kVA, top FOA) | 5 | X | X | 24 795 | 5 | X | X | 66 572 |
| 3353111549 | Large liquid-immersed power transformers with load-tap-changing, 100,001 kVA, OA (167,001 kVA, top FOA) and larger | 2 | X | X | D | 4 | X | X | 56 852 |
| 3353111552 | Large liquid-immersed power transformers without load-tap-changing, 100,001 kVA, OA (167,001 kVA, top FOA) and larger | 2 | X | X | D | 5 | X | X | 153 287 |
| 3353111Y | Power and distribution transformers, except parts, nsk | N | X | X | 11 895 | N | X | X | N |
| 3353111YWV | Power and distribution transformers, except parts, nsk | N | X | X | 11 895 | N | X | X | 16 925 |
| 3353113 | Specialty transformers, except fluorescent lamp ballasts | N | X | X | 513 299 | N | X | X | N |
| 33531131 | Specialty transformers, except fluorescent lamp ballast | N | X | X | 507 100 | N | X | X | N |
| 3353113101 | Open core and coil units, excluding machine tool control transformers and all units end-bell enclosed (250 VA and under) | 17 | X | X | 76 840 | 14 | X | X | 29 492 |
| 3353113104 | Machine tool control transformers | 14 | X | X | D | 14 | X | X | 28 127 |
| 3353113107 | Transformers for arc welders | 2 | X | X | D | N | X | X | N |
| 3353113109 | Indoor and outdoor current instrument transformers | 11 | X | X | 45 241 | 10 | X | X | 51 254 |
| 3353113113 | Indoor and outdoor voltage instrument transformers | 6 | X | X | 18 364 | 10 | X | X | 34 791 |
| 3353113115 | High intensity discharge lamp transformers, also known as ballasts | 7 | X | X | 181 056 | 6 | X | X | N |
| 3353113116 | All other specialty transformers (including luminous tube transformers and ignition transformers but excluding internal combustion engine ignition) | 18 | X | X | 127 998 | 18 | X | X | N |
| 3353113Y | Specialty transformers, except fluorescent lamp ballast, nsk | N | X | X | 6 199 | N | X | X | N |
| 3353113YWV | Specialty transformers, except fluorescent lamp ballast, nsk | N | X | X | 6 199 | N | X | X | N |
| 3353115 | Fluorescent lamp ballasts @ | N | X | X | 968 909 | N | X | X | 794 969 |
| 33531150 | Fluorescent lamp ballasts | N | X | X | 968 909 | N | X | X | N |
| 3353115000 | Fluorescent lamp ballasts | 17 | X | X | 968 909 | 15 | X | X | 794 969 |
| 3353117 | Commercial, institutional, and industrial general-purpose transformers, all voltages # | N | X | X | 302 482 | N | X | X | 271 530 |
| 33531171 | Commercial, institutional, and industrial general-purpose transformers, all voltages | N | X | X | 288 069 | N | X | X | N |
| 3353117101 | Commercial, institutional, and industrial general-purpose transformers, single- and three-phase, 3 kVA and below, all voltages | 21 | X | X | 140 235 | 21 | X | X | 58 843 |
| 3353117104 | Commercial, institutional, and industrial general-purpose transformers, single- and three-phase, 3.01 kVA through 15 kVA, all voltages | 14 | X | X | 22 837 | 14 | X | X | 25 802 |
| 3353117107 | Commercial, institutional, and industrial general-purpose transformers, single- and three-phase, 15.01 kVA through 100 kVA, all voltages | 15 | X | X | 42 056 | 16 | X | X | 43 434 |
| 3353117111 | Commercial, institutional, and industrial general-purpose transformers, single- and three-phase, 100.01 kVA and above, all voltages | 12 | X | X | 25 322 | 17 | X | X | 23 074 |
| 3353117113 | Other commercial, institutional, and industrial general-purpose transformers, including saturable core reactors and voltage regulating transformers | 18 | X | X | 57 619 | N | X | X | N |
| 3353117Y | Commercial, institutional, and industrial general-purpose transformers, all voltages, nsk | N | X | X | 14 413 | N | X | X | N |
| 3353117YWV | Commercial, institutional, and industrial general-purpose transformers, all voltages, nsk | N | X | X | 14 413 | N | X | X | 16 475 |

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) |
| 335311 | Power, distribution, and specialty transformers—Con. | | | | | | | | |
| 3353119 | Power regulators, boosters, and other transformers and parts for all transformers # | N | X | X | 495 127 | N | X | X | 312 710 |
| 33531191 | Power regulators, boosters, and other transformers and parts for all transformers | N | X | X | 476 472 | N | X | X | N |
| 3353119101 | Transmission and distribution voltage regulators, boosters, and other special-purpose transformers | 35 | X | X | 320 162 | 15 | X | X | 141 496 |
| 3353119104 | Parts, including renewal and repair parts, subassemblies and accessories for all transformers | 20 | X | X | 156 310 | 14 | X | X | 132 163 |
| 3353119Y | Power regulators, boosters, and other transformers and parts for all transformers, nsk | N | X | X | 18 655 | N | X | X | N |
| 3353119YVV | Power regulators, boosters, and other transformers and parts for all transformers, nsk | N | X | X | 18 655 | N | X | X | 39 051 |
| 335311W | Transformers, except electronic, nsk, total | N | X | X | 172 142 | N | X | X | N |
| 335311WY | Transformers, except electronic, nsk, total | N | X | X | 172 142 | N | X | X | N |
| 335311WYWW | Transformers, except electronic, nsk, for nonadministrative-record establishments | N | X | X | 80 101 | N | X | X | N |
| 335311WYWY | Transformers, except electronic, nsk, for administrative-record establishments | N | X | X | 92 041 | 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 |
| 3353111 | POWER AND DISTRIBUTION TRANSFORMERS, EXCEPT PARTS | | |
| | United States | 2 174 325 | 2 157 439 |
| | California | 109 766 | 121 067 |
| | Mississippi | 423 558 | 228 026 |
| | New Jersey | 26 795 | 16 125 |
| | Texas | 72 175 | 51 254 |
| | Virginia | 223 078 | 151 884 |
| | Wisconsin | 366 177 | 290 862 |
| 3353113 | SPECIALTY TRANSFORMERS, EXCEPT FLOURESCENT LAMP BALLASTS | | |
| | United States | 513 299 | N |
| | California | 24 754 | N |
| | Illinois | 29 773 | N |
| | New Jersey | 9 355 | N |
| | Ohio | 9 734 | N |
| | Texas | 6 431 | N |
| | Wisconsin | 163 724 | N |
| 3353115 | FLUORESCENT LAMP BALLASTS @ | | |
| | United States | 968 909 | 794 969 |
| | Illinois | 179 410 | 119 023 |
| 3353117 | COMMERCIAL, INSTITUTIONAL, AND INDUSTRIAL GENERAL-PURPOSE TRANSFORMERS, ALL VOLTAGES # | | |
| | United States | 302 482 | 271 530 |
| | California | 26 592 | 14 312 |
| | New Jersey | 24 677 | 16 463 |
| | New York | 3 833 | N |
| | Ohio | 3 313 | 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 |
| 3353119 | POWER REGULATORS, BOOSTERS, AND OTHER TRANSFORMERS AND PARTS FOR ALL TRANSFORMERS # | | |
| | United States | 495 127 | 312 710 |
| | Alabama | 58 396 | N |
| | California | 12 341 | N |
| | Connecticut | 11 417 | N |
| | Illinois | 120 919 | N |
| | New Jersey | 3 455 | 2 049 |
| | Virginia | 16 365 | N |
| | Wisconsin | 77 503 | 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) |
| 335311 | POWER, DISTRIBUTION, & SPECIALTY TRANSFORMER MFG | | | | |
| 33272203 | Metal bolts, nuts, screws, washers, rivets, and other screw machine products | X | 35 477 | X | N |
| 33200095 | Other fabricated metal products (except forgings) | X | 79 947 | X | N |
| 33210001 | Forgings | X | D | X | N |
| 33142111 | Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products) | X | 33 740 | X | N |
| 33100083 | Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products) | X | 5 444 | X | N |
| 33500007 | Electrical industrial capacitors, resistors, rheostats, and coil windings | X | 167 715 | X | N |
| 33100035 | Castings (rough and semifinished) | X | D | X | 2 938 |
| 33120001 | Steel shapes and forms (except castings, forgings, and fabricated metal products) | X | 523 009 | X | N |
| 33131501 | Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing | X | 50 455 | X | 28 803 |
| 33100055 | All other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products) | X | 14 776 | X | 33 893 |
| 33100097 | Magnet wire | X | 242 773 | X | 117 042 |
| 331000A1 | Insulated wire and cable, except magnet wire | X | 33 574 | X | 40 862 |
| 32410003 | Refined petroleum products (transformer oils, lubricating oils and greases, etc.) | X | 75 312 | X | 59 608 |
| 32711301 | Porcelain, steatite, and other ceramic electrical products | X | 65 592 | X | 45 154 |
| 32210015 | Paper and paperboard products except paperboard boxes, containers, and corrugated paperboard | X | 52 063 | X | 53 563 |
| 32551003 | Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products | X | 24 158 | X | 16 798 |
| 33593101 | Current-carrying wiring devices | X | 51 552 | X | 41 138 |
| 00970099 | All other materials and components, parts, containers, and supplies | X | 259 307 | X | N |
| 00971000 | Materials, ingredients, containers, and supplies, n.s.k. | X | 310 660 | 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

335311 POWER, DISTRIBUTION, AND SPECIALTY TRANSFORMER MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing power, distribution, and specialty transformers (except electronic components). Industrial-type and consumer-type transformers in this industry vary (e.g., step up or step down) voltage but do not convert alternating to direct or direct to alternating current.

The data published with NAICS code 335311 include the following SIC industries:

3548 Welding apparatus (pt)
3612 Transformers

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 |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| @3353115 | For additional detail, see Current Industrial Report MQ335C, Fluorescent Lamp Ballasts. |
| # 3353117 | Historic 1994-1996 ASM data will not appear comparable to 1992 or 1997 Census data due to significant variability (large relative standard error) associated with this ASM estimate. This variability does not meet publication standards. [See Appendix G] |
| # 3353119 | Historic 1994-1996 ASM data will not appear comparable to 1992 or 1997 Census data due to significant variability (large relative standard error) associated with this ASM estimate. This variability does not meet publication standards. [See Appendix G] |

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 |
|-------------------|----------------|----------------|---------------------|-----------------|-----------------|--------------------|-----------------|------------------|
| 3351101 | 36411 | 36411 | 3352121 | 36350 pt | 36350 pt | 3353113 pt..... | 36123 | 36123 |
| 335110100 | 3641100 | 3641100 | 335212101 | 3635041 | 3635041 | 3353113101 | 3612301 | 3612301 |
| 3351103 | 36412 | 36412 | 335212103 | 3635011 | 3635011 | 3353113104 | 3612302 | 3612302 |
| 3351103100 | 3641200 | 3641200 | 3352121105 | 3635033 | 3635033 | 3353113107 | 3548105 | 3548104 pt |
| 335110W | 36410 | 36410 | 3352121107 pt..... | 3635044 pt..... | 3635031 | 3353113109 | 3612306 | 3612306 |
| 335110WYWW | 3641000 | 3641000 | 3352121107 pt..... | 3635044 pt..... | 3635036 | 3353113113 | 3612307 | 3612307 |
| 335110WYWWY | 3641002 | 3641002 | 3352121111 | 3635051 | 3635051 | 3353113115 | 3612308 | 3612308 |
| 3351211 | 36451 | 36451 | 3352121113 | 3635071 | 3635071 | 3353113116 | 3612311 | 3612311 |
| 3351211000 | 3645100 | 3645100 | 3352121YVV | 3635000 pt..... | 3635000 pt..... | 3353113YVV pt.... | 3548100 pt..... | 3548100 pt..... |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352122 | 36395 pt | 36395 pt | 3353115 | 36124 | 36124 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352122211 | 3639525 | 3639520 pt..... | 3353115000 | 3612400 | 3612400 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352122219 | 3639513 | 3639510 pt..... | 3353117 | 36126 | 36126 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352122YVV | 3639500 pt..... | 3639500 pt..... | 335311701 | 3612601 | 3612601 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335212W pt | 36350 pt | 36350 pt | 3353117104 | 3612602 | 3612602 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335212W pt | 36350 pt | 36350 pt | 3353117107 | 3612603 | 3612603 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335212WYVV pt | 3635000 pt..... | 3635000 pt..... | 3353117111 | 3612604 | 3612604 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335212WYVV pt | 3635000 pt..... | 3635000 pt..... | 3353117113 pt..... | 3612608 pt..... | 3612605 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335212WYVV pt | 3635002 | 3635002 | 3353117113 pt..... | 3612608 pt..... | 3612609 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335212WYVV pt | 3639002 pt..... | 3639002 pt..... | 3353117YVV | 3612600 | 3612600 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352211 | 36311 | 36311 | 3353119 | 36127 | 36127 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352211110 | 3631110 | 3631110 | 3353119101 | 3612701 | 3612701 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352211290 | 3631120 | 3631120 | 3353119104 | 3612778 | 3612778 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352211YVV | 3631100 | 3631100 | 3353119YVV | 3612700 | 3612700 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352213 | 36313 | 36313 | 335311W pt..... | 35480 pt | 35480 pt |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352213110 | 3631310 | 3631310 | 335311W pt..... | 35480 pt | 35480 pt |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352213190 | 3631320 | 3631320 | 335311WYVV pt.... | 3548000 pt..... | 3548000 pt..... |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352213YVV | 3631300 | 3631300 | 335311WYVV pt.... | 3612000 | 3612000 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352215 | 36314 | 36314 | 335311WYVV pt.... | 3612000 | 3612000 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352215110 | 3631410 | 3631410 | 335311WYVV pt.... | 3612002 pt..... | 3548002 pt..... |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352215190 | 3631420 | 3631420 | 335311WYVV pt.... | 3612002 | 3612002 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352215YVV | 3631400 | 3631400 | 3353121 | 36211 | 36211 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335221W | 36310 | 36310 | 3353121000 | 3621100 | 3621100 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335221WYVV | 3631000 | 3631000 | 3353123 | 36212 | 36212 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335221WYVV | 3631002 | 3631002 | 3353123000 | 3621200 | 3621200 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352221 | 36321 | 36321 | 3353125 | 36213 | 36213 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352221000 | 3632100 | 3632100 | 3353125000 | 3621300 | 3621300 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352222 | 36322 | 36322 | 3353127 | 36214 | 36214 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352222000 | 3632200 | 3632200 | 3353127000 | 3621400 | 3621400 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352223 | 36323 | 36323 | 3353129 | 36217 | 36217 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352223000 | 3632300 | 3632300 | 3353129000 | 3621700 | 3621700 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335222W | 36320 | 36320 | 335312A | 36218 | 36218 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335222WYVV | 3632000 | 3632000 | 335312A000 | 3621800 | 3621800 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335222WYVV | 3632002 | 3632002 | 335312C | 36219 | 36219 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352240 | 36330 | 36330 | 335312C000 | 3621900 | 3621900 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352240100 | 3633010 | 3633010 | 335312E | 76940 pt | 76940 pt |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352240190 | 3633020 | 3633020 | 335312E100 pt.... | 7694020 | 7694000 pt..... |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352240YVV | 3633000 | 3633000 | 335312E100 pt.... | 7694000 pt..... | 7694000 pt..... |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352240YVV | 3633002 | 3633002 | 335312W pt..... | 36210 | 36210 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352281 | 36391 | 36391 | 335312W pt..... | 76940 pt | 76940 pt |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352281000 | 3639100 | 3639100 | 335312WYVV pt.... | 3621000 | 3621000 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352283 | 36392 | 36392 | 335312WYVV pt.... | 7694000 pt..... | 7694000 pt..... |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352283000 | 3639200 | 3639200 | 335312WYVV pt.... | 3621002 | 3621002 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352285 | 36395 pt | 36395 pt | 3353131 | 36132 | 36132 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352285110 | 3639511 | 3639510 pt..... | 3353131000 | 3613200 | 3613200 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352285190 | 3639521 | 3639520 pt..... | 3353133 | 36133 | 36133 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3352285YVV | 3639500 pt..... | 3639500 pt..... | 3353133000 | 3613300 | 3613300 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335228W | 36390 pt | 36390 pt | 3353135 | 36134 | 36134 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335228WYVV | 3639000 pt..... | 3639000 pt..... | 3353135000 | 3613400 | 3613400 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335228WYVV | 3639002 pt..... | 3639002 pt..... | 3353137 | 36135 | 36135 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111 | 36122 | 36122 | 3353137000 | 3613500 | 3613500 |
| 3351213 pt..... | 30897 pt | 30897 pt | 335311101 | 3612202 | 3612202 | 3353139 | 36136 | 36136 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111204 | 3612204 | 3612204 | 3353139000 | 3613600 | 3613600 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111307 | 3612206 | 3612206 | 335313A | 36139 | 36139 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111311 | 3612214 | 3612214 | 335313A000 | 3613900 | 3613900 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111313 | 3612216 | 3612216 | 335313W | 36130 | 36130 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111316 | 3612219 | 3612219 | 335313WYVV | 3613000 | 3613000 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111419 | 3612221 | 3612221 | 335313WYVV | 3613002 | 3613002 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111422 | 3612223 | 3612223 | 3353141 | 36251 | 36251 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111425 | 3612228 | 3612228 | 3353141000 | 3625100 | 3625100 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111428 | 3612229 | 3612229 | 3353143 | 36252 | 36252 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111431 | 3612232 | 3612232 | 3353143000 | 3625200 | 3625200 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111434 | 3612233 | 3612233 | 3353145 | 36253 | 36253 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111537 | 3612237 | 3612237 | 3353145000 | 3625300 | 3625300 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111541 | 3612239 | 3612239 | 3353147 | 36254 | 36254 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111543 | 3612241 | 3612241 | 3353147000 | 3625400 | 3625400 |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111546 | 3612242 | 3612242 | | | |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111549 | 3612243 | 3612243 | | | |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111552 | 3612244 | 3612244 | | | |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353111YVV | 3612200 | 3612200 | | | |
| 3351213 pt..... | 30897 pt | 30897 pt | 3353113 pt..... | 35481 pt | 35481 pt | | | |

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|---------------------|------------------|----------------|---------------------|------------------|----------------|----------------------|------------------|----------------|
| 335314W | 36250 | 36250 | 335929A | 3357A | 3357A | 335991332Z | 3624996 | 3624996 |
| 335314WYWW | 3625000 | 3625000 | 335929A100 | 3357A00 | 3357A00 | 3359913YVW | 3624900 | 3624900 |
| 335314WYVW | 3625002 | 3625002 | 335929B | 3357B | 3357B | 335991W | 36240 | 36240 |
| 3359111 | 36913 | 36913 | 335929B100 | 3357B00 | 3357B00 | 335991WYVW | 3624000 | 3624000 |
| 3359111101 | 3691311 | 3691311 | 335929C | 3357C | 3357C | 335991WYVWY | 3624002 | 3624002 |
| 3359111204 | 3691312 | 3691312 | 335929C100 | 3357C00 | 3357C00 | 3359991 | 36291 | 36291 |
| 3359111307 | 3691317 | 3691317 | 335929D | 3357D | 3357D | 3359991101 | 3629101 | 3629101 |
| 3359111YVW | 3691300 | 3691300 | 335929D100 | 3357D00 | 3357D00 | 3359991103 | 3629104 | 3629104 |
| 3359114 | 36914 | 36914 | 335929E | 3357E | 3357E | 3359991YVW | 3629100 | 3629100 |
| 3359114101 | 3691411 | 3691411 | 335929E100 | 3357E00 | 3357E00 | 3359993 | 36292 | 36292 |
| 3359114104 | 3691419 | 3691419 | 335929W | 33570 pt | 33570 pt | 3359993101 | 3629221 | 3629221 |
| 3359114201 | 3691421 | 3691421 | 335929WYVW | 3357000 pt | 3357000 pt | 3359993104 | 3629225 | 3629225 |
| 3359114204 | 3691422 | 3691422 | 335929WYVWY | 3357002 pt | 3357002 pt | 3359993107 | 3629241 | 3629241 |
| 3359114207 | 3691479 | 3691479 | 3359311 | 36431 | 36431 | 3359993111 | 3629245 | 3629245 |
| 3359114YVW | 3691400 | 3691400 | 3359311000 | 3643100 | 3643100 | 3359993213 | 3629251 | 3629251 |
| 3359117 | 36915 | 36915 | 3359313 | 36432 | 36432 | 3359993216 | 3629253 | 3629253 |
| 3359117101 | 3691501 | 3691501 | 3359313000 | 3643200 | 3643200 | 3359993219 | 3629255 | 3629255 |
| 3359117104 | 3691502 | 3691502 | 3359315 | 36433 | 36433 | 3359993219 | 3629255 | 3629255 |
| 3359117201 | 3691591 | 3691591 | 3359315000 | 3643300 | 3643300 | 3359993YVW | 3629200 | 3629200 |
| 3359117YVW | 3691500 | 3691500 | 3359317 | 36434 | 36434 | 3359995 pt | 36293 | 36293 |
| 335911W | 36910 | 36910 | 3359317000 | 3643400 | 3643400 | 3359995 pt | 3699A pt | 3699A pt |
| 335911WYVW | 3691000 | 3691000 | 3359319 | 36435 | 36435 | 3359995101 | 3629301 | 3629301 |
| 335911WYVWY | 3691002 | 3691002 | 3359319000 | 3643500 | 3643500 | 3359995104 | 3629302 | 3629302 |
| 3359120 | 36920 | 36920 | 335931A | 36436 | 36436 | 3359995107 | 3629303 | 3629303 |
| 3359120101 pt | 3692011 pt | 3692001 pt | 335931A000 | 3643600 | 3643600 | 3359995111 | 3629304 | 3629304 |
| 3359120101 pt | 3692011 pt | 3692007 pt | 3359319 | 36435 | 36435 | 3359995137 pt | 3629311 | 3629311 |
| 3359120104 pt | 3692013 pt | 3692001 pt | 3359319000 | 3643500 | 3643500 | 3359995137 pt | 3699A21 | 3699A21 |
| 3359120104 pt | 3692013 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359995YVW pt | 3629300 | 3629300 |
| 3359120107 pt | 3692015 pt | 3692004 pt | 3359321 | 36441 | 36441 | 3359995YVW pt | 3699A00 pt | 3699A00 pt |
| 3359120107 pt | 3692015 pt | 3692007 pt | 3359321000 | 3644100 | 3644100 | 3359997 | 36992 pt | 36992 pt |
| 3359120111 pt | 3692017 pt | 3692005 pt | 3359323 | 36442 | 36442 | 3359997000 pt | 3699271 | 3699200 pt |
| 3359120111 pt | 3692017 pt | 3692007 pt | 3359323000 | 3644200 | 3644200 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120114 pt | 3692019 pt | 3692003 pt | 3359325 | 36443 | 36443 | 3359997000 pt | 3699200 pt | 3699200 pt |
| 3359120114 pt | 3692019 pt | 3692005 pt | 3359325000 | 3644300 | 3644300 | 3359999 | 36992 pt | 36992 pt |
| 3359120114 pt | 3692019 pt | 3692007 pt | 335932W | 36440 | 36440 | 3359999100 pt | 3699297 | 3699200 pt |
| 3359120201 | 3692021 | 3692003 pt | 335932WYVW | 3644000 | 3644000 | 3359999100 pt | 3699297 | 3699200 pt |
| 3359120201 | 3692021 | 3692003 pt | 335932WYVWY | 3644002 | 3644002 | 3359999100 pt | 3699200 pt | 3699200 pt |
| 3359120204 | 3692023 | 3692001 pt | 3359911 | 36241 | 36241 | 335999A | 36995 | 36995 |
| 3359120207 | 3692025 | 3692005 pt | 3359911101 | 3624152 | 3624152 | 335999A000 | 3699500 | 3699500 |
| 3359120211 | 3692027 | 3692005 pt | 3359911204 | 3624156 | 3624156 | 335999B | 36996 pt | 36996 pt |
| 3359120214 pt | 3692029 pt | 3692004 pt | 3359911YVW | 3624100 | 3624100 | 335999B100 pt | 3699600 pt | 3699600 pt |
| 3359120214 pt | 3692029 pt | 3692005 pt | 3359913 | 36249 | 36249 | 335999B100 pt | 3699605 | 3699600 pt |
| 3359120301 | 3692009 | 3692009 | 3359913101 | 3624916 | 3624916 | 335999C | 36999 | 36999 |
| 3359120301 | 3692009 | 3692009 | 3359913101 pt | 3624916 pt | 3624916 | 335999C000 | 3699900 | 3699900 |
| 3359120YVW | 3692000 | 3692000 | 3359913104 | 3624917 | 3624917 | 335999D | 3699900 | 3699900 |
| 3359120YVWY | 3692002 | 3692002 | 3359913104 pt | 3624917 pt | 3624917 | 335999D101 | 3699A pt | 3699A pt |
| 3359210 pt | 33570 pt | 33570 pt | 3359913207 | 3624988 | 3624988 | 335999D203 | 3699A01 | 3699A01 |
| 3359210 pt | 33579 | 33579 | 3359913311 | 3624988 | 3624988 | 335999D305 | 3699A03 | 3699A03 |
| 3359210101 | 3357931 | 3357911 pt | 3359913316 | 3624986 | 3624986 | 335999D407 | 3699A05 | 3699A05 |
| 3359210106 | 3357941 | 3357911 pt | 3359913316 | 3624986 | 3624986 | 335999D407 | 3699A02 | 3699A02 |
| 3359210111 | 3357951 | 3357911 pt | 3359913317 | 3624986 | 3624986 | 335999DYVW | 3699A00 pt | 3699A00 pt |
| 3359210421 | 3357932 | 3357921 pt | 3359913319 | 3624994 | 3624994 | 335999W pt | 36290 | 36290 |
| 3359210426 | 3357942 | 3357921 pt | 3359913319 | 3624994 | 3624994 | 335999W pt | 36990 pt | 36990 pt |
| 3359210431 | 3357952 | 3357921 pt | 3359913319 | 3624994 | 3624994 | 335999WYVW pt | 3629000 | 3629000 |
| 3359210YVW pt | 3357000 pt | 3357000 pt | 3359913319 | 3624994 | 3624994 | 335999WYVWY pt | 3699000 pt | 3699000 pt |
| 3359210YVW pt | 3357900 | 3357900 | 3359913319 | 3624994 | 3624994 | 335999WYVWY pt | 3629002 | 3629002 |
| 3359210YVWY | 3357002 pt | 3357002 pt | 335991800 | 3357800 | 3357800 | 335999WYVWY pt | 3699002 pt | 3699002 pt |

Motor and Generator Manufacturing

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1997 Economic Census

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Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

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

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

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

ALL-NEW INDUSTRY CLASSIFICATIONS

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

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

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

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

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

RELATIONSHIP TO SIC

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

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

GEOGRAPHIC AREA CODING

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

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

BASIS OF REPORTING

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

DOLLAR VALUES

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

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

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

Special Tabulations

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

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

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

HISTORICAL INFORMATION

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

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

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

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

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

SOURCES FOR MORE INFORMATION

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

ABBREVIATIONS AND SYMBOLS

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

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

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

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Manufacturing

SCOPE

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

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

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) | | | | |
| 335312 | Motor & generator mfg | 563 | 724 | 74 720 | 2 184 446 | 58 299 | 116 703 | 1 469 854 | 6 191 491 | 6 041 727 | 12 247 946 | 312 850 |
| 362100 | Motors & generators | N | 529 | 71 166 | 2 073 036 | 55 524 | 111 250 | 1 392 605 | 5 963 505 | 5 819 489 | 11 796 964 | 301 234 |
| 769420 | Armature rewinding shops (pt) .. | N | 195 | 3 554 | 111 410 | 2 775 | 5 453 | 77 249 | 227 986 | 222 238 | 450 982 | 11 616 |

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) |
| 335312, MOTOR & GENERATOR MFG | | | | | | | | | | | | |
| United States | - | 724 | 367 | 74 720 | 2 184 446 | 58 299 | 116 703 | 1 469 854 | 6 191 491 | 6 041 727 | 12 247 946 | 312 850 |
| Arkansas | - | 16 | 14 | 6 094 | 145 586 | 5 038 | 9 764 | 111 067 | 580 386 | 428 463 | 1 005 438 | 11 094 |
| California | 2 | 68 | 26 | 2 387 | 74 130 | 1 712 | 3 527 | 38 096 | 177 877 | 139 499 | 319 106 | 18 261 |
| Connecticut | - | 17 | 12 | 2 046 | 60 016 | 1 207 | 2 463 | 28 926 | 141 031 | 91 048 | 231 626 | 8 735 |
| Florida | 7 | 26 | 5 | 357 | 10 034 | 268 | 463 | 6 109 | 20 921 | 18 086 | 38 297 | 1 316 |
| Illinois | 1 | 41 | 24 | 2 739 | 78 874 | 2 005 | 4 184 | 47 070 | 241 610 | 166 943 | 408 780 | 7 785 |
| Indiana | - | 27 | 19 | 3 933 | 119 699 | 3 177 | 6 216 | 82 827 | 230 754 | 144 561 | 378 598 | 10 004 |
| Kansas | - | 6 | 4 | 684 | 16 555 | 551 | 1 081 | 11 463 | 48 959 | 42 705 | 90 591 | 590 |
| Louisiana | 9 | 7 | 3 | 153 | 4 410 | 123 | 246 | 3 127 | 10 851 | 10 773 | 21 677 | 637 |
| Massachusetts | 1 | 14 | 4 | 394 | 11 626 | 270 | 558 | 6 257 | 33 932 | 26 217 | 60 040 | 1 293 |
| Michigan | 1 | 26 | 7 | 1 140 | 31 029 | 983 | 1 994 | 23 345 | 48 065 | 66 840 | 114 818 | 4 963 |
| Minnesota | - | 24 | 13 | 2 751 | 124 229 | 1 653 | 2 839 | 61 975 | 130 934 | 370 846 | 497 614 | 9 777 |
| Mississippi | - | 12 | 9 | 2 837 | 76 234 | 2 272 | 4 703 | 52 907 | 216 294 | 230 276 | 446 218 | 12 615 |
| Missouri | - | 19 | 12 | 4 972 | 116 235 | 4 127 | 7 996 | 83 333 | 339 810 | 286 066 | 621 251 | 20 844 |
| New Jersey | 2 | 17 | 5 | 379 | 12 617 | 248 | 496 | 6 888 | 26 921 | 14 929 | 40 659 | 473 |
| New York | - | 32 | 14 | 5 238 | 177 523 | 4 619 | 9 586 | 145 181 | 1 213 654 | 749 365 | 1 961 382 | 25 594 |
| North Carolina | - | 21 | 14 | 3 642 | 107 760 | 2 776 | 6 144 | 77 326 | 182 551 | 393 990 | 577 837 | 31 926 |
| Ohio | - | 48 | 28 | 5 621 | 173 894 | 4 106 | 8 546 | 110 868 | 431 189 | 314 478 | 748 817 | 31 284 |
| Oklahoma | - | 17 | 8 | 1 308 | 35 828 | 843 | 1 720 | 20 592 | 102 476 | 89 886 | 192 152 | 3 653 |
| Pennsylvania | 2 | 42 | 22 | 2 960 | 86 772 | 2 501 | 5 242 | 62 720 | 190 957 | 162 329 | 351 755 | 9 820 |
| Tennessee | - | 24 | 18 | 6 295 | 163 585 | 5 552 | 11 669 | 135 766 | 318 589 | 515 034 | 830 801 | 21 394 |
| Texas | - | 36 | 13 | 2 049 | 80 250 | 1 213 | 2 132 | 40 022 | 175 611 | 315 472 | 487 310 | 19 266 |
| Virginia | - | 13 | 8 | 1 446 | 38 882 | 1 019 | 1 973 | 24 148 | 113 039 | 49 600 | 162 861 | 3 272 |
| West Virginia | 5 | 8 | 5 | 231 | 5 956 | 193 | 371 | 4 471 | 13 629 | 10 763 | 24 478 | 1 370 |
| Wisconsin | - | 43 | 31 | 7 547 | 221 301 | 5 800 | 11 211 | 136 201 | 564 666 | 762 311 | 1 336 995 | 33 300 |

* 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 |
|--------------------------------------------------------------------------------------|------------|--------------------------------------------------------------------------------------------------------------|-----------|
| 335312, MOTOR & GENERATOR MFG | | 335312, MOTOR & GENERATOR MFG—Con. | |
| Companies ¹ number.. | 563 | Value added \$1,000.. | 6 191 491 |
| All establishments number.. | 724 | Total inventories, beginning of year \$1,000.. | 1 402 492 |
| Establishments with 1 to 19 employees number.. | 357 | Finished goods inventories, beginning of year \$1,000.. | 477 080 |
| Establishments with 20 to 99 employees number.. | 197 | Work-in-process inventories, beginning of year \$1,000.. | 421 516 |
| Establishments with 100 employees or more number.. | 170 | Materials and supplies inventories, beginning of year \$1,000.. | 503 896 |
| All employees number.. | 74 720 | Total inventories, end of year \$1,000.. | 1 390 278 |
| Total compensation ² \$1,000.. | 2 848 807 | Finished goods inventories, end of year \$1,000.. | 443 733 |
| Annual payroll \$1,000.. | 2 184 446 | Work-in-process inventories, end of year \$1,000.. | 440 135 |
| Total fringe benefits \$1,000.. | 664 361 | Materials and supplies inventories, end of year \$1,000.. | 506 410 |
| Production workers, average for year number.. | 58 299 | Gross book value of total assets at beginning of year \$1,000.. | 3 628 720 |
| Production workers on March 12 number.. | 58 968 | Total capital expenditures (new and used) \$1,000.. | 312 850 |
| Production workers on May 12 number.. | 58 717 | Capital expenditures for buildings and other structures (new and used) \$1,000.. | 36 369 |
| Production workers on August 12 number.. | 58 127 | Capital expenditures for machinery and equipment (new and used) \$1,000.. | 276 481 |
| Production workers on November 12 number.. | 57 384 | Total retirements ² \$1,000.. | 131 394 |
| Production-worker hours 1,000.. | 116 703 | Gross book value of total assets at end of year \$1,000.. | 3 810 176 |
| Production-worker wages \$1,000.. | 1 469 854 | Total depreciation during year ² \$1,000.. | 270 111 |
| Total cost of materials \$1,000.. | 6 041 727 | Total rental payments ² \$1,000.. | 53 953 |
| Cost of materials, parts, containers, etc., consumed \$1,000.. | 5 461 070 | Buildings and other structures rental payments ² \$1,000.. | 22 697 |
| Cost of resales \$1,000.. | 400 151 | Machinery and equipment rental payments ² \$1,000.. | 31 256 |
| Cost of fuels \$1,000.. | 29 742 | Cost of purchased services for the repair of buildings and other structures ³ \$1,000.. | 11 105 |
| Cost of purchased electricity \$1,000.. | 82 577 | Response coverage ratio ⁴ percent.. | 80 |
| Cost of contract work \$1,000.. | 68 187 | Cost of purchased services for the repair of machinery and equipment ³ \$1,000.. | 85 182 |
| Quantity of electricity purchased for heat and power 1,000 kWh.. | 1 599 242 | 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.. | 18 264 |
| Total value of shipments \$1,000.. | 12 247 946 | Response coverage ratio ⁴ percent.. | 80 |
| Primary products value of shipments \$1,000.. | 10 548 816 | Cost of purchased legal services ³ \$1,000.. | 6 940 |
| Secondary products value of shipments \$1,000.. | 1 125 627 | Response coverage ratio ⁴ percent.. | 80 |
| Total miscellaneous receipts \$1,000.. | 573 503 | Cost of purchased accounting and bookkeeping services ³ \$1,000.. | 3 809 |
| Value of resales \$1,000.. | 506 354 | Response coverage ratio ⁴ percent.. | 80 |
| Contract receipts \$1,000.. | 15 404 | Cost of purchased advertising services ³ \$1,000.. | 15 981 |
| Other miscellaneous receipts \$1,000.. | 51 745 | Response coverage ratio ⁴ percent.. | 80 |
| Primary products specialization ratio percent.. | 90 | Cost of purchased software and other data processing services ³ \$1,000.. | 6 664 |
| Value of primary products shipments made in all industries \$1,000.. | 12 034 068 | Response coverage ratio ⁴ percent.. | 80 |
| Value of primary products shipments made in this industry \$1,000.. | 10 548 816 | Cost of purchased refuse removal (including hazardous waste) services ³ \$1,000.. | 6 985 |
| Value of primary products shipments made in other industries \$1,000.. | 1 485 252 | Response coverage ratio ⁴ percent.. | 80 |
| Coverage ratio percent.. | 87 | | |

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

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

³Based on ASM sample data.

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

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

Table 4. Industry Statistics by Employment Size: 1997

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

| Employment size class | E ¹ | All establishments | | All employees | | Production workers | | | Value added by manufacture (\$1,000) | Cost of materials (\$1,000) | Value of shipments (\$1,000) | Total capital expenditures (\$1,000) |
|----------------------------------------------------|----------------|--------------------|---------------------------|---------------|-------------------|--------------------|----------------|------------------|--------------------------------------|-----------------------------|------------------------------|--------------------------------------|
| | | Total | With 20 employees or more | Number | Payroll (\$1,000) | Number | Hours (1,000) | Wages (\$1,000) | | | | |
| 335312. MOTOR & GENERATOR MFG | | | | | | | | | | | | |
| All establishments | - | 724 | 367 | 74 720 | 2 184 446 | 58 299 | 116 703 | 1 469 854 | 6 191 491 | 6 041 727 | 12 247 946 | 312 850 |
| Establishments with 1 to 4 employees | 8 | 137 | - | 277 | 7 179 | 225 | 397 | 4 943 | 16 918 | 16 554 | 33 620 | 976 |
| Establishments with 5 to 9 employees | 8 | 116 | - | 802 | 21 869 | 627 | 1 156 | 14 986 | 50 789 | 52 616 | 104 375 | 3 061 |
| Establishments with 10 to 19 employees | 7 | 104 | - | 1 425 | 43 596 | 1 097 | 2 046 | 29 184 | 102 160 | 98 205 | 201 170 | 5 917 |
| Establishments with 20 to 49 employees | 4 | 122 | 122 | 3 802 | 118 387 | 2 746 | 5 392 | 69 419 | 257 657 | 229 755 | 486 152 | 13 184 |
| Establishments with 50 to 99 employees | 2 | 75 | 75 | 5 466 | 155 104 | 4 046 | 7 981 | 94 242 | 387 076 | 316 143 | 701 133 | 18 112 |
| Establishments with 100 to 249 employees | - | 84 | 84 | 12 826 | 368 027 | 9 589 | 19 839 | 229 484 | 941 179 | 903 815 | 1 848 649 | 50 713 |
| Establishments with 250 to 499 employees | - | 44 | 44 | 16 482 | 461 063 | 13 179 | 27 408 | 311 352 | 1 037 814 | 1 086 695 | 2 127 706 | 80 022 |
| Establishments with 500 to 999 employees | - | 37 | 37 | 24 901 | 702 640 | 19 658 | 38 612 | 493 658 | 1 891 112 | 2 100 548 | 3 999 824 | 110 701 |
| 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 | - | 1 | 1 | D | D | D | D | D | D | D | D | D |
| Administrative records ² | 9 | 246 | - | 1 631 | 41 896 | 1 297 | 2 244 | 29 706 | 105 392 | 104 632 | 210 535 | 6 187 |

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) | | | | |
| 335312 | Motor & generator mfg . . . | 724 | 74 720 | 2 184 446 | 58 299 | 116 703 | 1 469 854 | 6 191 491 | 6 041 727 | 12 247 946 | 312 850 |
| 3353121 | Fractional horsepower motors (rated at less than 746 watts) (excluding hermetics) | 127 | 33 948 | 919 521 | 27 619 | 55 120 | 653 121 | 3 212 804 | 2 641 620 | 5 866 856 | 134 277 |
| 3353123 | Integral horsepower motors and generators other than for land transportation equipment (rated at 746 watts or more) | 64 | 16 880 | 539 468 | 12 604 | 26 548 | 348 823 | 1 425 305 | 1 266 984 | 2 682 386 | 85 884 |
| 3353125 | Land transportation motors, generators, and control equipment, excluding parts | 10 | 460 | 12 613 | 304 | 573 | 6 831 | 23 962 | 24 243 | 47 939 | 1 777 |
| 3353127 | Prime mover generator sets, except steam or hydraulic turbine | 13 | 4 763 | 185 894 | 2 993 | 4 812 | 96 299 | 362 559 | 876 783 | 1 246 764 | 29 987 |
| 3353129 | Fractional motor generator sets and other rotating equipment, including hermetics | 13 | 3 977 | 102 125 | 3 229 | 6 633 | 78 974 | 232 316 | 285 204 | 517 389 | 10 279 |
| 335312A | Integral motor generator sets and other rotating equipment, including hermetics | 29 | 3 717 | 100 278 | 2 956 | 6 229 | 64 791 | 284 720 | 292 968 | 579 837 | 15 323 |
| 335312C | Parts, supplies for motors, generators, generator sets, and other rotating equipment, excluding motors for built-in jobs | 53 | 4 664 | 141 782 | 3 618 | 7 369 | 95 903 | 245 389 | 258 125 | 508 608 | 13 672 |
| 335312E | Armature rewinding on a factory basis | 25 | 964 | 30 560 | 699 | 1 382 | 20 705 | 48 885 | 46 126 | 95 107 | 1 477 |

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) |
| 335312 | Motors and generators | N | X | X | 12 034 068 | N | X | X | N |
| 3353121 | Fractional horsepower motors (rated at less than 746 watts) (excluding hermetics) @ | N | X | X | 5 209 679 | N | X | X | 4 020 575 |
| 33531210 | Fractional horsepower motors (rated at less than 746 watts) (excluding hermetics) | N | X | X | 5 209 679 | N | X | X | N |
| 3353121000 | Fractional horsepower motors (rated at less than 746 watts) (excluding hermetics) | 105 | X | X | 5 209 679 | 110 | X | X | 4 020 575 |
| 3353123 | Integral horsepower motors and generators other than for land transportation equipment (rated at 746 watts or more) @ | N | X | X | 2 241 664 | N | X | X | 1 692 083 |
| 33531230 | Integral horsepower motors and generators other than for land transportation equipment (rated at 746 watts or more) | N | X | X | 2 241 664 | N | X | X | N |
| 3353123000 | Integral horsepower motors and generators other than for land transportation equipment (rated at 746 watts or more) | 69 | X | X | 2 241 664 | 60 | X | X | 1 692 083 |
| 3353125 | Land transportation motors, generators, and control equipment, excluding parts @ | N | X | X | 291 102 | N | X | X | 188 386 |
| 33531250 | Land transportation motors, generators, and control equipment, excluding parts | N | X | X | 291 102 | N | X | X | N |
| 3353125000 | Land transportation motors, generators, and control equipment, excluding parts | 18 | X | X | 291 102 | 13 | X | X | 188 386 |
| 3353127 | Prime mover generator sets, except steam or hydraulic turbine @ | N | X | X | 1 648 488 | N | X | X | 1 157 198 |
| 33531270 | Prime mover generator sets, except steam or hydraulic turbine | N | X | X | 1 648 488 | N | X | X | N |
| 3353127000 | Prime mover generator sets, except steam or hydraulic turbine | 19 | X | X | 1 648 488 | 30 | X | X | 1 157 198 |
| 3353129 | Fractional motor generator sets and other rotating equipment, including hermetics @ | N | X | X | 497 708 | N | X | X | 361 581 |
| 33531290 | Fractional motor generator sets and other rotating equipment, including hermetics | N | X | X | 497 708 | N | X | X | N |
| 3353129000 | Fractional motor generator sets and other rotating equipment, including hermetics | 26 | X | X | 497 708 | 24 | X | X | 361 581 |
| 335312A | Integral motor generator sets and other rotating equipment, including hermetics @ | N | X | X | 620 120 | N | X | X | 443 108 |
| 335312A0 | Integral motor generator sets and other rotating equipment, including hermetics | N | X | X | 620 120 | N | X | X | N |
| 335312A000 | Integral motor generator sets and other rotating equipment, including hermetics | 42 | X | X | 620 120 | 28 | X | X | 443 108 |
| 335312C | Parts, supplies for motors, generators, generator sets, and other rotating equipment, excluding motors for built-in jobs @ | N | X | X | 746 603 | N | X | X | 606 662 |
| 335312C0 | Parts, supplies for motors, generators, generator sets, and other rotating equipment, excluding motors for built-in jobs | N | X | X | 746 603 | N | X | X | N |
| 335312C000 | Parts, supplies for motors, generators, generator sets, and other rotating equipment, excluding motors for built-in jobs | 110 | X | X | 746 603 | 102 | X | X | 606 662 |
| 335312E | Armature rewinding on a factory basis (excluding custom repair shop rewinding) | N | X | X | 70 700 | N | X | X | N |
| 335312E1 | Armature rewinding on a factory basis | N | X | X | 70 700 | N | X | X | N |
| 335312E100 | Armature rewinding on a factory basis | 18 | X | X | 70 700 | N | X | X | N |
| 335312W | Motors and generators, nsk, total | N | X | X | 708 004 | N | X | X | N |
| 335312WY | Motors and generators, nsk, total | N | X | X | 708 004 | N | X | X | N |
| 335312WYWW | Motors and generators, nsk, for nonadministrative-record establishments | N | X | X | 504 041 | N | X | X | N |
| 335312WYWY | Motors and generators, nsk, for administrative-record establishments | N | X | X | 203 963 | 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 | |
| 3353121 | FRACTIONAL HORSEPOWER MOTORS (RATED AT LESS THAN 746 WATTS) (EXCLUDING HERMETICS) @ | | | |
| | United States | 5 209 679 | 4 020 575 | |
| | Arkansas | 472 951 | 347 407 | |
| | California | 86 802 | 44 577 | |
| | Connecticut | 101 651 | N | |
| | Illinois | 306 304 | 265 244 | |
| | Indiana | 242 133 | 192 416 | |
| | Iowa | 2 915 | N | |
| | Minnesota | 40 425 | 14 817 | |
| | Mississippi | 244 214 | 178 589 | |
| | Missouri | 499 407 | 517 878 | |
| | North Carolina | 339 506 | 155 718 | |
| | Ohio | 238 945 | 220 451 | |
| | Pennsylvania | 132 901 | 132 078 | |
| | Tennessee | 258 591 | 239 422 | |
| Virginia | 100 242 | 83 539 | | |
| Wisconsin | 664 833 | 518 938 | | |
| 3353123 | INTEGRAL HORSEPOWER MOTORS AND GENERATORS OTHER THAN FOR LAND TRANSPORTATION EQUIPMENT (RATED AT 746 WATTS OR MORE) @ | | | |
| | United States | 2 241 664 | 1 692 083 | |
| | Arkansas | 353 909 | 226 367 | |
| | California | 46 040 | 34 363 | |
| | Florida | 2 471 | N | |
| | Illinois | 13 740 | N | |
| | Minnesota | 98 234 | 61 653 | |
| | New Jersey | 6 587 | 23 150 | |
| | North Carolina | 148 576 | 94 870 | |
| | Ohio | 262 149 | 227 090 | |
| | Pennsylvania | 31 129 | 97 362 | |
| | Wisconsin | 116 120 | 113 728 | |
| | 3353125 | LAND TRANSPORTATION MOTORS, GENERATORS, AND CONTROL EQUIPMENT, EXCLUDING PARTS @ | | |
| | | United States | 291 102 | 188 386 |
| | | Illinois | 51 172 | N |
| Ohio | 6 468 | N | | |
| 3353127 | PRIME MOVER GENERATOR SETS, EXCEPT STEAM OR HYDRAULIC TURBINE @ | | | |
| | United States | 1 648 488 | 1 157 198 | |
| Wisconsin | 452 846 | 260 001 | | |
| 3353129 | FRACTIONAL MOTOR GENERATOR SETS AND OTHER ROTATING EQUIPMENT, INCLUDING HERMETICS @ | | | |
| | United States | 497 708 | 361 581 | |
| 335312A | INTEGRAL MOTOR GENERATOR SETS AND OTHER ROTATING EQUIPMENT, INCLUDING HERMETICS @ | | | |
| | United States | 620 120 | 443 108 | |
| | California | 69 412 | 8 568 | |
| | New Jersey | 3 862 | N | |
| | Ohio | 33 568 | 17 293 | |
| | Tennessee | 169 865 | N | |
| Wisconsin | 59 610 | N | | |
| 335312C | PARTS, SUPPLIES FOR MOTORS, GENERATORS, GENERATOR SETS, AND OTHER ROTATING EQUIPMENT, EXCLUDING MOTORS FOR BUILT-IN JOBS @ | | | |
| | United States | 746 603 | 606 662 | |
| | Alabama | 44 338 | N | |
| | Arkansas | 9 465 | 11 276 | |
| | California | 10 390 | 24 240 | |
| | Illinois | 36 763 | 40 426 | |
| | Indiana | 6 768 | 18 940 | |
| | Michigan | 62 030 | 57 972 | |
| | Minnesota | 48 218 | 36 999 | |
| | Mississippi | 3 856 | 3 089 | |
| | Missouri | 6 968 | N | |
| | New Jersey | 6 358 | N | |
| | New York | 42 822 | 34 065 | |
| | Ohio | 134 916 | 127 478 | |
| | Pennsylvania | 107 963 | 85 922 | |
| | South Carolina | 11 227 | N | |
| | Texas | 21 100 | N | |
| | Wisconsin | 43 329 | 12 411 | |
| | 335312E | ARMATURE REWINDING ON A FACTORY BASIS (EXCLUDING CUSTOM REPAIR SHOP REWINDING) | | |
| | | United States | 70 700 | 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) |
| 335312 | MOTOR & GENERATOR MFG | | | | |
| 33200AC | Metal stampings | X | 218 133 | X | N |
| 33272203 | Metal bolts, nuts, screws, washers, rivets, and other screw machine products | X | 93 214 | X | N |
| 3320085 | All other fabricated metal products (except forgings) | X | 122 485 | X | N |
| 3321001 | Forgings | X | 25 355 | X | N |
| 33151001 | Iron and steel castings (rough and semifinished) | X | 100 265 | X | N |
| 33152005 | Aluminum and aluminum-base alloy castings (rough and semifinished) | X | 99 213 | X | N |
| 33152003 | Other nonferrous castings (rough and semifinished) | X | 49 413 | X | N |
| 3312007 | Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products) | X | 143 812 | X | N |
| 33120017 | Steel sheet and strip, including tin plate | X | 594 189 | X | N |
| 33120025 | Steel wire and wire products | X | 11 757 | X | N |
| 33120015 | All other steel shapes and forms (except castings, forgings, and fabricated metal products) | X | 87 110 | X | N |
| 3310093 | Copper and copper-base alloy bare wire for electrical conduction only | X | 36 074 | X | N |
| 33142105 | Copper and copper-base alloy rod, bar, and mechanical wire, including extruded and/or drawn shapes | X | 84 099 | X | N |
| 33142139 | All other copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products) | X | 25 921 | X | N |
| 33100039 | Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products) | X | 75 529 | X | N |
| 33100083 | Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products) | X | 14 228 | X | N |
| 33100097 | Magnet wire | X | 306 142 | X | N |
| 331000A3 | Insulated copper wire and cable, except magnet wire | X | 49 818 | X | N |
| 33131201 | Primary aluminum and aluminum-base alloy refinery shapes | X | 8 300 | X | N |
| 33361811 | Diesel and semidiesel engines | X | D | X | N |
| 33361805 | Gasoline and other carburetor engines | X | D | X | N |
| 33531211 | Fractional horsepower electric motors (less than 1 hp) | X | 109 951 | X | N |
| 33531221 | Integral horsepower electric motors and generators (1 hp or more) | X | 81 858 | X | N |
| 33299101 | Ball and roller bearings (mounted or unmounted) | X | 83 871 | X | N |
| 33361301 | Plain bearings and bushings | X | 45 917 | X | N |
| 33361200 | Mechanical speed changers, gears, and industrial high-speed drives | X | 20 653 | X | N |
| 33441300 | Semiconductors, including transistors, diodes, rectifiers, and integrated circuits for electronic circuitry | X | 90 005 | X | N |
| 33599105 | Carbon brushes | X | 22 661 | X | N |
| 32711303 | Ceramic magnets (ferrite) | X | 68 992 | X | N |
| 32610013 | Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes | X | 117 977 | X | N |
| 32521105 | Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. | X | 90 646 | X | N |
| 32551003 | Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products | X | 29 753 | X | N |
| 33500007 | Electrical industrial capacitors, resistors, rheostats, and coil windings | X | 149 422 | X | N |
| 001900B1 | Electrical transmission, distribution, and control equipment | X | 82 222 | X | N |
| 32221001 | Paperboard containers, boxes, and corrugated paperboard | X | 40 231 | X | N |
| 00970099 | All other materials and components, parts, containers, and supplies | X | 667 813 | X | N |
| 00971000 | Materials, ingredients, containers, and supplies, n.s.k. | X | 1 311 286 | 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

335312 MOTOR AND GENERATOR MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing electric motors (except internal combustion engine starting motors), power generators (except battery charging alternators for internal combustion engines), and motor generator sets (except turbine

generator set units). This industry includes establishments rewinding armatures on a factory basis.

The data published with NAICS code 335312 include the following SIC industries:

3621 Motors and generators
7694 Armature rewinding shops (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

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

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

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

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

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

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

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

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

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

2. Establishments sent a report form.

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

- a. ASM sample establishments.

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

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

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

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

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

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

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

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

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

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

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

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

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

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

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

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

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

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

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

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

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

ESTABLISHMENT BASIS OF REPORTING

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

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

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

DESCRIPTION OF THE ASM SURVEY SAMPLE

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

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

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

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

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

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

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

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

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

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

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

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

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

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

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

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

QUALIFICATIONS OF THE ASM DATA

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

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

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

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

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

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

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

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

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

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

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

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

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

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

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

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

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

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

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

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

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F.

Footnotes for Products Statistics and Materials Consumed by Kind

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

| NAICS product code | Footnote |
|--------------------|-------------------------------------------------------------------------------------|
| @3353121 | For additional detail, see Current Industrial Report MA335H, Motors and Generators. |
| @3353123 | For additional detail, see Current Industrial Report MA335H, Motors and Generators. |
| @3353125 | For additional detail, see Current Industrial Report MA335H, Motors and Generators. |
| @3353127 | For additional detail, see Current Industrial Report MA335H, Motors and Generators. |
| @3353129 | For additional detail, see Current Industrial Report MA335H, Motors and Generators. |
| @335312A | For additional detail, see Current Industrial Report MA335H, Motors and Generators. |
| @335312C | For additional detail, see Current Industrial Report MA335H, Motors and Generators. |

Part 2. Materials Consumed by Kind (Table 7)

Not applicable.

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|---------------------|------------------|----------------|---------------------|------------------|----------------|---------------------|------------------|----------------|
| 335314W | 36250 | 36250 | 335929A | 3357A | 3357A | 3359913322 | 3624996 | 3624996 |
| 335314WYWW | 3625000 | 3625000 | 335929A100 | 3357A00 | 3357A00 | 3359913YVW | 3624900 | 3624900 |
| 335314WYVW | 3625002 | 3625002 | 335929B | 3357B | 3357B | 335991W | 36240 | 36240 |
| 3359111 | 36913 | 36913 | 335929B100 | 3357B00 | 3357B00 | 335991WYVW | 3624000 | 3624000 |
| 3359111101 | 3691311 | 3691311 | 335929C | 3357C | 3357C | 335991WYVY | 3624002 | 3624002 |
| 3359111204 | 3691312 | 3691312 | 335929C100 | 3357C00 | 3357C00 | 3359991 | 36291 | 36291 |
| 3359111307 | 3691317 | 3691317 | 335929D | 3357D | 3357D | 3359991101 | 3629101 | 3629101 |
| 3359111YVW | 3691300 | 3691300 | 335929D100 | 3357D00 | 3357D00 | 3359991103 | 3629104 | 3629104 |
| 3359114 | 36914 | 36914 | 335929E | 3357E | 3357E | 3359991YVW | 3629100 | 3629100 |
| 3359114101 | 3691411 | 3691411 | 335929E100 | 3357E00 | 3357E00 | 3359993 | 36292 | 36292 |
| 3359114104 | 3691419 | 3691419 | 335929W | 33570 pt | 33570 pt | 3359993101 | 3629221 | 3629221 |
| 3359114201 | 3691421 | 3691421 | 335929WYVW | 3357000 pt | 3357000 pt | 3359993104 | 3629225 | 3629225 |
| 3359114204 | 3691422 | 3691422 | 335929WYVY | 3357002 pt | 3357002 pt | 3359993107 | 3629241 | 3629241 |
| 3359114207 | 3691479 | 3691479 | 3359311 | 36431 | 36431 | 3359993111 | 3629245 | 3629245 |
| 3359114YVW | 3691400 | 3691400 | 3359311000 | 3643100 | 3643100 | 3359993213 | 3629251 | 3629251 |
| 3359117 | 36915 | 36915 | 3359313 | 36432 | 36432 | 3359993216 | 3629253 | 3629253 |
| 3359117101 | 3691501 | 3691501 | 3359313000 | 3643200 | 3643200 | 3359993219 | 3629255 | 3629255 |
| 3359117104 | 3691502 | 3691502 | 3359315 | 36433 | 36433 | 3359993219 | 3629255 | 3629255 |
| 3359117201 | 3691591 | 3691591 | 3359315000 | 3643300 | 3643300 | 3359993YVW | 3629200 | 3629200 |
| 3359117YVW | 3691500 | 3691500 | 3359317 | 36434 | 36434 | 3359995 pt | 36293 | 36293 |
| 335911W | 36910 | 36910 | 3359317000 | 3643400 | 3643400 | 3359995 pt | 3699A pt | 3699A pt |
| 335911WYVW | 3691000 | 3691000 | 3359319 | 36435 | 36435 | 3359995101 | 3629301 | 3629301 |
| 335911WYVY | 3691002 | 3691002 | 3359319000 | 3643500 | 3643500 | 3359995104 | 3629302 | 3629302 |
| 3359120 | 36920 | 36920 | 335931A | 36436 | 36436 | 3359995107 | 3629303 | 3629303 |
| 3359120101 pt | 3692011 pt | 3692001 pt | 335931A000 | 3643600 | 3643600 | 3359995111 | 3629304 | 3629304 |
| 3359120101 pt | 3692011 pt | 3692007 pt | 3359319 | 36435 | 36435 | 3359995137 pt | 3629311 | 3629311 |
| 3359120104 pt | 3692013 pt | 3692001 pt | 3359319000 | 3643500 | 3643500 | 3359995137 pt | 3699A21 | 3699A21 |
| 3359120104 pt | 3692013 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359995YVW pt | 3629300 | 3629300 |
| 3359120107 pt | 3692015 pt | 3692004 pt | 3359321 | 36441 | 36441 | 3359995YVW pt | 3699A00 pt | 3699A00 pt |
| 3359120107 pt | 3692015 pt | 3692007 pt | 3359321000 | 3644100 | 3644100 | 3359997 | 36992 pt | 36992 pt |
| 3359120111 pt | 3692017 pt | 3692005 pt | 3359323 | 36442 | 36442 | 3359997000 pt | 3699271 | 3699200 pt |
| 3359120111 pt | 3692017 pt | 3692007 pt | 3359323000 | 3644200 | 3644200 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120114 pt | 3692019 pt | 3692003 pt | 3359325 | 36443 | 36443 | 3359997000 pt | 3699200 pt | 3699200 pt |
| 3359120114 pt | 3692019 pt | 3692005 pt | 3359325000 | 3644300 | 3644300 | 3359999 | 36992 pt | 36992 pt |
| 3359120114 pt | 3692019 pt | 3692007 pt | 335932W | 36440 | 36440 | 3359999100 pt | 3699297 | 3699200 pt |
| 3359120201 | 3692021 | 3692003 pt | 335932WYVW | 3644000 | 3644000 | 3359999100 pt | 3699297 | 3699200 pt |
| 3359120201 | 3692021 | 3692003 pt | 335932WYVY | 3644002 | 3644002 | 3359999100 pt | 3699200 pt | 3699200 pt |
| 3359120204 | 3692023 | 3692001 pt | 3359911 | 36241 | 36241 | 335999A | 36995 | 36995 |
| 3359120207 | 3692025 | 3692005 pt | 335991101 | 3624152 | 3624152 | 335999A000 | 3699500 | 3699500 |
| 3359120211 | 3692027 | 3692005 pt | 3359911101 | 3624156 | 3624156 | 335999B | 36996 pt | 36996 pt |
| 3359120214 pt | 3692029 pt | 3692004 pt | 3359911204 | 3624156 | 3624156 | 335999B100 pt | 3699600 pt | 3699600 pt |
| 3359120214 pt | 3692029 pt | 3692005 pt | 3359911YVW | 3624100 | 3624100 | 335999B100 pt | 3699605 | 3699600 pt |
| 3359120301 | 3692009 | 3692009 | 3359913 | 36249 | 36249 | 335999C | 36999 | 36999 |
| 3359120301 | 3692009 | 3692009 | 335991301 | 36249 | 36249 | 335999C000 | 3699900 | 3699900 |
| 3359120YVW | 3692000 | 3692000 | 3359913101 pt | 3624916 pt | 3624916 | 335999D | 3699900 | 3699900 |
| 3359120YVY | 3692002 | 3692002 | 3359913101 pt | 3624916 pt | 3624916 | 335999D101 | 3699A pt | 3699A pt |
| 3359210 pt | 33570 pt | 33570 pt | 3359913104 | 3624917 | 3624917 | 335999D203 | 3699A01 | 3699A01 |
| 3359210 pt | 33579 | 33579 | 3359913104 pt | 3624917 | 3624917 | 335999D305 | 3699A03 | 3699A03 |
| 3359210101 | 3357931 | 3357911 pt | 3359913207 | 3624988 | 3624988 | 335999D407 | 3699A05 | 3699A05 |
| 3359210106 | 3357941 | 3357911 pt | 3359913311 | 3624988 | 3624988 | 335999D407 | 3699A02 | 3699A02 |
| 3359210111 | 3357951 | 3357911 pt | 3359913316 | 3624986 | 3624986 | 335999DYVW | 3699A00 pt | 3699A00 pt |
| 3359210421 | 3357932 | 3357921 pt | 3359913319 | 3624994 | 3624994 | 335999W pt | 36290 | 36290 |
| 3359210426 | 3357942 | 3357921 pt | 3359913319 | 3624994 | 3624994 | 335999W pt | 36990 pt | 36990 pt |
| 3359210431 | 3357952 | 3357921 pt | 3359913319 | 3624994 | 3624994 | 335999WYVW pt | 3629000 | 3629000 |
| 3359210YVW pt | 3357000 pt | 3357000 pt | 3359913319 | 3624994 | 3624994 | 335999WYVY pt | 3629002 | 3629002 |
| 3359210YVW pt | 3357900 | 3357900 | 3359913319 | 3624994 | 3624994 | 335999WYVY pt | 3699002 pt | 3699002 pt |
| 3359210YVY | 3357002 pt | 3357002 pt | 335991800 | 3357800 | 3357800 | | | |

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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) | | | | |
| 335313 | Switchgear & switchboard apparatus mfg | 501 | 583 | 41 291 | 1 454 168 | 28 859 | 59 333 | 849 356 | 4 420 345 | 3 194 384 | 7 613 853 | 192 711 |
| 361300 | Switchgear & switchboard apparatus | N | 583 | 41 291 | 1 454 168 | 28 859 | 59 333 | 849 356 | 4 420 345 | 3 194 384 | 7 613 853 | 192 711 |

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) | | | | |
| 335313, SWITCHGEAR & SWITCHBOARD APPARATUS MFG | | | | | | | | | | | | |
| United States | - | 583 | 241 | 41 291 | 1 454 168 | 28 859 | 59 333 | 849 356 | 4 420 345 | 3 194 384 | 7 613 853 | 192 711 |
| Alabama | 1 | 9 | 2 | 130 | 5 030 | 80 | 176 | 2 220 | 11 529 | 14 312 | 25 857 | 186 |
| Arizona | 7 | 10 | 4 | 203 | 6 494 | 136 | 244 | 3 395 | 8 079 | 16 639 | 25 345 | 467 |
| California | 1 | 63 | 24 | 2 012 | 64 743 | 1 431 | 2 657 | 33 310 | 156 116 | 131 170 | 288 302 | 5 161 |
| Florida | 1 | 13 | 6 | 708 | 24 710 | 461 | 938 | 12 004 | 60 107 | 60 174 | 121 883 | 2 633 |
| Georgia | - | 15 | 8 | 1 281 | 36 782 | 1 026 | 2 122 | 25 177 | 118 600 | 105 985 | 218 665 | 16 040 |
| Illinois | - | 49 | 27 | 6 297 | 231 629 | 4 429 | 9 617 | 133 700 | 536 705 | 421 068 | 960 878 | 40 510 |
| Indiana | - | 14 | 5 | 1 047 | 38 047 | 789 | 1 762 | 25 662 | 163 814 | 106 096 | 270 306 | 4 415 |
| Kansas | 3 | 6 | 1 | 133 | 4 098 | 91 | 214 | 2 392 | 13 865 | 7 396 | 21 576 | 714 |
| Kentucky | - | 11 | 6 | 2 119 | 74 232 | 1 639 | 3 682 | 51 302 | 310 237 | 91 597 | 399 924 | 13 039 |
| Louisiana | 1 | 5 | 3 | 213 | 6 948 | 127 | 226 | 3 304 | 8 863 | 6 417 | 15 347 | 682 |
| Maryland | - | 9 | 4 | 1 448 | 39 812 | 947 | 1 637 | 19 354 | 93 441 | 57 316 | 149 201 | 3 535 |
| Massachusetts | - | 14 | 10 | 1 618 | 63 527 | 939 | 2 403 | 27 551 | 255 305 | 67 119 | 322 668 | 5 144 |
| Michigan | 1 | 32 | 14 | 1 017 | 43 101 | 628 | 1 363 | 17 443 | 79 409 | 71 724 | 151 462 | 2 875 |
| Minnesota | 3 | 15 | 5 | 459 | 15 946 | 347 | 713 | 10 405 | 47 552 | 35 730 | 84 130 | 1 894 |
| Missouri | - | 15 | 6 | 1 160 | 34 931 | 917 | 1 811 | 23 246 | 120 946 | 87 986 | 208 143 | 3 213 |
| New Jersey | - | 21 | 7 | 1 036 | 35 464 | 677 | 1 243 | 18 914 | 63 850 | 57 204 | 119 511 | 4 051 |
| New York | 4 | 26 | 10 | 556 | 22 818 | 358 | 679 | 11 160 | 44 230 | 34 363 | 79 217 | 1 571 |
| North Carolina | - | 17 | 9 | 1 574 | 49 450 | 1 235 | 2 420 | 30 785 | 93 758 | 177 483 | 273 910 | 9 217 |
| Ohio | - | 44 | 19 | 3 376 | 114 746 | 2 377 | 4 575 | 71 793 | 408 115 | 207 553 | 604 336 | 12 152 |
| Oklahoma | - | 7 | 4 | 380 | 11 798 | 229 | 523 | 6 758 | 34 873 | 39 452 | 76 893 | 431 |
| Oregon | 2 | 10 | 2 | 137 | 4 669 | 103 | 184 | 2 961 | 15 151 | 15 420 | 30 617 | 321 |
| Pennsylvania | - | 25 | 11 | 1 950 | 78 898 | 1 161 | 2 285 | 43 415 | 224 064 | 167 460 | 400 700 | 5 830 |
| Tennessee | - | 14 | 7 | 1 465 | 45 675 | 1 243 | 2 450 | 34 989 | 180 278 | 137 658 | 321 936 | 6 358 |
| Texas | - | 40 | 11 | 2 408 | 79 569 | 1 764 | 3 595 | 47 862 | 277 049 | 278 810 | 552 585 | 8 700 |
| Virginia | - | 9 | 3 | 677 | 16 175 | 424 | 855 | 7 737 | 34 734 | 44 808 | 78 885 | 1 590 |
| Washington | 4 | 16 | 3 | 254 | 8 252 | 164 | 332 | 4 330 | 17 972 | 20 643 | 37 365 | 1 692 |

* 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 |
|----------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|---------------------|
| 335313, SWITCHGEAR & SWITCHBOARD APPARATUS MFG | | 335313, SWITCHGEAR & SWITCHBOARD APPARATUS MFG—Con. | |
| Companies ¹ | number.. 501 | Value added | \$1,000.. 4 420 345 |
| All establishments | number.. 583 | Total inventories, beginning of year | \$1,000.. 783 682 |
| Establishments with 1 to 19 employees | number.. 342 | Finished goods inventories, beginning of year | \$1,000.. 182 036 |
| Establishments with 20 to 99 employees | number.. 138 | Work-in-process inventories, beginning of year | \$1,000.. 264 896 |
| Establishments with 100 employees or more | number.. 103 | Materials and supplies inventories, beginning of year | \$1,000.. 336 750 |
| All employees | number.. 41 291 | Total inventories, end of year | \$1,000.. 809 130 |
| Total compensation ² | \$1,000.. 1 870 658 | Finished goods inventories, end of year | \$1,000.. 195 890 |
| Annual payroll | \$1,000.. 1 454 168 | Work-in-process inventories, end of year | \$1,000.. 251 918 |
| Total fringe benefits | \$1,000.. 416 490 | Materials and supplies inventories, end of year | \$1,000.. 361 322 |
| Production workers, average for year | number.. 28 859 | Gross book value of total assets at beginning of year | \$1,000.. 1 905 942 |
| Production workers on March 12 | number.. 28 815 | Total capital expenditures (new and used) | \$1,000.. 192 711 |
| Production workers on May 12 | number.. 28 593 | Capital expenditures for buildings and other structures (new and used) | \$1,000.. 36 038 |
| Production workers on August 12 | number.. 29 049 | Capital expenditures for machinery and equipment (new and used) | \$1,000.. 156 673 |
| Production workers on November 12 | number.. 28 979 | Total retirements ² | \$1,000.. 67 884 |
| Production-worker hours | 1,000.. 59 333 | Gross book value of total assets at end of year | \$1,000.. 2 030 769 |
| Production-worker wages | \$1,000.. 849 356 | Total depreciation during year ² | \$1,000.. 138 937 |
| Total cost of materials | \$1,000.. 3 194 384 | Total rental payments ² | \$1,000.. 31 138 |
| Cost of materials, parts, containers, etc., consumed | \$1,000.. 2 831 838 | Buildings and other structures rental payments ² | \$1,000.. 17 506 |
| Cost of resales | \$1,000.. 262 108 | Machinery and equipment rental payments ² | \$1,000.. 13 632 |
| Cost of fuels | \$1,000.. 10 528 | Cost of purchased services for the repair of buildings and other structures ³ | \$1,000.. 10 873 |
| Cost of purchased electricity | \$1,000.. 52 065 | Response coverage ratio ⁴ | percent.. 62 |
| Cost of contract work | \$1,000.. 37 845 | Cost of purchased services for the repair of machinery and equipment ³ | \$1,000.. 33 648 |
| Quantity of electricity purchased for heat and power | 1,000 kWh.. 769 735 | Response coverage ratio ⁴ | percent.. 62 |
| Quantity of electricity generated less sold for heat and power | 1,000 kWh.. S | Cost of purchased communications services ³ | \$1,000.. 9 458 |
| Total value of shipments | \$1,000.. 7 613 853 | Response coverage ratio ⁴ | percent.. 62 |
| Primary products value of shipments | \$1,000.. 6 736 465 | Cost of purchased legal services ³ | \$1,000.. 3 107 |
| Secondary products value of shipments | \$1,000.. 469 417 | Response coverage ratio ⁴ | percent.. 62 |
| Total miscellaneous receipts | \$1,000.. 407 971 | Cost of purchased accounting and bookkeeping services ³ | \$1,000.. 3 078 |
| Value of resales | \$1,000.. 357 798 | Response coverage ratio ⁴ | percent.. 62 |
| Contract receipts | \$1,000.. 7 092 | Cost of purchased advertising services ³ | \$1,000.. 5 259 |
| Other miscellaneous receipts | \$1,000.. 43 081 | Response coverage ratio ⁴ | percent.. 62 |
| Primary products specialization ratio | percent.. 93 | Cost of purchased software and other data processing services ³ | \$1,000.. 6 603 |
| Value of primary products shipments made in all industries | \$1,000.. 7 407 125 | Response coverage ratio ⁴ | percent.. 62 |
| Value of primary products shipments made in this industry | \$1,000.. 6 736 465 | Cost of purchased refuse removal (including hazardous waste) services ³ | \$1,000.. 3 236 |
| Value of primary products shipments made in other industries | \$1,000.. 670 660 | Response coverage ratio ⁴ | percent.. 62 |
| 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) | | | | |
| 335313, SWITCHGEAR & SWITCHBOARD APPARATUS MFG | | | | | | | | | | | | |
| All establishments | - | 583 | 241 | 41 291 | 1 454 168 | 28 859 | 59 333 | 849 356 | 4 420 345 | 3 194 384 | 7 613 853 | 192 711 |
| Establishments with 1 to 4 employees | 9 | 144 | - | 306 | 9 430 | 231 | 377 | 5 721 | 26 965 | 23 895 | 51 193 | 1 139 |
| Establishments with 5 to 9 employees | 8 | 97 | - | 648 | 22 446 | 460 | 857 | 13 506 | 66 756 | 55 781 | 122 373 | 2 393 |
| Establishments with 10 to 19 employees | 5 | 101 | - | 1 394 | 47 300 | 961 | 1 788 | 25 584 | 139 346 | 122 730 | 261 768 | 4 595 |
| Establishments with 20 to 49 employees | 1 | 104 | 104 | 3 493 | 132 207 | 2 324 | 4 619 | 67 211 | 296 428 | 249 510 | 549 306 | 9 863 |
| Establishments with 50 to 99 employees | 1 | 34 | 34 | 2 390 | 81 044 | 1 627 | 3 150 | 41 749 | 183 985 | 187 413 | 370 648 | 10 730 |
| Establishments with 100 to 249 employees | - | 54 | 54 | 8 464 | 277 517 | 5 765 | 11 840 | 151 540 | 856 993 | 752 819 | 1 611 000 | 34 332 |
| Establishments with 250 to 499 employees | - | 29 | 29 | 10 052 | 340 396 | 7 126 | 15 033 | 208 940 | 980 858 | 706 633 | 1 699 515 | 32 403 |
| Establishments with 500 to 999 employees | - | 17 | 17 | 10 958 | 387 966 | 7 904 | 15 351 | 245 889 | 1 463 142 | 894 915 | 2 339 301 | 62 336 |
| Establishments with 1,000 to 2,499 employees | - | 3 | 3 | 3 586 | 155 862 | 2 461 | 6 318 | 89 216 | 405 872 | 200 688 | 608 749 | 34 920 |
| Establishments with 2,500 employees or more | - | - | - | - | - | - | - | - | - | - | - | - |
| Administrative records ² | 9 | 257 | - | 1 502 | 45 346 | 1 087 | 1 821 | 27 715 | 136 188 | 112 935 | 250 100 | 5 810 |

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) | | | | |
| 335313 | Switchgear & switchboard apparatus mfg | 583 | 41 291 | 1 454 168 | 28 859 | 59 333 | 849 356 | 4 420 345 | 3 194 384 | 7 613 853 | 192 711 |
| 3353131 | Power circuit breakers, all voltages .. | 23 | 2 202 | 89 957 | 1 284 | 2 815 | 47 418 | 244 515 | 251 274 | 494 936 | 6 562 |
| 3353133 | Low voltage panelboards and distribution boards and other switching and interrupting devices, 1000 volts or less | 107 | 11 175 | 375 610 | 8 118 | 17 450 | 223 986 | 1 305 164 | 1 026 380 | 2 321 041 | 58 466 |
| 3353135 | Fuses and fuse equipment, less than 2300 volts, except power distribution cut-outs | 22 | 5 003 | 152 277 | 3 763 | 7 947 | 94 013 | 284 176 | 220 773 | 505 885 | 18 940 |
| 3353137 | Molded case circuit breakers, 1000 volts or less | 15 | 5 806 | 215 066 | 4 047 | 7 330 | 129 871 | 1 030 381 | 341 328 | 1 361 892 | 29 649 |
| 3353139 | Duct, including plug-in units and accessories, 1000 volts or less | 6 | 1 297 | 44 236 | 1 047 | 2 081 | 32 161 | 142 492 | 91 638 | 232 081 | 6 980 |
| 335313A | Switchgear, except ducts and relays .. | 101 | 12 931 | 491 268 | 8 461 | 17 857 | 269 616 | 1 189 650 | 1 067 737 | 2 275 900 | 61 739 |

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) |
| 335313 | Switchgear and switchboard apparatus | N | X | X | 7 407 125 | N | X | X | 5 469 166 |
| 3353131 | Power circuit breakers, all voltages @ | N | X | X | 500 195 | N | X | X | 455 463 |
| 33531310 | Power circuit breakers, all voltages | N | X | X | 500 195 | N | X | X | N |
| 3353131000 | Power circuit breakers, all voltages | 45 | X | X | 500 195 | 42 | X | X | 455 463 |
| 3353133 | Low voltage panelboards and distribution boards and other switching and interrupting devices, 1000 volts or less @ | N | X | X | 2 386 248 | N | X | X | 1 605 171 |
| 33531330 | Low voltage panelboards and distribution boards and other switching and interrupting devices, 1000 volts or less | N | X | X | 2 386 248 | N | X | X | N |
| 3353133000 | Low voltage panelboards and distribution boards and other switching and interrupting devices, 1000 volts or less | 140 | X | X | 2 386 248 | 156 | X | X | 1 605 171 |
| 3353135 | Fuses and fuse equipment, less than 2300 volts, except power distribution cut-outs @ | N | X | X | 562 156 | N | X | X | 425 478 |
| 33531350 | Fuses and fuse equipment, less than 2300 volts, except power distribution cut-outs | N | X | X | 562 156 | N | X | X | N |
| 3353135000 | Fuses and fuse equipment, less than 2300 volts, except power distribution cut-outs | 29 | X | X | 562 156 | 27 | X | X | 425 478 |
| 3353137 | Molded case circuit breakers, 1000 volts or less @ | N | X | X | 1 293 312 | N | X | X | 1 021 718 |
| 33531370 | Molded case circuit breakers, 1000 volts or less | N | X | X | 1 293 312 | N | X | X | N |
| 3353137000 | Molded case circuit breakers, 1000 volts or less | 23 | X | X | 1 293 312 | 19 | X | X | 1 021 718 |
| 3353139 | Duct, including plug-in units and accessories, 1000 volts or less @ | N | X | X | 291 157 | N | X | X | 186 820 |
| 33531390 | Duct, including plug-in units and accessories, 1000 volts or less | N | X | X | 291 157 | N | X | X | N |
| 3353139000 | Duct, including plug-in units and accessories, 1000 volts or less | 20 | X | X | 291 157 | 16 | X | X | 186 820 |
| 335313A | Switchgear, except ducts and relays @ | N | X | X | 1 958 990 | N | X | X | 1 583 300 |
| 335313A0 | Switchgear, except ducts and relays | N | X | X | 1 958 990 | N | X | X | N |
| 335313A000 | Switchgear, except ducts and relays | 129 | X | X | 1 958 990 | 123 | X | X | 1 583 300 |
| 335313W | Switchgear and switchboard apparatus, nsk, total | N | X | X | 415 067 | N | X | X | 191 216 |
| 335313WY | Switchgear and switchboard apparatus, nsk, total | N | X | X | 415 067 | N | X | X | N |
| 335313WYWW | Switchgear and switchboard apparatus, nsk, for nonadministrative-record establishments | N | X | X | 174 205 | N | X | X | 134 323 |
| 335313WYWY | Switchgear and switchboard apparatus, nsk, for administrative-record establishments | N | X | X | 240 862 | N | X | X | 56 893 |

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 |
| 3353131 | POWER CIRCUIT BREAKERS, ALL VOLTAGES @ | | |
| | United States | 500 195 | 455 463 |
| | California | 19 622 | 2 550 |
| | Illinois | 27 582 | 13 703 |
| | Ohio | 17 837 | 2 849 |
| | Pennsylvania | 132 077 | 161 643 |
| 3353133 | LOW VOLTAGE PANELBOARDS AND DISTRIBUTION BOARDS AND OTHER SWITCHING AND INTERRUPTING DEVICES, 1000 VOLTS OR LESS @ | | |
| | United States | 2 386 248 | 1 605 171 |
| | California | 117 481 | 89 242 |
| | Connecticut | 48 933 | N |
| | Florida | 33 006 | 10 324 |
| | Georgia | 145 830 | N |
| | Illinois | 200 028 | 118 921 |
| | Michigan | 120 741 | 84 784 |
| | Minnesota | 69 399 | N |
| | Missouri | 34 870 | 23 801 |
| | New Jersey | 45 466 | 36 613 |
| | New York | 27 055 | 9 363 |
| | Ohio | 121 434 | 82 503 |
| | Oklahoma | 47 553 | N |
| | Pennsylvania | 24 367 | 33 541 |
| | South Carolina | 188 447 | 112 382 |
| | Texas | 205 946 | 111 344 |
| | Washington | 14 134 | 10 009 |
| | Wisconsin | 10 014 | N |
| | 3353135 | FUSES AND FUSE EQUIPMENT, LESS THAN 2300 VOLTS, EXCEPT POWER DISTRIBUTION CUT-OUTS @ | |
| United States | | 562 156 | 425 478 |
| Kentucky | | 46 269 | N |
| | New York | 6 622 | 8 078 |
| 3353137 | MOLDED CASE CIRCUIT BREAKERS, 1000 VOLTS OR LESS @ | | |
| | United States | 1 293 312 | 1 021 718 |
| | Maryland | 85 699 | 65 030 |
| | New York | 3 793 | N |
| 3353139 | DUCT, INCLUDING PLUG-IN UNITS AND ACCESSORIES, 1000 VOLTS OR LESS @ | | |
| | United States | 291 157 | 186 820 |
| 335313A | SWITCHGEAR, EXCEPT DUCTS AND RELAYS @ | | |
| | United States | 1 958 990 | 1 583 300 |
| | California | 86 496 | 91 634 |
| | Florida | 71 402 | N |
| | Illinois | 352 672 | 293 787 |
| | Louisiana | 7 988 | N |
| | Michigan | 34 955 | N |
| | Minnesota | 15 318 | 16 232 |
| | New York | 23 751 | 24 438 |
| | North Carolina | 73 570 | N |
| | Ohio | 120 756 | 87 423 |
| | Pennsylvania | 70 646 | 32 971 |
| | Texas | 93 607 | 59 477 |

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) |
| 335313 | SWITCHGEAR & SWITCHBOARD APPARATUS MFG | | | | |
| 33200A9 | Sheet metal products, except stampings | X | 46 008 | X | 40 877 |
| 33272203 | Metal bolts, nuts, screws, washers, rivets, and other screw machine products | X | 85 353 | X | 73 096 |
| 33200087 | All other fabricated metal products (except forgings) | X | 145 119 | X | 89 227 |
| 33210001 | Forgings | X | 8 164 | X | 5 323 |
| 33100035 | Castings (rough and semifinished) | X | 51 494 | X | 38 201 |
| 33120007 | Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products) | X | 41 924 | X | 21 995 |
| 33120017 | Steel sheet and strip, including tin plate | X | 149 684 | X | 136 134 |
| 33120019 | Steel structural shapes and sheet piling (except castings, forgings, and fabricated metal products) | X | 5 597 | X | 5 459 |
| 33120091 | All other steel shapes and forms (except castings, forgings, and fabricated metal products) | X | 65 256 | X | 12 972 |
| 33140001 | Nonferrous metal smelter and refinery shapes, including precious metal (except castings, forgings, & fabr. metal prods) | X | 20 626 | X | 11 953 |
| 33100061 | Aluminum and aluminum-base alloy shapes and forms (except wire, castings, forgings, and fabricated metal products) | X | 50 718 | X | 36 332 |
| 33142123 | Copper and copper-base alloy shapes and forms (except wire, castings, forgings, and fabricated metal products) | X | 165 242 | X | 126 246 |
| 33100081 | All other nonferrous shapes and forms (except castings, forgings, and fabricated metal products) | X | 26 876 | X | 15 008 |
| 33100087 | Nonferrous wire and cable, including magnet wire, bare or insulated wire, etc. | X | 51 527 | X | 50 988 |
| 33531401 | Industrial electrical control equipment purchased from other companies | X | 218 837 | X | 210 478 |
| 33531403 | Industrial electrical control equipment received from other plants of the same company | X | 407 428 | X | 165 208 |
| 32711301 | Porcelain, steatite, and other ceramic electrical products | X | 47 514 | X | 57 325 |
| 32610013 | Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes | X | 71 488 | X | 50 605 |
| 32521105 | Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. | X | 50 326 | X | 36 746 |
| 33531301 | Switches, except snap, toggle and push, and circuit breakers | X | 35 590 | X | 92 459 |
| 001900B5 | Resistors, capacitors, transformers, and other electronic-type components, except electron tubes and semiconductors | X | 84 892 | X | 91 488 |
| 33441200 | Printed circuit boards (without inserted components) for electronic circuitry | X | 25 597 | X | N |
| 001900B9 | Semiconductors, microprocessors, memory, ASICs and power semiconductor devices | X | 11 129 | X | N |
| 00970099 | All other materials and components, parts, containers, and supplies | X | 561 818 | X | N |
| 00971000 | Materials, ingredients, containers, and supplies, n.s.k. | X | 403 631 | 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

335313 SWITCHGEAR AND SWITCHBOARD APPARATUS MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing switchgear and switchboard apparatus.

The data published with NAICS code 335313 include the following SIC industry:

3613 Switchgear and switchboard apparatus

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 |
|--------------------|--------------------------------------------------------------------------------------------------|
| @3353131 | For additional detail, see Current Industrial Report MA335A, Switchgear and Industrial Controls. |
| @3353133 | For additional detail, see Current Industrial Report MA335A, Switchgear and Industrial Controls. |
| @3353135 | For additional detail, see Current Industrial Report MA335A, Switchgear and Industrial Controls. |
| @3353137 | For additional detail, see Current Industrial Report MA335A, Switchgear and Industrial Controls. |
| @3353139 | For additional detail, see Current Industrial Report MA335A, Switchgear and Industrial Controls. |
| @335313A | For additional detail, see Current Industrial Report MA335A, Switchgear and Industrial Controls. |

Part 2. Materials Consumed by Kind (Table 7)

Not applicable.

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|----------------------|------------------|------------------|---------------------|------------------|------------------|---------------------|------------------|------------------|
| 335314W | 36250 | 36250 | 335929A | 3357A | 3357A | 3359913322 | 3624996 | 3624996 |
| 335314WYWW | 3625000 | 3625000 | 335929A100 | 3357A00 | 3357A00 | 3359913YVW | 3624900 | 3624900 |
| 335314WYVW | 3625002 | 3625002 | 335929B | 3357B | 3357B | 335991W | 36240 | 36240 |
| 3359111 | 36913 | 36913 | 335929B100 | 3357B00 | 3357B00 | 335991WYVW | 3624000 | 3624000 |
| 3359111101 | 3691311 | 3691311 | 335929C | 3357C | 3357C | 335991WYVWY | 3624002 | 3624002 |
| 3359111204 | 3691312 | 3691312 | 335929C100 | 3357C00 | 3357C00 | 3359991 | 36291 | 36291 |
| 3359111307 | 3691317 | 3691317 | 335929D | 3357D | 3357D | 3359991101 | 3629101 | 3629101 |
| 3359111YVW | 3691300 | 3691300 | 335929D100 | 3357D00 | 3357D00 | 3359991103 | 3629104 | 3629104 |
| 3359114 | 36914 | 36914 | 335929E | 3357E | 3357E | 3359991YVW | 3629100 | 3629100 |
| 3359114101 | 3691411 | 3691411 | 335929E100 | 3357E00 | 3357E00 | 3359993 | 36292 | 36292 |
| 3359114104 | 3691419 | 3691419 | 335929W | 33570 pt | 33570 pt | 3359993101 | 3629221 | 3629221 |
| 3359114201 | 3691421 | 3691421 | 335929WYVW | 3357000 pt | 3357000 pt | 3359993104 | 3629225 | 3629225 |
| 3359114204 | 3691422 | 3691422 | 335929WYVWY | 3357002 pt | 3357002 pt | 3359993107 | 3629241 | 3629241 |
| 3359114207 | 3691479 | 3691479 | 3359311 | 36431 | 36431 | 3359993111 | 3629245 | 3629245 |
| 3359114YVW | 3691400 | 3691400 | 3359311000 | 3643100 | 3643100 | 3359993213 | 3629251 | 3629251 |
| 3359117 | 36915 | 36915 | 3359313 | 36432 | 36432 | 3359993216 | 3629253 | 3629253 |
| 3359117101 | 3691501 | 3691501 | 3359313000 | 3643200 | 3643200 | 3359993219 | 3629255 | 3629255 |
| 3359117104 | 3691502 | 3691502 | 3359315 | 36433 | 36433 | 3359993219 | 3629255 | 3629255 |
| 3359117201 | 3691591 | 3691591 | 3359315000 | 3643300 | 3643300 | 3359993YVW | 3629200 | 3629200 |
| 3359117YVW | 3691500 | 3691500 | 3359317 | 36434 | 36434 | 3359995 pt | 36293 | 36293 |
| 335911W | 36910 | 36910 | 3359317000 | 3643400 | 3643400 | 3359995 pt | 3699A pt | 3699A pt |
| 335911WYVW | 3691000 | 3691000 | 3359319 | 36435 | 36435 | 3359995101 | 3629301 | 3629301 |
| 335911WYVWY | 3691002 | 3691002 | 3359319000 | 3643500 | 3643500 | 3359995104 | 3629302 | 3629302 |
| 3359120 | 36920 | 36920 | 335931A | 36436 | 36436 | 3359995107 | 3629303 | 3629303 |
| 3359120101 | 3692001 pt | 3692001 pt | 335931A000 | 3643600 | 3643600 | 3359995111 | 3629304 | 3629304 |
| 3359120101 pt | 3692011 pt | 3692011 pt | 3359319 | 36435 | 36435 | 3359995137 pt | 3629311 | 3629311 |
| 3359120104 | 3692013 pt | 3692013 pt | 3359319000 | 3643500 | 3643500 | 3359995137 pt | 3699A21 | 3699A21 |
| 3359120104 pt | 3692013 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359995YVW pt | 3629300 | 3629300 |
| 3359120107 | 3692015 pt | 3692007 pt | 335931A | 36436 | 36436 | 3359995YVW pt | 3629304 | 3629304 |
| 3359120107 pt | 3692015 pt | 3692004 pt | 335931A000 | 3643600 | 3643600 | 3359997 | 36992 pt | 36992 pt |
| 3359120107 pt | 3692015 pt | 3692007 pt | 335931W | 36430 | 36430 | 3359997000 pt | 3699271 | 3699271 |
| 3359120111 | 3692017 pt | 3692005 pt | 335931WYVW | 3643000 | 3643000 | 3359997000 pt | 3699273 | 3699273 |
| 3359120111 pt | 3692017 pt | 3692007 pt | 335931WYVWY | 3643002 | 3643002 | 3359997000 pt | 3699200 pt | 3699200 pt |
| 3359120114 | 3692019 pt | 3692003 pt | 3359321 | 36441 | 36441 | 3359999 | 36992 pt | 36992 pt |
| 3359120114 pt | 3692019 pt | 3692005 pt | 3359321000 | 3644100 | 3644100 | 3359999100 pt | 3699297 | 3699297 |
| 3359120114 pt | 3692019 pt | 3692007 pt | 3359323 | 36442 | 36442 | 3359999100 pt | 3699200 pt | 3699200 pt |
| 3359120201 | 3692021 | 3692003 pt | 3359323000 | 3644200 | 3644200 | 3359999A | 36995 | 36995 |
| 3359120201 | 3692021 | 3692003 pt | 3359325 | 36443 | 36443 | 335999A000 | 3699500 | 3699500 |
| 3359120204 | 3692023 | 3692001 pt | 3359325000 | 3644300 | 3644300 | 335999B | 36996 pt | 36996 pt |
| 3359120207 | 3692025 | 3692005 pt | 335932W | 36440 | 36440 | 335999B100 pt | 3699600 pt | 3699600 pt |
| 3359120211 | 3692027 | 3692005 pt | 335932WYVW | 3644000 | 3644000 | 335999B100 pt | 3699605 | 3699605 |
| 3359120214 | 3692029 pt | 3692004 pt | 335932WYVWY | 3644002 | 3644002 | 335999C | 36999 | 36999 |
| 3359120214 pt | 3692029 pt | 3692005 pt | 3359911 | 36241 | 36241 | 335999C000 | 3699900 | 3699900 |
| 3359120301 | 3692009 | 3692009 | 335991101 | 3624152 | 3624152 | 335999D | 3699A pt | 3699A pt |
| 3359120YVW | 3692000 | 3692000 | 3359911101 | 3624156 | 3624156 | 335999D101 | 3699A01 | 3699A01 |
| 3359120YVWY | 3692002 | 3692002 | 3359911204 | 3624156 | 3624156 | 335999D203 | 3699A03 | 3699A03 |
| 3359210 pt | 33570 pt | 33570 pt | 3359911YVW | 3624100 | 3624100 | 335999D305 | 3699A05 | 3699A05 |
| 3359210 pt | 33579 | 33579 | 3359913 | 36249 | 36249 | 335999D407 | 3699A02 | 3699A02 |
| 3359210101 | 3357931 | 3357911 pt | 3359913101 pt | 3624916 pt | 3624916 pt | 335999DYVW | 3699A00 pt | 3699A00 pt |
| 3359210106 | 3357941 | 3357911 pt | 3359913101 pt | 3624916 pt | 3624916 pt | 335999W pt | 36290 | 36290 |
| 3359210111 | 3357951 | 3357911 pt | 3359913104 | 3624917 | 3624917 | 335999W pt | 36990 pt | 36990 pt |
| 3359210421 | 3357932 | 3357921 pt | 3359913207 | 3624988 | 3624988 | 335999WYVW | 3629000 | 3629000 |
| 3359210426 | 3357942 | 3357921 pt | 3359913311 | 3624981 | 3624981 | 335999WYVWY | 3699000 pt | 3699000 pt |
| 3359210431 | 3357952 | 3357921 pt | 3359913316 | 3624986 | 3624986 | 335999WYVWY | 3629002 | 3629002 |
| 3359210YVW pt | 3357000 pt | 3357000 pt | 3359913319 | 3624994 | 3624994 | 335999WYVWY | 3699002 pt | 3699002 pt |
| 3359210YVWY pt | 3357900 | 3357900 | | | | | | |
| 3359210YVWY | 3357002 pt | 3357002 pt | | | | | | |
| 3359291 | 33578 | 33578 | | | | | | |
| 3359291800 | 3357800 | 3357800 | | | | | | |

Relay and Industrial Control Manufacturing

1997

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

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

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

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

ALL-NEW INDUSTRY CLASSIFICATIONS

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

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

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

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

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

RELATIONSHIP TO SIC

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

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

GEOGRAPHIC AREA CODING

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

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

BASIS OF REPORTING

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

DOLLAR VALUES

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

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

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

Special Tabulations

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

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

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

HISTORICAL INFORMATION

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

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

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

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

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

SOURCES FOR MORE INFORMATION

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

ABBREVIATIONS AND SYMBOLS

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

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

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

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Manufacturing

SCOPE

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

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

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

GENERAL

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

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

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

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

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

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

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

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

GEOGRAPHIC AREAS COVERED

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

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

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

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

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

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

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

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

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

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

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

DISCLOSURE

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

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

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

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

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

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

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

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

| NAICS or SIC code | Industry | Compan-ies ¹ | All estab-lish-ments ² | All employees | | Production workers | | | Value added by manufac-ture (\$1,000) | Cost of materials (\$1,000) | Value of ship-ments (\$1,000) | Total capital ex-pen-di-tures (\$1,000) |
|-------------------|---------------------------------------------|-------------------------|-----------------------------------|---------------|-------------------|--------------------|---------------|-----------------|---------------------------------------|-----------------------------|-------------------------------|-----------------------------------------|
| | | | | Number | Payroll (\$1,000) | Number | Hours (1,000) | Wages (\$1,000) | | | | |
| 335314 | Relay & industrial control mfg . | 1 244 | 1 323 | 68 594 | 2 434 476 | 38 933 | 71 267 | 972 842 | 6 160 767 | 5 626 541 | 11 781 699 | 340 727 |
| 362500 | Relays & industrial controls | N | 1 323 | 68 594 | 2 434 476 | 38 933 | 71 267 | 972 842 | 6 160 767 | 5 626 541 | 11 781 699 | 340 727 |

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

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

Table 2. Industry Statistics for Selected States: 1997

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

| Industry and geographic area | E ¹ | All establishments | | All employees | | Production workers | | | Value added by manufac-ture (\$1,000) | Cost of materials (\$1,000) | Value of ship-ments (\$1,000) | Total capital ex-pen-di-tures (\$1,000) |
|---------------------------------------------------|----------------|--------------------|-----------------------------|---------------|-------------------|--------------------|---------------|-----------------|---------------------------------------|-----------------------------|-------------------------------|-----------------------------------------|
| | | Total | With 20 em-ploy-ees or more | Number | Payroll (\$1,000) | Number | Hours (1,000) | Wages (\$1,000) | | | | |
| 335314, RELAY & INDUSTRIAL CONTROL MFG | | | | | | | | | | | | |
| United States | - | 1 323 | 481 | 68 594 | 2 434 476 | 38 933 | 71 267 | 972 842 | 6 160 767 | 5 626 541 | 11 781 699 | 340 727 |
| Alabama | 4 | 14 | 6 | 257 | 9 556 | 127 | 219 | 3 116 | 20 132 | 14 911 | 35 012 | 716 |
| California | 1 | 151 | 48 | 5 304 | 194 600 | 3 020 | 5 929 | 76 981 | 461 374 | 286 524 | 740 401 | 18 841 |
| Colorado | 2 | 19 | 5 | 751 | 32 795 | 262 | 604 | 9 339 | 42 999 | 40 155 | 87 024 | 2 517 |
| Connecticut | 1 | 49 | 14 | 1 131 | 41 731 | 592 | 1 115 | 15 581 | 102 731 | 72 767 | 175 932 | 3 126 |
| Florida | 1 | 56 | 28 | 2 371 | 81 201 | 1 257 | 2 231 | 26 557 | 187 957 | 161 016 | 347 660 | 14 379 |
| Georgia | - | 22 | 9 | 1 904 | 70 172 | 985 | 1 824 | 28 615 | 318 603 | 304 996 | 639 414 | 15 642 |
| Idaho | - | 7 | 3 | 155 | 4 511 | 73 | 124 | 1 183 | 7 851 | 4 068 | 11 767 | 292 |
| Illinois | - | 101 | 40 | 5 193 | 164 218 | 3 193 | 5 129 | 64 305 | 368 612 | 421 168 | 761 811 | 26 691 |
| Indiana | 1 | 27 | 11 | 1 006 | 27 811 | 668 | 1 324 | 13 041 | 54 890 | 35 972 | 90 656 | 1 762 |
| Iowa | - | 10 | 5 | 1 113 | 29 093 | 737 | 1 590 | 13 158 | 98 663 | 40 926 | 138 687 | 3 266 |
| Kansas | 2 | 12 | 2 | 214 | 7 224 | 109 | 226 | 2 808 | 13 286 | 13 673 | 26 720 | 787 |
| Kentucky | - | 9 | 3 | 449 | 17 260 | 346 | 647 | 12 657 | 52 141 | 30 684 | 91 683 | 2 249 |
| Massachusetts | - | 39 | 18 | 2 518 | 105 735 | 1 041 | 1 740 | 26 545 | 261 369 | 191 570 | 455 493 | 20 185 |
| Michigan | 1 | 81 | 30 | 2 276 | 92 226 | 1 325 | 2 508 | 36 490 | 166 954 | 144 667 | 311 752 | 7 818 |
| Minnesota | - | 43 | 19 | 2 686 | 77 860 | 1 257 | 2 315 | 30 171 | 173 689 | 165 165 | 362 137 | 18 717 |
| Missouri | 4 | 17 | 7 | 340 | 11 678 | 159 | 295 | 3 338 | 25 314 | 15 562 | 41 293 | 1 107 |
| New Hampshire | - | 12 | 6 | 590 | 19 467 | 388 | 777 | 6 461 | 60 006 | 89 734 | 147 380 | 4 068 |
| New Jersey | 2 | 45 | 11 | 803 | 27 768 | 477 | 961 | 11 366 | 50 429 | 32 995 | 83 770 | 1 586 |
| New York | 2 | 78 | 33 | 3 323 | 99 330 | 2 023 | 3 947 | 41 003 | 237 393 | 154 707 | 394 664 | 15 092 |
| North Carolina | - | 43 | 17 | 5 992 | 200 388 | 4 174 | 7 752 | 109 123 | 592 185 | 707 419 | 1 295 202 | 26 254 |
| Ohio | - | 78 | 32 | 6 054 | 262 337 | 2 634 | 5 240 | 75 855 | 770 030 | 439 539 | 1 222 554 | 35 215 |
| Oregon | 2 | 20 | 4 | 295 | 9 643 | 153 | 256 | 3 335 | 16 501 | 15 999 | 32 741 | 1 390 |
| Pennsylvania | - | 74 | 26 | 2 879 | 98 890 | 1 440 | 2 702 | 33 141 | 224 671 | 251 842 | 483 346 | 13 142 |
| Rhode Island | - | 10 | 4 | 379 | 9 368 | 267 | 413 | 3 539 | 38 149 | 18 969 | 58 252 | 2 112 |
| South Carolina | - | 11 | 7 | 1 840 | 52 508 | 1 169 | 2 062 | 27 745 | 118 894 | 125 709 | 245 037 | 5 520 |
| Tennessee | 2 | 13 | 4 | 284 | 9 464 | 159 | 274 | 3 514 | 24 239 | 13 926 | 38 055 | 487 |
| Texas | 1 | 73 | 22 | 2 041 | 73 040 | 1 075 | 2 026 | 21 992 | 153 668 | 184 345 | 338 686 | 7 005 |
| Virginia | - | 27 | 8 | 4 049 | 166 201 | 1 658 | 3 277 | 52 370 | 426 843 | 340 768 | 748 779 | 16 487 |
| Washington | 2 | 35 | 12 | 765 | 25 693 | 364 | 694 | 7 744 | 67 103 | 50 748 | 116 541 | 3 455 |
| Wisconsin | - | 60 | 28 | 9 848 | 366 320 | 6 713 | 11 184 | 191 910 | 887 437 | 1 175 077 | 2 039 330 | 65 297 |

* 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 |
|-----------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------|---------------------|
| 335314, RELAY & INDUSTRIAL CONTROL MFG | | 335314, RELAY & INDUSTRIAL CONTROL MFG— Con. | |
| Companies ¹ | number.. 1 244 | Value added | \$1,000.. 6 160 767 |
| All establishments | number.. 1 323 | Total inventories, beginning of year | \$1,000.. 1 551 702 |
| Establishments with 1 to 19 employees | number.. 842 | Finished goods inventories, beginning of year | \$1,000.. 377 481 |
| Establishments with 20 to 99 employees | number.. 329 | Work-in-process inventories, beginning of year | \$1,000.. 527 745 |
| Establishments with 100 employees or more | number.. 152 | Materials and supplies inventories, beginning of year | \$1,000.. 646 476 |
| All employees | number.. 68 594 | Total inventories, end of year | \$1,000.. 1 596 769 |
| Total compensation ² | \$1,000.. 3 066 260 | Finished goods inventories, end of year | \$1,000.. 389 386 |
| Annual payroll | \$1,000.. 2 434 476 | Work-in-process inventories, end of year | \$1,000.. 521 449 |
| Total fringe benefits | \$1,000.. 631 784 | Materials and supplies inventories, end of year | \$1,000.. 685 934 |
| Production workers, average for year | number.. 38 933 | Gross book value of total assets at beginning of year | \$1,000.. 2 847 784 |
| Production workers on March 12 | number.. 38 366 | Total capital expenditures (new and used) | \$1,000.. 340 727 |
| Production workers on May 12 | number.. 38 768 | Capital expenditures for buildings and other structures (new and used) | \$1,000.. 73 228 |
| Production workers on August 12 | number.. 39 288 | Capital expenditures for machinery and equipment (new and used) | \$1,000.. 267 499 |
| Production workers on November 12 | number.. 39 310 | Total retirements ² | \$1,000.. 139 789 |
| Production-worker hours | 1,000.. 71 267 | Gross book value of total assets at end of year | \$1,000.. 3 048 722 |
| Production-worker wages | \$1,000.. 972 842 | Total depreciation during year ² | \$1,000.. 226 990 |
| Total cost of materials | \$1,000.. 5 626 541 | Total rental payments ² | \$1,000.. 90 570 |
| Cost of materials, parts, containers, etc., consumed | \$1,000.. 4 680 133 | Buildings and other structures rental payments ² | \$1,000.. 50 807 |
| Cost of resales | \$1,000.. 805 018 | Machinery and equipment rental payments ² | \$1,000.. 39 763 |
| Cost of fuels | \$1,000.. 10 113 | Cost of purchased services for the repair of buildings and other structures ³ | \$1,000.. 17 489 |
| Cost of purchased electricity | \$1,000.. 51 602 | Response coverage ratio ⁴ | percent.. 78 |
| Cost of contract work | \$1,000.. 79 675 | Cost of purchased services for the repair of machinery and equipment ³ | \$1,000.. 21 182 |
| Quantity of electricity purchased for heat and power | 1,000 kWh.. 829 784 | 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.. 33 580 |
| Total value of shipments | \$1,000.. 11 781 699 | Response coverage ratio ⁴ | percent.. 78 |
| Primary products value of shipments | \$1,000.. 9 922 221 | Cost of purchased legal services ³ | \$1,000.. 14 812 |
| Secondary products value of shipments | \$1,000.. 709 326 | Response coverage ratio ⁴ | percent.. 78 |
| Total miscellaneous receipts | \$1,000.. 1 150 152 | Cost of purchased accounting and bookkeeping services ³ | \$1,000.. 8 421 |
| Value of resales | \$1,000.. 1 066 850 | Response coverage ratio ⁴ | percent.. 78 |
| Contract receipts | \$1,000.. 24 201 | Cost of purchased advertising services ³ | \$1,000.. 46 068 |
| Other miscellaneous receipts | \$1,000.. 59 101 | Response coverage ratio ⁴ | percent.. 78 |
| Primary products specialization ratio | percent.. 93 | Cost of purchased software and other data processing services ³ | \$1,000.. 11 338 |
| Value of primary products shipments made in all industries | \$1,000.. 10 837 840 | Response coverage ratio ⁴ | percent.. 78 |
| Value of primary products shipments made in this industry | \$1,000.. 9 922 221 | Cost of purchased refuse removal (including hazardous waste) services ³ | \$1,000.. 4 826 |
| Value of primary products shipments made in other industries | \$1,000.. 915 619 | Response coverage ratio ⁴ | percent.. 78 |
| 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) | | | | |
| 335314, RELAY & INDUSTRIAL CONTROL MFG | | | | | | | | | | | | |
| All establishments | - | 1 323 | 481 | 68 594 | 2 434 476 | 38 933 | 71 267 | 972 842 | 6 160 767 | 5 626 541 | 11 781 699 | 340 727 |
| Establishments with 1 to 4 employees | 9 | 405 | - | 847 | 25 658 | 535 | 748 | 9 869 | 54 831 | 45 067 | 101 196 | 3 986 |
| Establishments with 5 to 9 employees | 7 | 231 | - | 1 570 | 52 217 | 849 | 1 366 | 19 803 | 112 687 | 92 665 | 208 729 | 7 806 |
| Establishments with 10 to 19 employees | 4 | 206 | - | 2 813 | 99 973 | 1 497 | 2 514 | 35 482 | 213 910 | 166 597 | 384 467 | 9 749 |
| Establishments with 20 to 49 employees | 1 | 221 | 221 | 6 759 | 239 202 | 3 535 | 6 518 | 82 440 | 512 798 | 399 783 | 914 003 | 21 317 |
| Establishments with 50 to 99 employees | 1 | 108 | 108 | 7 340 | 264 626 | 3 977 | 7 548 | 98 005 | 589 821 | 455 784 | 1 060 901 | 23 022 |
| Establishments with 100 to 249 employees | - | 95 | 95 | 14 764 | 509 023 | 8 533 | 15 993 | 192 830 | 1 195 806 | 1 133 991 | 2 343 917 | 69 525 |
| Establishments with 250 to 499 employees | - | 34 | 34 | 11 602 | 368 400 | 6 892 | 13 694 | 154 742 | 1 092 731 | 793 555 | 1 865 804 | 64 819 |
| Establishments with 500 to 999 employees | - | 18 | 18 | 12 047 | 424 547 | 7 208 | 14 009 | 199 079 | 1 155 861 | 1 283 872 | 2 453 943 | 62 229 |
| 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 | - | 1 | 1 | D | D | D | D | D | D | D | D | D |
| Administrative records ² | 9 | 585 | - | 2 581 | 68 758 | 1 439 | 1 966 | 26 416 | 146 404 | 121 425 | 271 768 | 10 540 |

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) | | | | |
| 335314 | Relay & industrial control mfg | 1 323 | 68 594 | 2 434 476 | 38 933 | 71 267 | 972 842 | 6 160 767 | 5 626 541 | 11 781 699 | 340 727 |
| 3353141 | Relays for electronic circuitry, industrial control, overload, and switchgear type | 79 | 8 485 | 243 513 | 5 334 | 9 660 | 108 595 | 541 291 | 335 817 | 892 137 | 25 038 |
| 3353143 | Specific-purpose industrial controls .. | 284 | 22 859 | 887 665 | 10 964 | 21 625 | 281 424 | 2 230 880 | 1 776 543 | 3 974 082 | 130 317 |
| 3353145 | General-purpose industrial controls .. | 176 | 28 805 | 1 042 434 | 17 708 | 31 688 | 478 775 | 2 838 742 | 3 065 747 | 5 905 035 | 143 618 |
| 3353147 | Parts for industrial controls and motor-control accessories | 46 | 2 280 | 68 092 | 1 436 | 2 865 | 31 588 | 132 946 | 120 130 | 253 252 | 9 237 |

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) |
| 335314 | Relays and industrial controls | N | X | X | 10 837 840 | N | X | X | 7 273 594 |
| 3353141 | Relays for electronic circuitry, industrial control, overload, and switchgear type @ | N | X | X | 953 178 | N | X | X | 843 179 |
| 33531410 | Relays for electronic circuitry, industrial control, overload, and switchgear type | N | X | X | 953 178 | N | X | X | N |
| 3353141000 | Relays for electronic circuitry, industrial control, overload, and switchgear type | 135 | X | X | 953 178 | 141 | X | X | 843 179 |
| 3353143 | Specific-purpose industrial controls @ | N | X | X | 3 670 844 | N | X | X | 2 306 334 |
| 33531430 | Specific-purpose industrial controls | N | X | X | 3 670 844 | N | X | X | N |
| 3353143000 | Specific-purpose industrial controls | 390 | X | X | 3 670 844 | 353 | X | X | 2 306 334 |
| 3353145 | General-purpose industrial controls @ | N | X | X | 4 752 704 | N | X | X | 3 018 955 |
| 33531450 | General-purpose industrial controls | N | X | X | 4 752 704 | N | X | X | N |
| 3353145000 | General-purpose industrial controls | 239 | X | X | 4 752 704 | 244 | X | X | 3 018 955 |
| 3353147 | Parts for industrial controls and motor-control accessories @ | N | X | X | 652 157 | N | X | X | 497 043 |
| 33531470 | Parts for industrial controls and motor-control accessories | N | X | X | 652 157 | N | X | X | N |
| 3353147000 | Parts for industrial controls and motor-control accessories | 150 | X | X | 652 157 | 117 | X | X | 497 043 |
| 335314W | Relays and industrial controls, nsk, total | N | X | X | 808 957 | N | X | X | 608 083 |
| 335314WY | Relays and industrial controls, nsk, total | N | X | X | 808 957 | N | X | X | N |
| 335314WYWW | Relays and industrial controls, nsk, for nonadministrative-record establishments | N | X | X | 553 439 | N | X | X | 429 330 |
| 335314WYWY | Relays and industrial controls, nsk, for administrative-record establishments | N | X | X | 255 518 | N | X | X | 178 753 |

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 |
| 3353141 | RELAYS FOR ELECTRONIC CIRCUITRY, INDUSTRIAL CONTROL, OVERLOAD, AND SWITCHGEAR TYPE @ | | |
| | United States | 953 178 | 843 179 |
| | California | 152 971 | 106 756 |
| | Connecticut | 13 236 | 24 429 |
| | Florida | 47 318 | N |
| | Illinois | 59 149 | 83 928 |
| | Indiana | 9 177 | 65 138 |
| | Michigan | 48 098 | 14 208 |
| | New Jersey | 18 353 | 40 264 |
| | New York | 33 548 | 44 116 |
| | North Carolina | 91 862 | 49 597 |
| | Ohio | 57 878 | 36 353 |
| | Pennsylvania | 28 680 | 55 928 |
| | Texas | 32 185 | 15 753 |
| | Wisconsin | 68 296 | 42 600 |

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 |
| 3353143 | SPECIFIC-PURPOSE INDUSTRIAL CONTROLS @ | | |
| | United States | 3 670 844 | 2 306 334 |
| | Alabama | 4 934 | 4 275 |
| | California | 246 901 | 153 553 |
| | Colorado | 8 958 | 7 971 |
| | Connecticut | 89 211 | 46 035 |
| | Florida | 92 728 | 74 323 |
| | Illinois | 280 085 | 113 516 |
| | Iowa | 76 331 | 68 085 |
| | Louisiana | 4 690 | N |
| | Massachusetts | 307 506 | 204 826 |
| | Michigan | 176 125 | 97 946 |
| | Minnesota | 36 410 | 45 035 |
| | Missouri | 20 354 | N |
| | New Jersey | 44 490 | 28 784 |
| | New York | 100 143 | 107 373 |
| | North Carolina | 121 358 | 165 368 |
| | Ohio | 612 361 | 354 275 |
| | Oregon | 8 732 | 11 263 |
| | Pennsylvania | 215 854 | 95 723 |
| | Tennessee | 18 497 | N |
| | Texas | 106 596 | 78 407 |
| | Virginia | 416 870 | N |
| | Washington | 28 820 | 5 017 |
| | Wisconsin | 398 600 | 120 266 |
| 3353145 | GENERAL-PURPOSE INDUSTRIAL CONTROLS @ | | |
| | United States | 4 752 704 | 3 018 955 |
| | Alabama | 9 825 | N |
| | Arkansas | 12 204 | 9 909 |
| | California | 162 925 | 259 931 |
| | Connecticut | 59 810 | 56 478 |
| | Florida | 112 118 | 47 795 |
| | Illinois | 238 527 | 249 141 |
| | Indiana | 52 567 | 31 512 |
| | Massachusetts | 98 334 | N |
| | Michigan | 51 581 | 45 213 |
| | Minnesota | 223 445 | 71 639 |
| | New York | 182 895 | 116 259 |
| | North Carolina | 582 121 | 387 364 |
| | Ohio | 391 938 | 223 776 |
| | Oklahoma | 15 980 | 8 609 |
| | Pennsylvania | 144 869 | 83 229 |
| | Tennessee | 6 374 | 5 797 |
| | Texas | 216 239 | 123 069 |
| | Virginia | 40 359 | N |
| | Washington | 48 797 | N |
| | Wisconsin | 1 179 271 | 634 168 |
| 3353147 | PARTS FOR INDUSTRIAL CONTROLS AND MOTOR-CONTROL ACCESSORIES @ | | |
| | United States | 652 157 | 497 043 |
| | California | 31 341 | 7 747 |
| | Connecticut | 14 995 | N |
| | Illinois | 33 514 | 30 546 |
| | Massachusetts | 3 060 | N |
| | Michigan | 6 999 | 5 924 |
| | Minnesota | 20 609 | N |
| | New York | 23 303 | 19 999 |
| | North Carolina | 92 253 | N |
| | Ohio | 98 564 | 49 966 |
| | Pennsylvania | 23 308 | 21 968 |
| | Texas | 31 132 | 6 617 |
| | Wisconsin | 78 208 | 77 466 |

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) |
| 335314 | RELAY & INDUSTRIAL CONTROL MFG | | | | |
| 33200A9 | Sheet metal products, except stampings | X | 92 214 | X | 86 888 |
| 33272203 | Metal bolts, nuts, screws, washers, rivets, and other screw machine products | X | 57 387 | X | 46 538 |
| 33200087 | All other fabricated metal products (except forgings) | X | 92 324 | X | 82 169 |
| 33210001 | Forgings | X | 1 696 | X | 3 582 |
| 33100035 | Castings (rough and semifinished) | X | 22 518 | X | 21 255 |
| 33120007 | Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products) | X | 15 975 | X | 8 612 |
| 33120017 | Steel sheet and strip, including tin plate | X | 62 023 | X | 35 372 |
| 33120019 | Steel structural shapes and sheet piling (except castings, forgings, and fabricated metal products) | X | D | X | 3 931 |
| 33120091 | All other steel shapes and forms (except castings, forgings, and fabricated metal products) | X | D | X | 7 441 |
| 33140001 | Nonferrous metal smelter and refinery shapes, including precious metal (except castings, forgings, & fabr. metal prods) | X | 20 942 | X | 19 829 |
| 33100061 | Aluminum and aluminum-base alloy shapes and forms (except wire, castings, forgings, and fabricated metal products) | X | 14 780 | X | 10 885 |
| 33142123 | Copper and copper-base alloy shapes and forms (except wire, castings, forgings, and fabricated metal products) | X | 25 933 | X | 30 770 |
| 33100081 | All other nonferrous shapes and forms (except castings, forgings, and fabricated metal products) | X | 19 882 | X | 5 866 |
| 33100087 | Nonferrous wire and cable, including magnet wire, bare or insulated wire, etc. | X | 59 170 | X | 32 667 |
| 33531401 | Industrial electrical control equipment purchased from other companies | X | 552 254 | X | 247 398 |
| 33531403 | Industrial electrical control equipment received from other plants of the same company | X | 495 593 | X | 257 752 |
| 32711301 | Porcelain, steatite, and other ceramic electrical products | X | 9 521 | X | 7 745 |
| 32610013 | Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes | X | 43 222 | X | 44 367 |
| 32521105 | Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. | X | 32 632 | X | 22 090 |
| 33531301 | Switches, except snap, toggle and push, and circuit breakers | X | 38 883 | X | 31 471 |
| 001900B5 | Resistors, capacitors, transformers, and other electronic-type components, except electron tubes and semiconductors | X | 236 310 | X | 407 762 |
| 33441200 | Printed circuit boards (without inserted components) for electronic circuitry | X | 133 582 | X | N |
| 001900B9 | Semiconductors, microprocessors, memory, ASICs and power semiconductor devices | X | 137 108 | X | N |
| 00970099 | All other materials and components, parts, containers, and supplies | X | 1 529 630 | X | N |
| 00971000 | Materials, ingredients, containers, and supplies, n.s.k. | X | 909 063 | 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

335314 RELAY AND INDUSTRIAL CONTROL MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing relays, motor starters and controllers, and other industrial controls and control accessories.

The data published with NAICS code 335314 include the following SIC industry:

3625 Relays and industrial controls

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 |
|--------------------|--------------------------------------------------------------------------------------------------|
| @3353141 | For additional detail, see Current Industrial Report MA335A, Switchgear and Industrial Controls. |
| @3353143 | For additional detail, see Current Industrial Report MA335A, Switchgear and Industrial Controls. |
| @3353145 | For additional detail, see Current Industrial Report MA335A, Switchgear and Industrial Controls. |
| @3353147 | For additional detail, see Current Industrial Report MA335A, Switchgear and Industrial Controls. |

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 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 3351101 | 36411 | 36411 | 3352121 | 36350 pt | 36350 pt | 3353113 pt | 36123 | 36123 |
| 335110100 | 3641100 | 3641100 | 3352121101 | 3635041 | 3635041 | 3353113101 | 3612301 | 3612301 |
| 3351103 | 36412 | 36412 | 3352121103 | 3635011 | 3635011 | 3353113104 | 3612302 | 3612302 |
| 3351103100 | 3641200 | 3641200 | 3352121105 | 3635033 | 3635033 | 3353113107 | 3548105 | 3548104 pt |
| 335110W | 36410 | 36410 | 3352121107 pt | 3635044 pt | 3635031 | 3353113109 | 3612306 | 3612306 |
| 335110WYWW | 3641000 | 3641000 | 3352121107 pt | 3635044 pt | 3635036 | 3353113113 | 3612307 | 3612307 |
| 335110WYWY | 3641002 | 3641002 | 3352121111 | 3635051 | 3635051 | 3353113115 | 3612308 | 3612308 |
| 3351211 | 36451 | 36451 | 3352121113 | 3635071 | 3635071 | 3353113116 | 3612311 | 3612311 |
| 3351211000 | 3645100 | 3645100 | 3352121YWW | 3635000 pt | 3635000 pt | 3353113YWW pt | 3548100 pt | 3548100 pt |
| 3351213 pt | 30897 pt | 30897 pt | 3352122 | 36395 pt | 36395 pt | 3353113YWW pt | 3612300 | 3612300 |
| 3351213 pt | 30897 pt | 30897 pt | 335212211 | 3639525 | 3639520 pt | 3353115 | 36124 | 36124 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122219 | 3639513 | 3639510 pt | 3353115000 | 3612400 | 3612400 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122YWW | 3639500 pt | 3639500 pt | 3353117 | 36126 | 36126 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36350 pt | 36350 pt | 335311701 | 3612601 | 3612601 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36390 pt | 36390 pt | 3353117104 | 3612602 | 3612602 |
| 335121311 | 39999 pt | 39999 pt | 335212W pt | 36390 pt | 36390 pt | 3353117107 | 3612603 | 3612603 |
| 3351213111 | 3645721 | 3645721 | 335212WYWW pt | 3635000 pt | 3635000 pt | 3353117111 | 3612604 | 3612604 |
| 3351213121 | 3645722 | 3645722 | 335212WYWW pt | 3639000 pt | 3639000 pt | 3353117113 pt | 3612608 pt | 3612605 |
| 3351213131 | 3645723 | 3645723 | 335212WYWW pt | 3635002 | 3635002 | 3353117113 pt | 3612608 pt | 3612609 |
| 3351213131 | 3645723 | 3645723 | 335212WYWW pt | 3639002 pt | 3639002 pt | 3353117YWW | 3612600 | 3612600 |
| 3351213141 | 3645729 | 3645729 | 3352211 | 36311 | 36311 | 3353119 | 36127 | 36127 |
| 3351213151 | 3645732 | 3645732 | 3352211110 | 3631110 | 3631110 | 3353119101 | 3612701 | 3612701 |
| 3351213161 | 3645761 | 3645761 | 3352211290 | 3631120 | 3631120 | 3353119104 | 3612778 | 3612778 |
| 3351213165 | 3999961 | 3999961 | 3352211YWW | 3631100 | 3631100 | 3353119YWW | 3612700 | 3612700 |
| 3351213169 | 3089705 | 3089709 pt | 3352213 | 36313 | 36313 | 335311W pt | 35480 pt | 35480 pt |
| 3351213171 | 3645773 | 3645773 | 3352213110 | 3631310 | 3631310 | 335311W pt | 36120 | 36120 |
| 3351213YVW pt | 3089700 pt | 3089700 pt | 3352213190 | 3631320 | 3631320 | 335311WYWW pt | 3548000 pt | 3548000 pt |
| 3351213YVW pt | 3645700 | 3645700 | 3352213YVW | 3631300 | 3631300 | 335311WYVW pt | 3612000 | 3612000 |
| 3351213YVW pt | 3999900 pt | 3999900 pt | 3352215 | 36314 | 36314 | 335311WYVW pt | 3548002 pt | 3548002 pt |
| 335121W pt | 30890 pt | 30890 pt | 3352215110 | 3631410 | 3631410 | 335311WYVW pt | 3612002 | 3612002 |
| 335121W pt | 30890 pt | 30890 pt | 3352215190 | 3631420 | 3631420 | 3353121 | 36211 | 36211 |
| 335121W pt | 30890 pt | 30890 pt | 3352215YVW | 3631400 | 3631400 | 3353121000 | 3621100 | 3621100 |
| 335121W pt | 30890 pt | 30890 pt | 335221W | 36310 | 36310 | 3353123 | 36212 | 36212 |
| 335121WYVW pt | 3089000 pt | 3089000 pt | 335221WYWW | 3631000 | 3631000 | 3353123000 | 3621200 | 3621200 |
| 335121WYVW pt | 3645000 | 3645000 | 335221WYVW | 3631002 | 3631002 | 3353125 | 36213 | 36213 |
| 335121WYVW pt | 3999002 pt | 3999002 pt | 335221WYVW | 3632000 | 3632000 | 3353125000 | 3621300 | 3621300 |
| 335121WYVW pt | 3999002 pt | 3999002 pt | 335221WYVW | 3632002 | 3632002 | 3353127 | 36214 | 36214 |
| 3351221 | 36462 | 36462 | 3352220 | 36322 | 36322 | 3353127000 | 3621400 | 3621400 |
| 3351221000 | 3646200 | 3646200 | 3352222000 | 3632200 | 3632200 | 3353129 | 36217 | 36217 |
| 3351222 | 36463 | 36463 | 3352223 | 36323 | 36323 | 3353129000 | 3621700 | 3621700 |
| 3351222000 | 3646300 | 3646300 | 3352223000 | 3632300 | 3632300 | 335312A | 36218 | 36218 |
| 335122W | 36460 | 36460 | 335222W | 36320 | 36320 | 335312A000 | 3621800 | 3621800 |
| 335122WYVW | 3646000 | 3646000 | 335222WYWW | 3632000 | 3632000 | 335312C | 36219 | 36219 |
| 335122WYVW | 3646002 | 3646002 | 335222WYVW | 3632002 | 3632002 | 335312C000 | 3621900 | 3621900 |
| 3351291 | 36485 | 36485 | 3352240 | 36330 | 36330 | 335312E | 76940 pt | 76940 pt |
| 3351291000 | 3648500 | 3648500 | 3352240110 | 3633010 | 3633010 | 335312E100 pt | 7694020 | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352240190 | 3633020 | 3633020 | 335312E100 pt | 7694000 pt | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352240YVW | 3633000 | 3633000 | 335312W pt | 36210 | 36210 |
| 3351293 pt | 36489 | 36489 | 3352240YVW | 3633002 | 3633002 | 335312W pt | 36210 | 36210 |
| 3351293 pt | 36996 pt | 36996 pt | 3352281 | 36391 | 36391 | 335312W pt | 76940 pt | 76940 pt |
| 3351293109 | 3648912 | 3648912 | 3352281000 | 3639100 | 3639100 | 335312WYVW pt | 3621000 | 3621000 |
| 3351293112 | 3648916 | 3648916 | 3352283 | 36392 | 36392 | 335312WYVW pt | 7694000 pt | 7694000 pt |
| 3351293114 | 3648917 | 3648917 | 3352283000 | 3639200 | 3639200 | 335312WYVW pt | 3621002 | 3621002 |
| 3351293116 | 3648931 | 3648931 | 3352285 | 36395 | 36395 | 335312WYVW pt | 7694002 | 7694000 pt |
| 3351293118 | 3648975 | 3648975 | 3352285110 | 3639511 | 3639510 pt | 3353131 | 36132 | 36132 |
| 3351293122 pt | 3648979 pt | 3648921 | 3352285190 | 3639521 | 3639520 pt | 3353131000 | 3613200 | 3613200 |
| 3351293122 pt | 3648979 pt | 3648991 | 3352285YVW | 3639500 pt | 3639500 pt | 3353133 | 36133 | 36133 |
| 3351293122 pt | 3648979 pt | 3648991 | 335228W | 36390 pt | 36390 pt | 3353133000 | 3613300 | 3613300 |
| 3351293124 | 3648970 | 3648970 | 335228WYVW | 3639000 pt | 3639000 pt | 3353135 | 36134 | 36134 |
| 3351293126 pt | 3648984 pt | 3648983 | 335228WYVW | 3639002 pt | 3639002 pt | 3353135000 | 3613400 | 3613400 |
| 3351293126 pt | 3648984 pt | 3648987 | 3353111 | 36122 | 36122 | 3353137 | 36135 | 36135 |
| 3351293131 | 3648985 | 3648985 | 335311101 | 3612202 | 3612202 | 3353137000 | 3613500 | 3613500 |
| 3351293YVW pt | 3648900 | 3648900 | 3353111204 | 3612204 | 3612204 | 3353139 | 36136 | 36136 |
| 3351293YVW pt | 3648900 pt | 3648900 pt | 3353111307 | 3612206 | 3612206 | 3353139000 | 3613600 | 3613600 |
| 3351293YVW pt | 3699002 pt | 3699002 pt | 3353111311 | 3612214 | 3612214 | 335313A | 36139 | 36139 |
| 3351293YVW pt | 3699002 pt | 3699002 pt | 3353111313 | 3612216 | 3612216 | 335313A000 | 3613900 | 3613900 |
| 3352111 | 36341 | 36341 | 3353111316 | 3612219 | 3612219 | 335313W | 36130 | 36130 |
| 3352111000 | 3634100 | 3634100 | 3353111419 | 3612221 | 3612221 | 335313WYVW | 3613000 | 3613000 |
| 3352113 | 36345 | 36345 | 3353111422 | 3612223 | 3612223 | 335313WYVW | 3613002 | 3613002 |
| 3352113000 | 3634510 | 3634500 pt | 3353111425 | 3612228 | 3612228 | 3353141 | 36251 | 36251 |
| 3352115 | 36349 pt | 36349 pt | 3353111428 | 3612229 | 3612229 | 3353141000 | 3625100 | 3625100 |
| 3352115010 | 3634911 | 3634911 | 3353111431 | 3612232 | 3612232 | 3353143 | 36252 | 36252 |
| 3352115090 | 3634920 | 3634920 pt | 3353111434 | 3612233 | 3612233 | 3353143000 | 3625200 | 3625200 |
| 3352115YVW | 3634900 pt | 3634900 pt | 3353111537 | 3612237 | 3612237 | 3353145 | 36253 | 36253 |
| 335211W | 36340 pt | 36340 pt | 3353111541 | 3612239 | 3612239 | 3353145000 | 3625300 | 3625300 |
| 335211WYVW | 3634000 pt | 3634000 pt | 3353111543 | 3612241 | 3612241 | 3353147 | 36254 | 36254 |
| 335211WYVW | 3634002 pt | 3634002 pt | 3353111546 | 3612242 | 3612242 | 3353147000 | 3625400 | 3625400 |
| | | | 3353111549 | 3612243 | 3612243 | | | |
| | | | 3353111552 | 3612244 | 3612244 | | | |
| | | | 3353111YVW | 3612200 | 3612200 | | | |
| | | | 3353113 pt | 35481 pt | 35481 pt | | | |

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|---------------------|------------------|------------------|---------------------|------------------|------------------|---------------------|------------------|------------------|
| 335314W | 36250 | 36250 | 335929A | 3357A | 3357A | 3359913322 | 3624996 | 3624996 |
| 335314WYWW | 3625000 | 3625000 | 335929A100 | 3357A00 | 3357A00 | 3359913YVW | 3624900 | 3624900 |
| 335314WYVW | 3625002 | 3625002 | 335929B | 3357B | 3357B | 335991W | 36240 | 36240 |
| 3359111 | 36913 | 36913 | 335929B100 | 3357B00 | 3357B00 | 335991WYVW | 3624000 | 3624000 |
| 3359111101 | 3691311 | 3691311 | 335929C | 3357C | 3357C | 335991WYVY | 3624002 | 3624002 |
| 3359111204 | 3691312 | 3691312 | 335929C100 | 3357C00 | 3357C00 | 3359991 | 36291 | 36291 |
| 3359111307 | 3691317 | 3691317 | 335929D | 3357D | 3357D | 3359991101 | 3629101 | 3629101 |
| 3359111YVW | 3691300 | 3691300 | 335929D100 | 3357D00 | 3357D00 | 3359991103 | 3629104 | 3629104 |
| 3359114 | 36914 | 36914 | 335929E | 3357E | 3357E | 3359991YVW | 3629100 | 3629100 |
| 3359114101 | 3691411 | 3691411 | 335929E100 | 3357E00 | 3357E00 | 3359993 | 36292 | 36292 |
| 3359114104 | 3691419 | 3691419 | 335929W | 33570 pt | 33570 pt | 3359993101 | 3629221 | 3629221 |
| 3359114201 | 3691421 | 3691421 | 335929WYVW | 3357000 pt | 3357000 pt | 3359993104 | 3629225 | 3629225 |
| 3359114204 | 3691422 | 3691422 | 335929WYVY | 3357002 pt | 3357002 pt | 3359993107 | 3629241 | 3629241 |
| 3359114207 | 3691479 | 3691479 | 3359311 | 36431 | 36431 | 3359993111 | 3629245 | 3629245 |
| 3359114YVW | 3691400 | 3691400 | 3359311000 | 3643100 | 3643100 | 3359993213 | 3629251 | 3629251 |
| 3359117 | 36915 | 36915 | 3359311000 | 3643100 | 3643100 | 3359993216 | 3629253 | 3629253 |
| 3359117101 | 3691501 | 3691501 | 3359313 | 36432 | 36432 | 3359993219 | 3629255 | 3629255 |
| 3359117104 | 3691502 | 3691502 | 3359313000 | 3643200 | 3643200 | 3359993YVW | 3629200 | 3629200 |
| 3359117201 | 3691591 | 3691591 | 3359315 | 36433 | 36433 | 3359995 pt | 36293 | 36293 |
| 3359117YVW | 3691500 | 3691500 | 3359315000 | 3643300 | 3643300 | 3359995101 | 3699A pt | 3699A pt |
| 335911W | 36910 | 36910 | 3359317 | 36434 | 36434 | 3359995104 | 3629301 | 3629301 |
| 335911WYVW | 3691000 | 3691000 | 3359317000 | 3643400 | 3643400 | 3359995107 | 3629302 | 3629302 |
| 335911WYVY | 3691002 | 3691002 | 335931A | 36436 | 36436 | 3359995111 | 3629303 | 3629303 |
| 3359120 | 36920 | 36920 | 335931A000 | 3643600 | 3643600 | 3359995137 pt | 3629304 | 3629304 |
| 3359120101 pt | 3692011 pt | 3692001 pt | 3359319 | 36435 | 36435 | 3359995137 pt | 3629311 | 3629311 |
| 3359120101 pt | 3692011 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359995YVW pt | 3699A21 | 3699A21 |
| 3359120104 pt | 3692013 pt | 3692001 pt | 335931A | 36436 | 36436 | 3359995YVW pt | 3629300 | 3629300 |
| 3359120104 pt | 3692013 pt | 3692007 pt | 335931A000 | 3643600 | 3643600 | 3359997 | 3629304 | 3629304 |
| 3359120107 pt | 3692015 pt | 3692004 pt | 335931W | 36430 | 36430 | 3359997000 pt | 3629311 | 3629311 |
| 3359120107 pt | 3692015 pt | 3692007 pt | 335931WYVW | 3643000 | 3643000 | 3359997000 pt | 3699A21 | 3699A21 |
| 3359120107 pt | 3692015 pt | 3692005 pt | 335931WYVY | 3643002 | 3643002 | 3359997000 pt | 3629300 | 3629300 |
| 3359120111 pt | 3692017 pt | 3692005 pt | 3359321 | 36441 | 36441 | 3359999 | 36992 pt | 36992 pt |
| 3359120111 pt | 3692017 pt | 3692007 pt | 3359321000 | 3644100 | 3644100 | 3359999100 pt | 3699297 | 3699297 |
| 3359120114 pt | 3692019 pt | 3692003 pt | 3359323 | 36442 | 36442 | 3359999100 pt | 3699200 pt | 3699200 pt |
| 3359120114 pt | 3692019 pt | 3692005 pt | 3359323000 | 3644200 | 3644200 | 3359999A | 36995 | 36995 |
| 3359120114 pt | 3692019 pt | 3692007 pt | 3359325 | 36443 | 36443 | 335999A000 | 3699500 | 3699500 |
| 3359120201 | 3692021 | 3692003 pt | 3359325000 | 3644300 | 3644300 | 335999B | 36996 pt | 36996 pt |
| 3359120204 | 3692023 | 3692001 pt | 335932W | 36440 | 36440 | 335999B100 pt | 3699600 pt | 3699600 pt |
| 3359120207 | 3692025 | 3692005 pt | 335932WYVW | 3644000 | 3644000 | 335999B100 pt | 3699605 | 3699605 |
| 3359120211 | 3692027 | 3692005 pt | 335932WYVY | 3644002 | 3644002 | 335999C | 36999 | 36999 |
| 3359120214 pt | 3692029 pt | 3692004 pt | 3359911 | 36241 | 36241 | 335999C000 | 3699900 | 3699900 |
| 3359120214 pt | 3692029 pt | 3692005 pt | 335991101 | 3624152 | 3624152 | 335999D | 36999A pt | 3699A pt |
| 3359120301 | 3692009 | 3692009 | 3359911101 | 3624156 | 3624156 | 335999D101 | 3699A01 | 3699A01 |
| 3359120301 | 3692009 | 3692000 | 3359911204 | 3624156 | 3624156 | 335999D203 | 3699A03 | 3699A03 |
| 3359120YVW | 3692000 | 3692000 | 3359911YVW | 3624100 | 3624100 | 335999D305 | 3699A05 | 3699A05 |
| 3359120YVY | 3692002 | 3692002 | 3359913 | 36249 | 36249 | 335999D407 | 3699A02 | 3699A02 |
| 3359210 pt | 33570 pt | 33570 pt | 3359913101 pt | 3624916 pt | 3624916 pt | 335999DYVW | 3699A00 pt | 3699A00 pt |
| 3359210 pt | 33579 | 33579 | 3359913101 pt | 3624916 pt | 3624916 pt | 335999W pt | 36290 | 36290 |
| 3359210101 | 3357931 | 3357911 pt | 3359913104 | 3624917 | 3624917 | 335999W pt | 36990 pt | 36990 pt |
| 3359210106 | 3357941 | 3357911 pt | 3359913207 | 3624988 | 3624988 | 335999WYVW pt | 3629000 | 3629000 |
| 3359210111 | 3357951 | 3357911 pt | 3359913311 | 3624981 | 3624981 | 335999WYVY pt | 3699000 pt | 3699000 pt |
| 3359210421 | 3357932 | 3357921 pt | 3359913316 | 3624986 | 3624986 | 335999WYVY pt | 3629002 | 3629002 |
| 3359210426 | 3357942 | 3357921 pt | 3359913319 | 3624986 | 3624986 | 335999WYVY pt | 3699002 pt | 3699002 pt |
| 3359210431 | 3357952 | 3357921 pt | 3359913319 | 3624994 | 3624994 | | | |
| 3359210YVW pt | 3357000 pt | 3357000 pt | | | | | | |
| 3359210YVW pt | 3357900 | 3357900 | | | | | | |
| 3359210YVY | 3357002 pt | 3357002 pt | | | | | | |
| 3359291 | 33578 | 33578 | | | | | | |
| 3359291800 | 3357800 | 3357800 | | | | | | |

Storage Battery Manufacturing

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

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

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

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

ALL-NEW INDUSTRY CLASSIFICATIONS

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

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

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

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

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

RELATIONSHIP TO SIC

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

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

GEOGRAPHIC AREA CODING

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

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

BASIS OF REPORTING

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

DOLLAR VALUES

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

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

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

Special Tabulations

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

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

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

HISTORICAL INFORMATION

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

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

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

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

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

SOURCES FOR MORE INFORMATION

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

ABBREVIATIONS AND SYMBOLS

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

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

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

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) | | | | |
| 335911 | Storage battery mfg | 93 | 135 | 23 227 | 787 689 | 18 654 | 37 379 | 585 332 | 2 171 574 | 2 238 893 | 4 422 702 | 171 434 |
| 369100 | Storage batteries | N | 135 | 23 227 | 787 689 | 18 654 | 37 379 | 585 332 | 2 171 574 | 2 238 893 | 4 422 702 | 171 434 |

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) | | | | |
| 335911, STORAGE BATTERY MFG | | | | | | | | | | | | |
| United States | - | 135 | 88 | 23 227 | 787 689 | 18 654 | 37 379 | 585 332 | 2 171 574 | 2 238 893 | 4 422 702 | 171 434 |
| Connecticut | 4 | 6 | 4 | 274 | 9 023 | 130 | 259 | 3 084 | 19 078 | 13 130 | 32 102 | 1 009 |
| Illinois | - | 13 | 5 | 956 | 31 978 | 820 | 1 779 | 22 015 | 97 717 | 179 028 | 275 744 | 1 698 |
| Indiana | - | 5 | 5 | 817 | 35 669 | 712 | 1 274 | 31 090 | 67 522 | 71 397 | 160 047 | 6 733 |
| Kansas | - | 4 | 4 | 1 578 | 58 564 | 1 407 | 2 958 | 49 331 | 178 110 | 203 269 | 382 716 | 13 961 |

* 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 |
|----------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------|---------------------|
| 335911, STORAGE BATTERY MFG | | 335911, STORAGE BATTERY MFG—Con. | |
| Companies ¹ | number.. 93 | Value added | \$1,000.. 2 171 574 |
| All establishments | number.. 135 | Total inventories, beginning of year | \$1,000.. 511 807 |
| Establishments with 1 to 19 employees | number.. 47 | Finished goods inventories, beginning of year | \$1,000.. 199 719 |
| Establishments with 20 to 99 employees | number.. 25 | Work-in-process inventories, beginning of year | \$1,000.. 180 485 |
| Establishments with 100 employees or more | number.. 63 | Materials and supplies inventories, beginning of year | \$1,000.. 131 603 |
| All employees | number.. 23 227 | Total inventories, end of year | \$1,000.. 505 687 |
| Total compensation ² | \$1,000.. 1 021 307 | Finished goods inventories, end of year | \$1,000.. 189 496 |
| Annual payroll | \$1,000.. 787 689 | Work-in-process inventories, end of year | \$1,000.. 178 473 |
| Total fringe benefits | \$1,000.. 233 618 | Materials and supplies inventories, end of year | \$1,000.. 137 718 |
| Production workers, average for year | number.. 18 654 | Gross book value of total assets at beginning of year | \$1,000.. 1 600 571 |
| Production workers on March 15 | number.. 18 494 | Total capital expenditures (new and used) | \$1,000.. 171 434 |
| Production workers on May 15 | number.. 18 347 | Capital expenditures for buildings and other structures (new and used) | \$1,000.. 62 358 |
| Production workers on August 15 | number.. 18 862 | Capital expenditures for machinery and equipment (new and used) | \$1,000.. 109 076 |
| Production workers on November 15 | number.. 18 913 | Total retirements ² | \$1,000.. 29 496 |
| Production-worker hours | 1,000.. 37 379 | Gross book value of total assets at end of year | \$1,000.. 1 742 509 |
| Production-worker wages | \$1,000.. 585 332 | Total depreciation during year ² | \$1,000.. 156 416 |
| Total cost of materials | \$1,000.. 2 238 893 | Total rental payments ² | \$1,000.. 27 165 |
| Cost of materials, parts, containers, etc., consumed | \$1,000.. 2 071 766 | Buildings and other structures rental payments ² | \$1,000.. 6 774 |
| Cost of resales | \$1,000.. 39 694 | Machinery and equipment rental payments ² | \$1,000.. 20 391 |
| Cost of fuels | \$1,000.. 22 809 | Cost of purchased services for the repair of buildings and other structures ³ | \$1,000.. 8 427 |
| Cost of purchased electricity | \$1,000.. 100 190 | Response coverage ratio ⁴ | percent.. 91 |
| Cost of contract work | \$1,000.. 4 434 | Cost of purchased services for the repair of machinery and equipment ³ | \$1,000.. 58 085 |
| Quantity of electricity purchased for heat and power | 1,000 kWh.. 1 809 315 | Response coverage ratio ⁴ | percent.. 91 |
| Quantity of electricity generated less sold for heat and power | 1,000 kWh.. - | Cost of purchased communications services ³ | \$1,000.. 4 894 |
| Total value of shipments | \$1,000.. 4 422 702 | Response coverage ratio ⁴ | percent.. 91 |
| Primary products value of shipments | \$1,000.. 4 258 009 | Cost of purchased legal services ³ | \$1,000.. 3 679 |
| Secondary products value of shipments | \$1,000.. 101 508 | Response coverage ratio ⁴ | percent.. 91 |
| Total miscellaneous receipts | \$1,000.. 63 185 | Cost of purchased accounting and bookkeeping services ³ | \$1,000.. 777 |
| Value of resales | \$1,000.. 44 261 | Response coverage ratio ⁴ | percent.. 91 |
| Contract receipts | \$1,000.. D | Cost of purchased advertising services ³ | \$1,000.. 3 790 |
| Other miscellaneous receipts | \$1,000.. D | Response coverage ratio ⁴ | percent.. 91 |
| Primary products specialization ratio | percent.. 97 | Cost of purchased software and other data processing services ³ | \$1,000.. 2 590 |
| Value of primary products shipments made in all industries | \$1,000.. 4 279 688 | Response coverage ratio ⁴ | percent.. 91 |
| Value of primary products shipments made in this industry | \$1,000.. 4 258 009 | Cost of purchased refuse removal (including hazardous waste) services ³ | \$1,000.. 8 534 |
| Value of primary products shipments made in other industries | \$1,000.. 21 679 | Response coverage ratio ⁴ | percent.. 91 |
| 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) | | | | |
| 335911, STORAGE BATTERY MFG | | | | | | | | | | | | |
| All establishments | - | 135 | 88 | 23 227 | 787 689 | 18 654 | 37 379 | 585 332 | 2 171 574 | 2 238 893 | 4 422 702 | 171 434 |
| Establishments with 1 to 4 employees | 9 | 24 | - | 57 | 1 612 | 44 | 76 | 1 265 | 3 861 | 4 348 | 8 163 | 373 |
| Establishments with 5 to 9 employees | 9 | 12 | - | 85 | 2 552 | 67 | 113 | 1 962 | 5 059 | 5 949 | 10 969 | 537 |
| Establishments with 10 to 19 employees | 8 | 11 | - | 141 | 3 731 | 111 | 162 | 2 489 | 9 498 | 10 584 | 19 929 | 846 |
| Establishments with 20 to 49 employees | 1 | 12 | 12 | 379 | 12 678 | 238 | 467 | 6 289 | 37 804 | 37 418 | 74 445 | 1 774 |
| Establishments with 50 to 99 employees | 2 | 13 | 13 | 926 | 28 031 | 726 | 1 417 | 18 272 | 25 616 | 65 160 | 115 813 | 4 025 |
| Establishments with 100 to 249 employees | 1 | 30 | 30 | 5 060 | 151 868 | 3 981 | 8 599 | 108 090 | 456 307 | 517 380 | 969 658 | 32 228 |
| Establishments with 250 to 499 employees | - | 26 | 26 | 8 967 | 335 893 | 7 493 | 15 052 | 261 828 | 1 084 023 | 993 392 | 2 066 039 | 46 128 |
| Establishments with 500 to 999 employees | - | 5 | 5 | D | D | D | D | D | D | D | D | D |
| Establishments with 1,000 to 2,499 employees | - | 1 | 1 | D | D | D | D | D | D | D | D | D |
| Establishments with 2,500 employees or more | - | 1 | 1 | D | D | D | D | D | D | D | D | D |
| Administrative records ² | 9 | 36 | - | 224 | 5 917 | 184 | 293 | 4 662 | 14 744 | 16 419 | 30 979 | 1 433 |

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) | | | | |
| 335911 | Storage battery mfg | 135 | 23 227 | 787 689 | 18 654 | 37 379 | 585 332 | 2 171 574 | 2 238 893 | 4 422 702 | 171 434 |
| 3359111 | Storage batteries, lead acid type, Battery Council International dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | 48 | 15 003 | 540 420 | 12 190 | 24 922 | 416 558 | 1 498 964 | 1 541 334 | 3 037 136 | 90 464 |
| 3359114 | Storage batteries, lead acid type, larger than Battery Council International dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | 24 | 4 135 | 123 716 | 3 168 | 6 552 | 80 173 | 411 833 | 430 503 | 844 464 | 29 180 |
| 3359117 | Storage batteries, except lead acid, including parts for all storage batteries | 10 | 3 324 | 101 207 | 2 702 | 4 902 | 72 433 | 205 562 | 205 923 | 425 454 | 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) |
| 335911 | Storage batteries | N | X | X | 4 279 688 | N | X | X | 3 264 956 |
| 3359111 | Storage batteries, lead acid type, Battery Council International dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | N | X | X | 2 844 347 | N | X | X | 2 201 519 |
| 33591111 | Starting, lighting, and ignition (SLI) type lead acid storage batteries for original equipment, BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | N | X | X | D | N | X | X | N |
| 3359111101 | Starting, lighting, and ignition (SLI) type lead acid storage batteries for original equipment, BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | 14 | X | X | D | 12 | X | X | 403 225 |
| 33591112 | Starting, lighting, and ignition (SLI) type lead acid storage batteries for replacement, BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | N | X | X | 1 918 990 | N | X | X | N |
| 3359111204 | Starting, lighting, and ignition (SLI) type lead acid storage batteries for replacement, BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | 18 | X | X | 1 918 990 | 21 | X | X | 1 764 188 |
| 33591113 | Lead acid storage batteries other than (SLI) type, BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | N | X | X | D | N | X | X | N |
| 3359111307 | Lead acid storage batteries other than (SLI) type, BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | 4 | X | X | D | 3 | X | X | 9 387 |
| 3359111Y | Storage batteries, lead acid type, BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller), nsk | N | X | X | 19 082 | N | X | X | N |
| 3359111YWV | Storage batteries, lead acid type, BCI dimensional size group 8d (1.5 cu ft or .042 cu m and smaller), nsk | N | X | X | 19 082 | N | X | X | 24 719 |
| 3359114 | Storage batteries, lead acid type, larger than Battery Council International dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | N | X | X | 946 840 | N | X | X | 578 482 |
| 33591141 | Motive power type lead acid storage batteries, larger than BCI dimensional size group 8D (1.5 cu ft or .042 cu m), including mining and industrial locomotive | N | X | X | 407 401 | N | X | X | N |
| 3359114101 | Motive power type lead acid storage batteries for industrial trucks, larger than BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | 11 | X | X | 363 447 | 12 | X | X | 175 285 |
| 3359114104 | All other motive power type lead acid storage batteries, including mining and industrial locomotive, larger than BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | 7 | X | X | 43 954 | 7 | X | X | 56 630 |
| 33591142 | All other lead acid storage batteries, larger than BCI dimensional size group 8D (1.6 cu ft or .042 cu m) | N | X | X | 536 283 | N | X | X | N |
| 3359114201 | Communication lead acid storage batteries (central office telephone supervisory equipment, telemetering, and microwave), larger than BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | 7 | X | X | 183 005 | 6 | X | X | 92 861 |
| 3359114204 | Standby emergency power lead acid storage batteries, larger than BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller) | 9 | X | X | 257 587 | 5 | X | X | 195 400 |
| 3359114207 | All other lead acid storage batteries, larger than BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller), including starting, lighting, and ignition (SLI type) | 9 | X | X | 95 691 | 4 | X | X | 45 317 |
| 3359114Y | Storage batteries, lead acid type, larger than BCI dimensional size group 8D (1.5 cu ft or .042 cu m), nsk | N | X | X | 3 156 | N | X | X | N |
| 3359114YWV | Storage batteries, lead acid type, larger than BCI dimensional size group 8D (1.5 cu ft or .042 cu m), nsk | N | X | X | 3 156 | N | X | X | 12 989 |
| 3359117 | Storage batteries, except lead acid, including parts for all storage batteries | N | X | X | 378 358 | N | X | X | 395 096 |
| 33591171 | Storage batteries except lead acid | N | X | X | 363 818 | N | X | X | N |
| 3359117101 | Nickel cadmium storage batteries (sealed or vented) | 10 | X | X | D | 12 | X | X | 343 885 |
| 3359117104 | Storage batteries other than nickel cadmium or lead acid | 5 | X | X | D | 8 | X | X | 38 464 |
| 33591172 | Parts for all storage batteries, excluding cases and containers | N | X | X | D | N | X | X | N |
| 3359117201 | Parts for all storage batteries, excluding cases and containers | 4 | X | X | D | 6 | X | X | 8 183 |

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) |
| 335911 | Storage batteries—Con. | | | | | | | | |
| 3359117 | Storage batteries, except lead acid, including parts for all storage batteries—Con. | | | | | | | | |
| 3359117Y | Storage batteries, except lead acid, including parts for all storage batteries, nsk | N | X | X | — | N | X | X | N |
| 3359117YWV | Storage batteries, except lead acid, including parts for all storage batteries, nsk | N | X | X | — | N | X | X | 4 564 |
| 335911W | Storage batteries, nsk, total | N | X | X | 110 143 | N | X | X | 89 859 |
| 335911WY | Storage batteries, nsk, total | N | X | X | 110 143 | N | X | X | N |
| 335911WYWW | Storage batteries, nsk, for nonadministrative-record establishments | N | X | X | 80 011 | N | X | X | 74 071 |
| 335911WYWY | Storage batteries, nsk, for administrative-record establishments | N | X | X | 30 132 | N | X | X | 15 788 |

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 |
| 3359111 | STORAGE BATTERIES, LEAD ACID TYPE, BATTERY COUNCIL INTERNATIONAL DIMENSIONAL SIZE GROUP 8D (1.5 CU FT OR .042 CU M AND SMALLER) | | |
| | United States | 2 844 347 | 2 201 519 |
| | California | 322 325 | 260 547 |
| | Georgia | 195 156 | 91 700 |
| | Kansas | 296 716 | 262 975 |
| | Ohio | 151 492 | 76 619 |
| | Pennsylvania | 379 711 | 250 437 |
| 3359114 | STORAGE BATTERIES, LEAD ACID TYPE, LARGER THAN BATTERY COUNCIL INTERNATIONAL DIMENSIONAL SIZE GROUP 8D (1.5 CU FT OR .042 CU M AND SMALLER) | | |
| | United States | 946 840 | 578 482 |
| | California | 20 473 | 63 904 |
| 3359117 | STORAGE BATTERIES, EXCEPT LEAD ACID, INCLUDING PARTS FOR ALL STORAGE BATTERIES | | |
| | United States | 378 358 | 395 096 |

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) |
| 335911 | STORAGE BATTERY MFG | | | | |
| 332000AC | Metal stampings | X | 10 168 | X | N |
| 33200073 | All other fabricated metal products (except forgings) | X | 61 438 | X | N |
| 33210001 | Forgings | X | D | X | N |
| 33151001 | Iron and steel castings (rough and semifinished) | X | D | X | D |
| 33152011 | Nonferrous (aluminum, copper, etc.) castings (rough and semifinished) | X | 15 029 | X | D |
| 33141951 | Refined unalloyed lead shapes and forms (except castings, forgings, and fabricated metal products) | X | 434 281 | X | 277 237 |
| 33141953 | Antimonial lead | X | 276 636 | X | 177 272 |
| 33141955 | Lead-calcium alloyed | X | 198 170 | X | 86 335 |
| 33120017 | Steel sheet and strip, including tin plate | X | 34 483 | X | D |
| 33120083 | All other steel shapes and forms (except castings, forgings, and fabricated metal products) | X | D | X | D |
| 33149105 | Zinc and zinc-base alloy shapes and forms (except castings, forgings, and fabricated metal products) | X | D | X | D |
| 33100063 | Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products) | X | D | X | D |
| 32513105 | Litharge | X | 58 730 | X | 43 098 |
| 32518803 | Sulfuric acid (new and spent) (100 percent H2SO4) | X | 32 195 | X | 24 809 |
| 325000B3 | Other industrial inorganic chemicals (including mercury oxide and silver oxide) | X | 49 617 | X | 21 284 |
| 32521105 | Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. | X | D | X | D |
| 32610013 | Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes | X | 71 993 | X | 38 601 |
| 32610011 | Fabricated plastics products (except gaskets) | X | 260 684 | X | 232 713 |
| 32221001 | Paperboard containers, boxes, and corrugated paperboard | X | 25 644 | X | 15 538 |
| 33599101 | Carbon and graphite electrodes, and other carbon and graphite products for electrical use | X | 462 | X | D |
| 00970099 | All other materials and components, parts, containers, and supplies | X | 358 280 | - | 245 966 |
| 00971000 | Materials, ingredients, containers, and supplies, n.s.k. | X | 124 909 | - | 165 355 |

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

335911 STORAGE BATTERY MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing storage batteries.

The data published with NAICS code 335911 include the following SIC industry:

3691 Storage batteries

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 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 3351101 | 36411 | 36411 | 3352121 | 36350 pt | 36350 pt | 3353113 pt | 36123 | 36123 |
| 335110100 | 3641100 | 3641100 | 3352121101 | 3635041 | 3635041 | 3353113101 | 3612301 | 3612301 |
| 3351103 | 36412 | 36412 | 3352121103 | 3635011 | 3635011 | 3353113104 | 3612302 | 3612302 |
| 3351103100 | 3641200 | 3641200 | 3352121105 | 3635033 | 3635033 | 3353113107 | 3548105 | 3548104 pt |
| 335110W | 36410 | 36410 | 3352121107 pt | 3635044 pt | 3635031 | 3353113109 | 3612306 | 3612306 |
| 335110WYWW | 3641000 | 3641000 | 3352121107 pt | 3635044 pt | 3635036 | 3353113113 | 3612307 | 3612307 |
| 335110WYWY | 3641002 | 3641002 | 3352121111 | 3635051 | 3635051 | 3353113115 | 3612308 | 3612308 |
| 3351211 | 36451 | 36451 | 3352121113 | 3635071 | 3635071 | 3353113116 | 3612311 | 3612311 |
| 3351211000 | 3645100 | 3645100 | 3352121YVW | 3635000 pt | 3635000 pt | 3353113YVW pt | 3548100 pt | 3548100 pt |
| 3351213 pt | 30897 pt | 30897 pt | 3352122 | 36395 pt | 36395 pt | 3353113YVW pt | 3612300 | 3612300 |
| 3351213 pt | 30897 pt | 30897 pt | 335212211 | 3639525 | 3639520 pt | 3353115 | 36124 | 36124 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122219 | 3639513 | 3639510 pt | 3353115000 | 3612400 | 3612400 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122YVW | 3639500 pt | 3639500 pt | 3353117 | 36126 | 36126 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36350 pt | 36350 pt | 335311701 | 3612601 | 3612601 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36390 pt | 36390 pt | 3353117104 | 3612602 | 3612602 |
| 335121311 | 39999 pt | 39999 pt | 335212WYWW pt | 3635000 pt | 3635000 pt | 3353117107 | 3612603 | 3612603 |
| 3351213111 | 3645721 | 3645721 | 335212WYWW pt | 3639000 pt | 3639000 pt | 3353117111 | 3612604 | 3612604 |
| 335121312 | 3645722 | 3645722 | 335212WYWW pt | 3635002 | 3635002 | 3353117113 pt | 3612608 pt | 3612605 |
| 335121313 | 3645723 | 3645723 | 335212WYWY pt | 3639002 pt | 3639002 pt | 3353117113 pt | 3612608 pt | 3612609 |
| 3351213131 | 3645729 | 3645729 | 335212WYWY pt | 3639002 pt | 3639002 pt | 3353117YVW | 3612600 | 3612600 |
| 335121314 | 3645729 | 3645729 | 3352211 | 36311 | 36311 | 3353119 | 36127 | 36127 |
| 335121315 | 3645732 | 3645732 | 3352211110 | 3631110 | 3631110 | 3353119101 | 3612701 | 3612701 |
| 335121316 | 3645761 | 3645761 | 3352211290 | 3631120 | 3631120 | 3353119104 | 3612778 | 3612778 |
| 3351213165 | 3999961 | 3999961 | 3352211YVW | 3631100 | 3631100 | 3353119YVW | 3612700 | 3612700 |
| 3351213169 | 3089705 | 3089709 pt | 3352213 | 36313 | 36313 | 335311W pt | 35480 pt | 35480 pt |
| 3351213171 | 3645773 | 3645773 | 3352213110 | 3631310 | 3631310 | 335311W pt | 36120 | 36120 |
| 3351213YVW pt | 3089700 pt | 3089700 pt | 3352213190 | 3631320 | 3631320 | 335311WYWW pt | 3548000 pt | 3548000 pt |
| 3351213YVW pt | 3645700 | 3645700 | 3352213YVW | 3631300 | 3631300 | 335311WYWW pt | 3612000 | 3612000 |
| 3351213YVW pt | 3999900 pt | 3999900 pt | 3352215 | 36314 | 36314 | 335311WYWY pt | 3548002 pt | 3548002 pt |
| 335121W pt | 30890 pt | 30890 pt | 3352215110 | 3631410 | 3631410 | 335311WYWY pt | 3612002 | 3612002 |
| 335121W pt | 30890 pt | 30890 pt | 3352215190 | 3631420 | 3631420 | 3353121 | 36211 | 36211 |
| 335121W pt | 30890 pt | 30890 pt | 3352215YVW | 3631400 | 3631400 | 3353121000 | 3621100 | 3621100 |
| 335121W pt | 30890 pt | 30890 pt | 335221W | 36310 | 36310 | 3353123 | 36212 | 36212 |
| 335121WYWW pt | 3089000 pt | 3089000 pt | 335221WYWW | 3631000 | 3631000 | 3353123000 | 3621200 | 3621200 |
| 335121WYWW pt | 3645000 | 3645000 | 335221WYWY | 3631002 | 3631002 | 3353125 | 36213 | 36213 |
| 335121WYWW pt | 3999000 pt | 3999002 pt | 3352221 | 36321 | 36321 | 3353125000 | 3621300 | 3621300 |
| 335121WYWY pt | 3645002 | 3645002 | 3352221000 | 3632100 | 3632100 | 3353127 | 36214 | 36214 |
| 335121WYWY pt | 3999002 pt | 3999002 pt | 3352222 | 36322 | 36322 | 3353127000 | 3621400 | 3621400 |
| 3351221 | 36462 | 36462 | 3352222000 | 3632200 | 3632200 | 3353129 | 36217 | 36217 |
| 3351221000 | 3646200 | 3646200 | 3352223 | 36323 | 36323 | 3353129000 | 3621700 | 3621700 |
| 3351222 | 36463 | 36463 | 3352223000 | 3632300 | 3632300 | 335312A | 36218 | 36218 |
| 3351222000 | 3646300 | 3646300 | 335222W | 36320 | 36320 | 335312A000 | 3621800 | 3621800 |
| 335122W | 36460 | 36460 | 335222WYWW | 3632000 | 3632000 | 335312C | 36219 | 36219 |
| 335122WYWW | 3646000 | 3646000 | 335222WYWY | 3632002 | 3632002 | 335312C000 | 3621900 | 3621900 |
| 335122WYWY | 3646002 | 3646002 | 3352240 | 36330 | 36330 | 335312E | 76940 pt | 76940 pt |
| 3351291 | 36485 | 36485 | 335224010 | 3633010 | 3633010 | 335312E100 pt | 7694020 | 7694000 pt |
| 3351291000 | 3648500 | 3648500 | 3352240190 | 3633020 | 3633020 | 335312E100 pt | 7694000 pt | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352240YVW | 3633000 | 3633000 | 335312W pt | 36210 | 36210 |
| 3351293 pt | 36489 | 36489 | 3352240YWY | 3633002 | 3633002 | 335312W pt | 36210 | 36210 |
| 3351293 pt | 36996 pt | 36996 pt | 3352281 | 36391 | 36391 | 335312W pt | 76940 pt | 76940 pt |
| 3351293109 | 3648912 | 3648912 | 3352281000 | 3639100 | 3639100 | 335312WYWW pt | 3621000 | 3621000 |
| 3351293112 | 3648916 | 3648916 | 3352283 | 36392 | 36392 | 335312WYWW pt | 7694000 pt | 7694000 pt |
| 3351293114 | 3648917 | 3648917 | 3352283000 | 3639200 | 3639200 | 335312WYWY pt | 3621002 | 3621002 |
| 3351293116 | 3648931 | 3648931 | 3352285 | 36395 pt | 36395 pt | 335312WYWY pt | 7694002 | 7694000 pt |
| 3351293118 | 3648975 | 3648975 | 3352285110 | 3639511 | 3639510 pt | 3353131 | 36132 | 36132 |
| 3351293122 pt | 3648979 pt | 3648921 | 3352285190 | 3639521 | 3639520 pt | 3353131000 | 3613200 | 3613200 |
| 3351293122 pt | 3648979 pt | 3648991 | 3352285YVW | 3639500 pt | 3639500 pt | 3353133 | 36133 | 36133 |
| 3351293122 pt | 3648979 pt | 3648991 | 335228W | 36390 pt | 36390 pt | 3353133000 | 3613300 | 3613300 |
| 3351293122 pt | 3648979 pt | 3699600 pt | 335228WYWW | 3639000 pt | 3639000 pt | 3353135 | 36134 | 36134 |
| 3351293124 | 3648970 | 3648970 | 335228WYWY | 3639002 pt | 3639002 pt | 3353135000 | 3613400 | 3613400 |
| 3351293126 pt | 3648984 pt | 3648983 | 3353111 | 36122 | 36122 | 3353137 | 36135 | 36135 |
| 3351293126 pt | 3648984 pt | 3648987 | 335311101 | 3612202 | 3612202 | 3353137000 | 3613500 | 3613500 |
| 3351293131 | 3648985 | 3648985 | 3353111204 | 3612204 | 3612204 | 3353139 | 36136 | 36136 |
| 3351293YVW pt | 3648900 | 3648900 | 3353111307 | 3612206 | 3612206 | 3353139000 | 3613600 | 3613600 |
| 3351293YVW pt | 3699600 pt | 3699600 pt | 3353111311 | 3612214 | 3612214 | 335313A | 36139 | 36139 |
| 335129WYWY pt | 3648002 | 3648002 | 3353111313 | 3612216 | 3612216 | 335313A000 | 3613900 | 3613900 |
| 335129WYWY pt | 3699002 pt | 3699002 pt | 3353111316 | 3612219 | 3612219 | 335313W | 36130 | 36130 |
| 3352111 | 36341 | 36341 | 3353111419 | 3612221 | 3612221 | 335313WYWW | 3613000 | 3613000 |
| 3352111000 | 3634100 | 3634100 | 3353111422 | 3612223 | 3612223 | 335313WYWY | 3613002 | 3613002 |
| 3352113 | 36345 pt | 36345 pt | 3353111425 | 3612228 | 3612228 | 3353141 | 36251 | 36251 |
| 3352113000 | 3634510 | 3634500 pt | 3353111428 | 3612229 | 3612229 | 3353141000 | 3625100 | 3625100 |
| 3352115 | 36349 pt | 36349 pt | 3353111431 | 3612232 | 3612232 | 3353143 | 36252 | 36252 |
| 3352115010 | 3634911 | 3634911 | 3353111434 | 3612233 | 3612233 | 3353143000 | 3625200 | 3625200 |
| 3352115090 | 3634920 | 3634920 pt | 3353111537 | 3612237 | 3612237 | 3353145 | 36253 | 36253 |
| 3352115YVW | 3634900 pt | 3634900 pt | 3353111541 | 3612239 | 3612239 | 3353145000 | 3625300 | 3625300 |
| 335211W | 36340 pt | 36340 pt | 3353111543 | 3612241 | 3612241 | 3353147 | 36254 | 36254 |
| 335211WYWW | 3634000 pt | 3634000 pt | 3353111546 | 3612242 | 3612242 | 3353147000 | 3625400 | 3625400 |
| 335211WYWY | 3634002 pt | 3634002 pt | 3353111549 | 3612243 | 3612243 | | | |
| | | | 3353111552 | 3612244 | 3612244 | | | |
| | | | 3353111YVW | 3612200 | 3612200 | | | |
| | | | 3353113 pt | 35481 pt | 35481 pt | | | |

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 335314W | 36250 | 36250 | 335929A | 3357A | 3357A | 3359913322 | 3624996 | 3624996 |
| 335314WYWW | 3625000 | 3625000 | 335929A100 | 3357A00 | 3357A00 | 3359913YVW | 3624900 | 3624900 |
| 335314WYWY | 3625002 | 3625002 | 335929B | 3357B | 3357B | 335991W | 36240 | 36240 |
| 3359111 | 36913 | 36913 | 335929B100 | 3357B00 | 3357B00 | 335991WYWW | 3624000 | 3624000 |
| 3359111101 | 3691311 | 3691311 | 335929C | 3357C | 3357C | 335991WYWY | 3624002 | 3624002 |
| 3359111204 | 3691312 | 3691312 | 335929C100 | 3357C00 | 3357C00 | 3359991 | 36291 | 36291 |
| 3359111307 | 3691317 | 3691317 | 335929D | 3357D | 3357D | 3359991101 | 3629101 | 3629101 |
| 3359111YVW | 3691300 | 3691300 | 335929D100 | 3357D00 | 3357D00 | 3359991103 | 3629104 | 3629104 |
| 3359114 | 36914 | 36914 | 335929E | 3357E | 3357E | 3359991YVW | 3629100 | 3629100 |
| 3359114101 | 3691411 | 3691411 | 335929E100 | 3357E00 | 3357E00 | 3359993 | 36292 | 36292 |
| 3359114104 | 3691419 | 3691419 | 335929W | 33570 pt | 33570 pt | 3359993101 | 3629221 | 3629221 |
| 3359114201 | 3691421 | 3691421 | 335929WYWW | 3357000 pt | 3357000 pt | 3359993104 | 3629225 | 3629225 |
| 3359114204 | 3691422 | 3691422 | 335929WYWY | 3357002 pt | 3357002 pt | 3359993107 | 3629241 | 3629241 |
| 3359114207 | 3691479 | 3691479 | 3359311 | 36431 | 36431 | 3359993111 | 3629245 | 3629245 |
| 3359114YVW | 3691400 | 3691400 | 33593111000 | 3643100 | 3643100 | 3359993213 | 3629251 | 3629251 |
| 3359117 | 36915 | 36915 | 3359313 | 36432 | 36432 | 3359993216 | 3629253 | 3629253 |
| 3359117101 | 3691501 | 3691501 | 3359313000 | 3643200 | 3643200 | 3359993219 | 3629259 pt | 3629259 pt |
| 3359117104 | 3691502 | 3691502 | 3359315 | 36433 | 36433 | 3359993YVW | 3629200 | 3629200 |
| 3359117201 | 3691591 | 3691591 | 3359315000 | 3643300 | 3643300 | 3359995 pt | 36293 | 36293 |
| 3359117YVW | 3691500 | 3691500 | 3359317 | 36434 | 36434 | 3359995101 | 3699A pt | 3699A pt |
| 335911W | 36910 | 36910 | 3359317000 | 3643400 | 3643400 | 3359995104 | 3629301 | 3629301 |
| 335911WYWW | 3691000 | 3691000 | 3359319 | 36435 | 36435 | 3359995107 | 3629302 | 3629302 |
| 335911WYWY | 3691002 | 3691002 | 3359319000 | 3643500 | 3643500 | 3359995111 | 3629303 | 3629303 |
| 3359120 | 36920 | 36920 | 335931A | 36436 | 36436 | 3359995137 pt | 3629304 | 3629304 |
| 3359120101 | 3692011 pt | 3692001 pt | 335931A000 | 3643600 | 3643600 | 3359995YVW pt | 3629311 | 3629311 |
| 3359120101 pt | 3692011 pt | 3692007 pt | 335931W | 36430 | 36430 | 3359997 | 36992 pt | 36992 pt |
| 3359120104 | 3692013 pt | 3692001 pt | 335931WYWW | 3643000 | 3643000 | 3359997000 pt | 3699271 | 3699200 pt |
| 3359120104 pt | 3692013 pt | 3692007 pt | 335931WYWY | 3643002 | 3643002 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120107 | 3692015 pt | 3692004 pt | 3359321 | 36441 | 36441 | 3359997000 pt | 3699290 pt | 3699200 pt |
| 3359120107 pt | 3692015 pt | 3692007 pt | 3359321000 | 3644100 | 3644100 | 3359999 | 36992 pt | 36992 pt |
| 3359120111 | 3692017 pt | 3692005 pt | 3359323 | 36442 | 36442 | 3359999100 pt | 3699297 | 3699200 pt |
| 3359120111 pt | 3692017 pt | 3692007 pt | 3359323000 | 3644200 | 3644200 | 3359999100 pt | 3699290 pt | 3699200 pt |
| 3359120114 | 3692019 pt | 3692003 pt | 3359325 | 36443 | 36443 | 3359999A | 36995 | 36995 |
| 3359120114 pt | 3692019 pt | 3692005 pt | 3359325000 | 3644300 | 3644300 | 3359999A000 | 3699500 | 3699500 |
| 3359120114 pt | 3692019 pt | 3692007 pt | 335932W | 36440 | 36440 | 3359999B | 36996 pt | 36996 pt |
| 3359120201 | 3692021 | 3692003 pt | 335932WYWW | 3644000 | 3644000 | 3359999B100 pt | 3699600 pt | 3699600 pt |
| 3359120201 | 3692021 | 3692003 pt | 335932WYWY | 3644002 | 3644002 | 3359999B100 pt | 3699605 | 3699600 pt |
| 3359120204 | 3692023 | 3692001 pt | 3359911 | 36241 | 36241 | 3359999C | 36999 | 36999 |
| 3359120207 | 3692025 | 3692005 pt | 3359911101 | 3624152 | 3624152 | 3359999C000 | 3699900 | 3699900 |
| 3359120211 | 3692027 | 3692005 pt | 3359911204 | 3624156 | 3624156 | 3359999D | 3699A pt | 3699A pt |
| 3359120214 | 3692029 pt | 3692004 pt | 3359911YVW | 3624100 | 3624100 | 3359999D101 | 3699A01 | 3699A01 |
| 3359120214 pt | 3692029 pt | 3692005 pt | 3359913 | 36249 | 36249 | 3359999D203 | 3699A03 | 3699A03 |
| 3359120301 | 3692009 | 3692009 | 3359913010 | 3624916 | 3624916 | 3359999D305 | 3699A05 | 3699A05 |
| 3359120301 | 3692009 | 3692009 | 3359913101 pt | 3624916 pt | 3624916 | 3359999D407 | 3699A02 | 3699A00 pt |
| 3359120YWW | 3692000 | 3692000 | 3359913104 | 3624917 | 3624917 | 3359999DYVW | 3699A00 pt | 3699A00 pt |
| 3359120YWY | 3692002 | 3692002 | 3359913207 | 3624988 | 3624988 | 3359999W pt | 36290 | 36290 |
| 3359210 pt | 33570 pt | 33570 pt | 3359913311 | 3624981 | 3624981 | 3359999W pt | 36990 pt | 36990 pt |
| 3359210 pt | 33579 | 33579 | 3359913316 | 3624986 | 3624986 | 3359999WYWW pt | 3629000 | 3629000 |
| 3359210101 | 3357931 | 3357911 pt | 3359913319 | 3624988 | 3624988 | 3359999WYWY pt | 3629002 | 3629002 |
| 3359210106 | 3357941 | 3357911 pt | 3359913319 | 3624994 | 3624994 | 3359999WYWY pt | 3699002 pt | 3699002 pt |
| 3359210111 | 3357951 | 3357911 pt | | | | | | |
| 3359210421 | 3357932 | 3357921 pt | | | | | | |
| 3359210426 | 3357942 | 3357921 pt | | | | | | |
| 3359210431 | 3357952 | 3357921 pt | | | | | | |
| 3359210YWW pt | 3357000 pt | 3357000 pt | | | | | | |
| 3359210YWW pt | 3357900 | 3357900 | | | | | | |
| 3359210YWY | 3357002 pt | 3357002 pt | | | | | | |
| 3359291 | 33578 | 33578 | | | | | | |
| 3359291800 | 3357800 | 3357800 | | | | | | |

Primary Battery Manufacturing

1997

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Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

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

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

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

ALL-NEW INDUSTRY CLASSIFICATIONS

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

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

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

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

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

RELATIONSHIP TO SIC

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

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

GEOGRAPHIC AREA CODING

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

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

BASIS OF REPORTING

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

DOLLAR VALUES

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

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

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

Special Tabulations

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

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

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

HISTORICAL INFORMATION

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

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

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

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

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

SOURCES FOR MORE INFORMATION

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

ABBREVIATIONS AND SYMBOLS

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

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

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

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) | | | | |
| 335912 | Primary battery mfg | 34 | 45 | 8 917 | 281 467 | 6 847 | 12 968 | 186 886 | 1 348 999 | 995 085 | 2 322 896 | 126 293 |
| 369200 | Primary batteries, dry & wet . . . | N | 45 | 8 917 | 281 467 | 6 847 | 12 968 | 186 886 | 1 348 999 | 995 085 | 2 322 896 | 126 293 |

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) | | | | |
| 335912, PRIMARY BATTERY MFG | | | | | | | | | | | | |
| United States | - | 45 | 23 | 8 917 | 281 467 | 6 847 | 12 968 | 186 886 | 1 348 999 | 995 085 | 2 322 896 | 126 293 |

* 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 |
|----------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|---------------------|
| 335912, PRIMARY BATTERY MFG | | 335912, PRIMARY BATTERY MFG—Con. | |
| Companies ¹ | number.. 34 | Value added | \$1,000.. 1 348 999 |
| All establishments | number.. 45 | Total inventories, beginning of year | \$1,000.. 151 355 |
| Establishments with 1 to 19 employees | number.. 22 | Finished goods inventories, beginning of year | \$1,000.. 23 877 |
| Establishments with 20 to 99 employees | number.. 4 | Work-in-process inventories, beginning of year | \$1,000.. 61 083 |
| Establishments with 100 employees or more | number.. 19 | Materials and supplies inventories, beginning of year | \$1,000.. 66 395 |
| All employees | number.. 8 917 | Total inventories, end of year | \$1,000.. 162 609 |
| Total compensation ² | \$1,000.. 361 113 | Finished goods inventories, end of year | \$1,000.. 25 635 |
| Annual payroll | \$1,000.. 281 467 | Work-in-process inventories, end of year | \$1,000.. 80 513 |
| Total fringe benefits | \$1,000.. 79 646 | Materials and supplies inventories, end of year | \$1,000.. 56 461 |
| Production workers, average for year | number.. 6 847 | Gross book value of total assets at beginning of year | \$1,000.. 1 091 816 |
| Production workers on March 15 | number.. 6 842 | Total capital expenditures (new and used) | \$1,000.. 126 293 |
| Production workers on May 15 | number.. 6 963 | Capital expenditures for buildings and other structures (new and used) | \$1,000.. 24 237 |
| Production workers on August 15 | number.. 6 787 | Capital expenditures for machinery and equipment (new and used) | \$1,000.. 102 056 |
| Production workers on November 15 | number.. 6 796 | Total retirements ² | \$1,000.. 24 472 |
| Production-worker hours | 1,000.. 12 968 | Gross book value of total assets at end of year | \$1,000.. 1 193 637 |
| Production-worker wages | \$1,000.. 186 886 | Total depreciation during year ² | \$1,000.. 82 695 |
| Total cost of materials | \$1,000.. 995 085 | Total rental payments ² | \$1,000.. 5 413 |
| Cost of materials, parts, containers, etc., consumed | \$1,000.. 969 838 | Buildings and other structures rental payments ² | \$1,000.. 2 322 |
| Cost of resales | \$1,000.. 2 056 | Machinery and equipment rental payments ² | \$1,000.. 3 091 |
| Cost of fuels | \$1,000.. 2 474 | Cost of purchased services for the repair of buildings and other structures ³ | \$1,000.. 6 881 |
| Cost of purchased electricity | \$1,000.. 14 248 | Response coverage ratio ⁴ | percent.. 100 |
| Cost of contract work | \$1,000.. 6 469 | Cost of purchased services for the repair of machinery and equipment ³ | \$1,000.. 23 838 |
| Quantity of electricity purchased for heat and power | 1,000 kWh.. 269 336 | 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.. 1 970 |
| Total value of shipments | \$1,000.. 2 322 896 | Response coverage ratio ⁴ | percent.. 100 |
| Primary products value of shipments | \$1,000.. 2 302 731 | Cost of purchased legal services ³ | \$1,000.. 790 |
| Secondary products value of shipments | \$1,000.. 12 615 | Response coverage ratio ⁴ | percent.. 100 |
| Total miscellaneous receipts | \$1,000.. 7 550 | Cost of purchased accounting and bookkeeping services ³ | \$1,000.. 288 |
| Value of resales | \$1,000.. 2 340 | Response coverage ratio ⁴ | percent.. 100 |
| Contract receipts | \$1,000.. D | Cost of purchased advertising services ³ | \$1,000.. 223 |
| Other miscellaneous receipts | \$1,000.. D | Response coverage ratio ⁴ | percent.. 100 |
| Primary products specialization ratio | percent.. 99 | Cost of purchased software and other data processing services ³ | \$1,000.. 897 |
| Value of primary products shipments made in all industries | \$1,000.. 2 428 850 | Response coverage ratio ⁴ | percent.. 100 |
| Value of primary products shipments made in this industry | \$1,000.. 2 302 731 | Cost of purchased refuse removal (including hazardous waste) services ³ | \$1,000.. 2 074 |
| Value of primary products shipments made in other industries | \$1,000.. 126 119 | Response coverage ratio ⁴ | percent.. 100 |
| 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 | 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) |
| 335912, PRIMARY BATTERY MFG | | | | | | | | | | | | |
| All establishments | - | 45 | 23 | 8 917 | 281 467 | 6 847 | 12 968 | 186 886 | 1 348 999 | 995 085 | 2 322 896 | 126 293 |
| Establishments with 1 to 4 employees | 9 | 14 | - | 26 | 659 | 22 | 41 | 471 | 1 648 | 1 877 | 3 523 | 198 |
| Establishments with 5 to 9 employees | 6 | 3 | - | 20 | 813 | 16 | 36 | 581 | 1 457 | 1 664 | 3 121 | 364 |
| Establishments with 10 to 19 employees | 8 | 5 | - | 65 | 1 842 | 50 | 69 | 1 318 | 4 017 | 4 440 | 8 455 | 405 |
| Establishments with 20 to 49 employees | - | 2 | 2 | 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 | - | 3 | 3 | D | D | D | D | D | D | D | D | D |
| Establishments with 250 to 499 employees | - | 10 | 10 | 3 609 | 99 954 | 2 670 | 5 365 | 66 570 | 714 717 | 362 463 | 1 071 691 | 32 330 |
| Establishments with 500 to 999 employees | - | 4 | 4 | 2 441 | 92 182 | 1 863 | 3 791 | 55 946 | 286 182 | 274 711 | 551 670 | 50 890 |
| 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 | 19 | - | 89 | 2 324 | 72 | 126 | 1 662 | 5 808 | 6 623 | 12 426 | 700 |

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) | | | | |
| 335912 | Primary battery mfg | 45 | 8 917 | 281 467 | 6 847 | 12 968 | 186 886 | 1 348 999 | 995 085 | 2 322 896 | 126 293 |

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) |
| 335912 | Primary batteries | N | X | X | 2 428 850 | N | X | X | 1 925 027 |
| 3359120 | Primary batteries | N | X | X | 2 428 850 | N | X | X | 1 925 027 |
| 33591201 | Round and prismatic primary battery cells | N | X | X | 2 191 191 | N | X | X | N |
| 3359120101 | Alkaline manganese round and prismatic primary battery cells | 6 | X | X | 1 041 360 | N | X | X | N |
| 3359120104 | Zinc carbon round and prismatic primary battery cells | 4 | X | X | D | N | X | X | N |
| 3359120107 | Mercuric oxide round and prismatic primary battery cells | 2 | X | X | D | N | X | X | N |
| 3359120111 | Lithium round and prismatic primary battery cells | 11 | X | X | D | N | X | X | N |
| 3359120114 | All other round and prismatic battery cells | 7 | X | X | D | N | X | X | N |
| 33591202 | Button and coin primary battery cells | N | X | X | 152 851 | N | X | X | N |
| 3359120201 | Silver oxide button and coin primary battery cells | 4 | X | X | 66 104 | N | X | X | N |
| 3359120204 | Alkaline manganese button and coin primary battery cells | 1 | X | X | D | N | X | X | N |
| 3359120207 | Zinc air button and coin primary battery cells | 2 | X | X | D | N | X | X | N |
| 3359120211 | Lithium button and coin primary battery cells | 4 | X | X | 59 705 | N | X | X | N |
| 3359120214 | All other button and coin primary battery cells | 2 | X | X | D | N | X | X | N |
| 33591203 | Parts for primary batteries, excluding cases and containers | N | X | X | 57 731 | N | X | X | N |
| 3359120301 | Parts for primary batteries, excluding cases and containers | 5 | X | X | 57 731 | 10 | X | X | 91 967 |
| 3359120Y | Primary batteries, nsk, total | N | X | X | 27 077 | N | X | X | N |
| 3359120YWW | Primary batteries, nsk, for nonadministrative-record establishments | N | X | X | 14 758 | N | X | X | 169 201 |
| 3359120YWY | Primary batteries, nsk, for administrative-record establishments | N | X | X | 12 319 | N | X | X | 8 757 |

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) |
| 335912 | PRIMARY BATTERY MFG | | | | |
| 332000AC | Metal stampings | X | 177 722 | X | 82 129 |
| 33200073 | All other fabricated metal products (except forgings) | X | D | X | D |
| 33210001 | Forgings | X | - | X | D |
| 33151001 | Iron and steel castings (rough and semifinished) | X | - | X | N |
| 33152011 | Nonferrous (aluminum, copper, etc.) castings (rough and semifinished) | X | D | X | D |
| 33141951 | Refined unalloyed lead shapes and forms (except castings, forgings, and fabricated metal products) | X | - | X | D |
| 33141953 | Antimonial lead | X | - | X | N |
| 33141955 | Lead-calcium alloyed | X | - | X | N |
| 33120017 | Steel sheet and strip, including tin plate | X | D | X | 38 450 |
| 33120083 | All other steel shapes and forms (except castings, forgings, and fabricated metal products) | X | 38 419 | X | 34 366 |
| 33149105 | Zinc and zinc-base alloy shapes and forms (except castings, forgings, and fabricated metal products) | X | 115 522 | X | 56 046 |
| 33100063 | Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products) | X | D | X | D |
| 32513105 | Litharge | X | D | X | N |
| 32518803 | Sulfuric acid (new and spent) (100 percent H2SO4) | X | D | X | D |
| 325000B3 | Other industrial inorganic chemicals (including mercury oxide and silver oxide) | X | D | X | 71 001 |

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) |
| 335912 | PRIMARY BATTERY MFG—Con. | | | | |
| 32521105 | Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. | X | 15 744 | X | 10 159 |
| 32610013 | Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes | X | 27 095 | X | 30 302 |
| 32610011 | Fabricated plastics products (except gaskets) | X | D | X | 8 404 |
| 32221001 | Paperboard containers, boxes, and corrugated paperboard | X | 65 721 | X | 48 375 |
| 33599101 | Carbon and graphite electrodes, and other carbon and graphite products for electrical use | X | D | X | D |
| 00970099 | All other materials and components, parts, containers, and supplies | X | 292 541 | X | 495 327 |
| 00971000 | Materials, ingredients, containers, and supplies, n.s.k. | X | 25 402 | X | 39 885 |

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

335912 PRIMARY BATTERY MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing wet or dry primary batteries.

The data published with NAICS code 335912 include the following SIC industry:

3692 Primary batteries, dry and wet

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 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 3351101 | 36411 | 36411 | 3352121 | 36350 pt | 36350 pt | 3353113 pt | 36123 | 36123 |
| 335110100 | 3641100 | 3641100 | 3352121101 | 3635041 | 3635041 | 3353113101 | 3612301 | 3612301 |
| 3351103 | 36412 | 36412 | 3352121103 | 3635011 | 3635011 | 3353113104 | 3612302 | 3612302 |
| 3351103100 | 3641200 | 3641200 | 3352121105 | 3635033 | 3635033 | 3353113107 | 3548105 | 3548104 pt |
| 335110W | 36410 | 36410 | 3352121107 pt | 3635044 pt | 3635031 | 3353113109 | 3612306 | 3612306 |
| 335110WYWW | 3641000 | 3641000 | 3352121107 pt | 3635044 pt | 3635036 | 3353113113 | 3612307 | 3612307 |
| 335110WYWY | 3641002 | 3641002 | 3352121111 | 3635051 | 3635051 | 3353113115 | 3612308 | 3612308 |
| 3351211 | 36451 | 36451 | 3352121113 | 3635071 | 3635071 | 3353113116 | 3612311 | 3612311 |
| 3351211000 | 3645100 | 3645100 | 3352121YWW | 3635000 pt | 3635000 pt | 3353113YWW pt | 3548100 pt | 3548100 pt |
| 3351213 pt | 30897 pt | 30897 pt | 3352122 | 36395 pt | 36395 pt | 3353113YWW pt | 3612300 | 3612300 |
| 3351213 pt | 30897 pt | 30897 pt | 335212211 | 3639525 | 3639520 pt | 3353115 | 36124 | 36124 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122219 | 3639513 | 3639510 pt | 3353115000 | 3612400 | 3612400 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122YWW | 3639500 pt | 3639500 pt | 3353117 | 36126 | 36126 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36350 pt | 36350 pt | 335311701 | 3612601 | 3612601 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36390 pt | 36390 pt | 3353117104 | 3612602 | 3612602 |
| 335121311 | 39999 pt | 39999 pt | 335212W pt | 36390 pt | 36390 pt | 3353117107 | 3612603 | 3612603 |
| 3351213111 | 3645721 | 3645721 | 335212WYWW pt | 3635000 pt | 3635000 pt | 3353117111 | 3612604 | 3612604 |
| 3351213121 | 3645722 | 3645722 | 335212WYWW pt | 3639000 pt | 3639000 pt | 3353117113 pt | 3612608 pt | 3612605 |
| 3351213131 | 3645723 | 3645723 | 335212WYWW pt | 3635002 | 3635002 | 3353117113 pt | 3612608 pt | 3612609 |
| 3351213131 | 3645723 | 3645723 | 335212WYWW pt | 3639002 pt | 3639002 pt | 3353117YWW | 3612600 | 3612600 |
| 3351213141 | 3645729 | 3645729 | 3352211 | 36311 | 36311 | 3353119 | 36127 | 36127 |
| 3351213151 | 3645732 | 3645732 | 3352211110 | 3631110 | 3631110 | 3353119101 | 3612701 | 3612701 |
| 3351213161 | 3645761 | 3645761 | 3352211290 | 3631120 | 3631120 | 3353119104 | 3612778 | 3612778 |
| 3351213165 | 3999961 | 3999961 | 3352211YWW | 3631100 | 3631100 | 3353119YWW | 3612700 | 3612700 |
| 3351213169 | 3089705 | 3089709 pt | 3352213 | 36313 | 36313 | 335311W pt | 35480 pt | 35480 pt |
| 3351213171 | 3645773 | 3645773 | 3352213110 | 3631310 | 3631310 | 335311W pt | 36120 | 36120 |
| 3351213YWW pt | 3089700 pt | 3089700 pt | 3352213190 | 3631320 | 3631320 | 335311WYWW pt | 3548000 pt | 3548000 pt |
| 3351213YWW pt | 3645700 | 3645700 | 3352213YWW | 3631300 | 3631300 | 335311WYWW pt | 3612000 | 3612000 |
| 3351213YWW pt | 3999900 pt | 3999900 pt | 3352215 | 36314 | 36314 | 335311WYWW pt | 3548002 pt | 3548002 pt |
| 335121W pt | 30890 pt | 30890 pt | 3352215110 | 3631410 | 3631410 | 335311WYWW pt | 3612002 | 3612002 |
| 335121W pt | 30890 pt | 30890 pt | 3352215190 | 3631420 | 3631420 | 3353121 | 36211 | 36211 |
| 335121W pt | 30890 pt | 30890 pt | 3352215YWW | 3631400 | 3631400 | 3353121000 | 3621100 | 3621100 |
| 335121W pt | 30890 pt | 30890 pt | 335221W | 36310 | 36310 | 3353123 | 36212 | 36212 |
| 335121WYWW pt | 3089000 pt | 3089000 pt | 335221WYWW | 3631000 | 3631000 | 3353123000 | 3621200 | 3621200 |
| 335121WYWW pt | 3645000 | 3645000 | 335221WYWW | 3631002 | 3631002 | 3353125 | 36213 | 36213 |
| 335121WYWW pt | 3999000 pt | 3999002 pt | 335221YWW | 36321 | 36321 | 3353125000 | 3621300 | 3621300 |
| 335121WYWW pt | 3999002 pt | 3999002 pt | 335222 | 36322 | 36322 | 3353127 | 36214 | 36214 |
| 3351221 | 36462 | 36462 | 3352221000 | 3632200 | 3632200 | 3353127000 | 3621400 | 3621400 |
| 3351221000 | 3646200 | 3646200 | 3352223 | 36323 | 36323 | 3353129 | 36217 | 36217 |
| 3351222 | 36463 | 36463 | 3352223000 | 3632300 | 3632300 | 3353129000 | 3621700 | 3621700 |
| 3351222000 | 3646300 | 3646300 | 335222W | 36320 | 36320 | 335312A | 36218 | 36218 |
| 335122W | 36460 | 36460 | 335222WYWW | 3632000 | 3632000 | 335312A000 | 3621800 | 3621800 |
| 335122WYWW | 3646000 | 3646000 | 335222WYWW | 3632002 | 3632002 | 335312C | 36219 | 36219 |
| 335122WYWY | 3646002 | 3646002 | 3352240YWW | 3633000 | 3633000 | 335312C000 | 3621900 | 3621900 |
| 3351291 | 36485 | 36485 | 3352240YWY | 3633002 | 3633002 | 335312E | 76940 pt | 76940 pt |
| 3351291000 | 3648500 | 3648500 | 3352240YWY | 3633002 | 3633002 | 335312E100 pt | 7694020 | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352281 | 36391 | 36391 | 335312E100 pt | 7694000 pt | 7694000 pt |
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| 3351293 pt | 36996 pt | 36996 pt | 3352283 | 36392 | 36392 | 335312W pt | 36210 | 36210 |
| 3351293109 | 3648912 | 3648912 | 3352283000 | 3639200 | 3639200 | 335312W pt | 76940 pt | 76940 pt |
| 3351293112 | 3648916 | 3648916 | 3352285 | 36395 pt | 36395 pt | 335312WYWW pt | 3621000 | 3621000 |
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| 3351293122 pt | 3648979 pt | 3648991 | 335228WYWW | 3639000 pt | 3639000 pt | 3353131000 | 3613200 | 3613200 |
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| 335129W pt | 36480 | 36480 | 3353111313 | 3612216 | 3612216 | 335313A000 | 3613900 | 3613900 |
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| 335129WYWY pt | 3699002 pt | 3699002 pt | 3353111428 | 3612229 | 3612229 | 3353141000 | 3625100 | 3625100 |
| 3352111 | 36341 | 36341 | 3353111431 | 3612232 | 3612232 | 3353143 | 36252 | 36252 |
| 3352111000 | 3634100 | 3634100 | 3353111434 | 3612233 | 3612233 | 3353143000 | 3625200 | 3625200 |
| 3352113 | 36345 pt | 36345 pt | 3353111537 | 3612237 | 3612237 | 3353145 | 36253 | 36253 |
| 3352115 | 36349 pt | 36349 pt | 3353111541 | 3612239 | 3612239 | 3353145000 | 3625300 | 3625300 |
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| 3352115YWW | 3634900 pt | 3634900 pt | 3353111549 | 3612243 | 3612243 | | | |
| 335211W | 36340 pt | 36340 pt | 3353111552 | 3612244 | 3612244 | | | |
| 335211WYWW | 3634000 pt | 3634000 pt | 3353111YWW | 3612244 | 3612244 | | | |
| 335211WYWY | 3634002 pt | 3634002 pt | 3353113 pt | 35481 pt | 35481 pt | | | |

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 335314W | 36250 | 36250 | 335929A | 3357A | 3357A | 3359913322 | 3624996 | 3624996 |
| 335314WYWW | 3625000 | 3625000 | 335929A100 | 3357A00 | 3357A00 | 3359913YVW | 3624900 | 3624900 |
| 335314WYWY | 3625002 | 3625002 | 335929B | 3357B | 3357B | 335991W | 36240 | 36240 |
| 3359111 | 36913 | 36913 | 335929B100 | 3357B00 | 3357B00 | 335991WYWW | 3624000 | 3624000 |
| 3359111101 | 3691311 | 3691311 | 335929C | 3357C | 3357C | 335991WYWY | 3624002 | 3624002 |
| 3359111204 | 3691312 | 3691312 | 335929C100 | 3357C00 | 3357C00 | 3359991 | 36291 | 36291 |
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| 3359111YVW | 3691300 | 3691300 | 335929D100 | 3357D00 | 3357D00 | 3359991103 | 3629104 | 3629104 |
| 3359114 | 36914 | 36914 | 335929E | 3357E | 3357E | 3359991YVW | 3629100 | 3629100 |
| 3359114101 | 3691411 | 3691411 | 335929E100 | 3357E00 | 3357E00 | 3359993 | 36292 | 36292 |
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| 3359114201 | 3691421 | 3691421 | 335929WYWW | 3357000 pt | 3357000 pt | 3359993104 | 3629225 | 3629225 |
| 3359114204 | 3691422 | 3691422 | 335929WYWY | 3357002 pt | 3357002 pt | 3359993107 | 3629241 | 3629241 |
| 3359114207 | 3691479 | 3691479 | 3359311 | 36431 | 36431 | 3359993111 | 3629245 | 3629245 |
| 3359114YVW | 3691400 | 3691400 | 33593111000 | 3643100 | 3643100 | 3359993213 | 3629251 | 3629251 |
| 3359117 | 36915 | 36915 | 3359313 | 36432 | 36432 | 3359993216 | 3629253 | 3629253 |
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| 3359117104 | 3691502 | 3691502 | 3359315 | 36433 | 36433 | 3359993YVW | 3629200 | 3629200 |
| 3359117201 | 3691591 | 3691591 | 3359315000 | 3643300 | 3643300 | 3359995 pt | 36293 | 36293 |
| 3359117YVW | 3691500 | 3691500 | 3359317 | 36434 | 36434 | 3359995101 | 3699A pt | 3699A pt |
| 335911W | 36910 | 36910 | 3359317000 | 3643400 | 3643400 | 3359995104 | 3629301 | 3629301 |
| 335911WYWW | 3691000 | 3691000 | 3359319 | 36435 | 36435 | 3359995107 | 3629302 | 3629302 |
| 335911WYWY | 3691002 | 3691002 | 3359319000 | 3643500 | 3643500 | 3359995111 | 3629303 | 3629303 |
| 3359120 | 36920 | 36920 | 335931A | 36436 | 36436 | 3359995137 pt | 3629304 | 3629304 |
| 3359120101 | 3692001 pt | 3692001 pt | 335931A000 | 3643600 | 3643600 | 3359995YVW pt | 3629311 | 3629311 |
| 3359120101 pt | 3692011 pt | 3692007 pt | 335931W | 36430 | 36430 | 3359997 | 36992 pt | 36992 pt |
| 3359120104 | 3692013 pt | 3692001 pt | 335931WYWW | 3643000 | 3643000 | 3359997000 pt | 3699271 | 3699200 pt |
| 3359120104 pt | 3692013 pt | 3692007 pt | 335931WYWY | 3643002 | 3643002 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120107 | 3692015 pt | 3692004 pt | 3359321 | 36441 | 36441 | 3359997000 pt | 3699200 pt | 3699200 pt |
| 3359120107 pt | 3692015 pt | 3692007 pt | 3359321000 | 3644100 | 3644100 | 3359999 | 36992 pt | 36992 pt |
| 3359120111 | 3692017 pt | 3692005 pt | 3359323 | 36442 | 36442 | 3359999100 pt | 3699297 | 3699200 pt |
| 3359120111 pt | 3692017 pt | 3692007 pt | 3359323000 | 3644200 | 3644200 | 3359999100 pt | 3699200 pt | 3699200 pt |
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| 3359120114 pt | 3692019 pt | 3692007 pt | 335932W | 36440 | 36440 | 3359999B | 36996 pt | 36996 pt |
| 3359120201 | 3692021 | 3692003 pt | 335932WYWW | 3644000 | 3644000 | 3359999B100 pt | 3699600 pt | 3699600 pt |
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| 3359210106 | 3357941 | 3357911 pt | 3359913316 | 3624986 | 3624986 | 3359999WYWY pt | 3629000 | 3629000 |
| 3359210111 | 3357951 | 3357911 pt | 3359913319 | 3624994 | 3624994 | 3359999WYWY pt | 3699002 pt | 3699002 pt |
| 3359210421 | 3357932 | 3357921 pt | | | | | | |
| 3359210426 | 3357942 | 3357921 pt | | | | | | |
| 3359210431 | 3357952 | 3357921 pt | | | | | | |
| 3359210YVW pt | 3357000 pt | 3357000 pt | | | | | | |
| 3359210YVW pt | 3357900 | 3357900 | | | | | | |
| 3359210YVY | 3357002 pt | 3357002 pt | | | | | | |
| 3359291 | 33578 | 33578 | | | | | | |
| 3359291800 | 3357800 | 3357800 | | | | | | |

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

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

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

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

ALL-NEW INDUSTRY CLASSIFICATIONS

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

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

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

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

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

RELATIONSHIP TO SIC

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

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

GEOGRAPHIC AREA CODING

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

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

BASIS OF REPORTING

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

DOLLAR VALUES

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

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

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

Special Tabulations

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

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

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

HISTORICAL INFORMATION

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

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

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

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

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

SOURCES FOR MORE INFORMATION

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

ABBREVIATIONS AND SYMBOLS

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

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

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

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Manufacturing

SCOPE

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

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

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

GENERAL

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

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

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

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

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

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

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

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

GEOGRAPHIC AREAS COVERED

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

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

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

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

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

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

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

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

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

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

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

DISCLOSURE

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

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

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

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

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

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

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

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

| NAICS or SIC code | Industry | Com-panies ¹ | All estab-lish-ments ² | All employees | | Production workers | | | Value added by manufacture (\$1,000) | Cost of materials (\$1,000) | Value of shipments (\$1,000) | Total capital expendi-tures (\$1,000) |
|-------------------|-----------------------------------------------------|-------------------------|-----------------------------------|---------------|-------------------|--------------------|---------------|-----------------|--------------------------------------|-----------------------------|------------------------------|---------------------------------------|
| | | | | Number | Payroll (\$1,000) | Number | Hours (1,000) | Wages (\$1,000) | | | | |
| 335921 | Fiber optic cable mfg | 34 | 38 | 8 589 | 364 654 | 6 200 | 12 272 | 216 609 | 1 370 361 | 1 451 218 | 2 767 017 | 192 111 |
| 335740 | Nonferrous wire drawing & insulating (pt) | N | 38 | 8 589 | 364 654 | 6 200 | 12 272 | 216 609 | 1 370 361 | 1 451 218 | 2 767 017 | 192 111 |

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) |
| 335921, FIBER OPTIC CABLE MFG | | | | | | | | | | | | |
| United States | - | 38 | 38 | 8 589 | 364 654 | 6 200 | 12 272 | 216 609 | 1 370 361 | 1 451 218 | 2 767 017 | 192 111 |

* 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 |
|----------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|---------------------|
| 335921, FIBER OPTIC CABLE MFG | | 335921, FIBER OPTIC CABLE MFG—Con. | |
| Companies ¹ | number.. 34 | Value added | \$1,000.. 1 370 361 |
| All establishments | number.. 38 | Total inventories, beginning of year | \$1,000.. 285 997 |
| Establishments with 1 to 19 employees | number.. — | Finished goods inventories, beginning of year | \$1,000.. 75 742 |
| Establishments with 20 to 99 employees | number.. 20 | Work-in-process inventories, beginning of year | \$1,000.. 91 455 |
| Establishments with 100 employees or more | number.. 18 | Materials and supplies inventories, beginning of year | \$1,000.. 118 800 |
| All employees | number.. 8 589 | Total inventories, end of year | \$1,000.. 344 025 |
| Total compensation ² | \$1,000.. 470 112 | Finished goods inventories, end of year | \$1,000.. 110 736 |
| Annual payroll | \$1,000.. 364 654 | Work-in-process inventories, end of year | \$1,000.. 111 023 |
| Total fringe benefits | \$1,000.. 105 458 | Materials and supplies inventories, end of year | \$1,000.. 122 266 |
| Production workers, average for year | number.. 6 200 | Gross book value of total assets at beginning of year | \$1,000.. 1 189 648 |
| Production workers on March 12 | number.. 6 035 | Total capital expenditures (new and used) | \$1,000.. 192 111 |
| Production workers on May 12 | number.. 6 177 | Capital expenditures for buildings and other structures (new and used) | \$1,000.. 27 181 |
| Production workers on August 12 | number.. 6 318 | Capital expenditures for machinery and equipment (new and used) | \$1,000.. 164 930 |
| Production workers on November 12 | number.. 6 270 | Total retirements ² | \$1,000.. 17 066 |
| Production-worker hours | 1,000.. 12 272 | Gross book value of total assets at end of year | \$1,000.. 1 364 693 |
| Production-worker wages | \$1,000.. 216 609 | Total depreciation during year ² | \$1,000.. 92 203 |
| Total cost of materials | \$1,000.. 1 451 218 | Total rental payments ² | \$1,000.. 6 967 |
| Cost of materials, parts, containers, etc., consumed | \$1,000.. 1 365 943 | Buildings and other structures rental payments ² | \$1,000.. 4 190 |
| Cost of resales | \$1,000.. 61 121 | Machinery and equipment rental payments ² | \$1,000.. 2 777 |
| Cost of fuels | \$1,000.. 3 445 | Cost of purchased services for the repair of buildings and other structures ³ | \$1,000.. 8 778 |
| Cost of purchased electricity | \$1,000.. 16 300 | Response coverage ratio ⁴ | percent.. 93 |
| Cost of contract work | \$1,000.. 4 409 | Cost of purchased services for the repair of machinery and equipment ³ | \$1,000.. 34 841 |
| Quantity of electricity purchased for heat and power | 1,000 kWh.. 342 815 | Response coverage ratio ⁴ | percent.. 93 |
| Quantity of electricity generated less sold for heat and power | 1,000 kWh.. D | Cost of purchased communications services ³ | \$1,000.. 4 135 |
| Total value of shipments | \$1,000.. 2 767 017 | Response coverage ratio ⁴ | percent.. 93 |
| Primary products value of shipments | \$1,000.. D | Cost of purchased legal services ³ | \$1,000.. 1 126 |
| Secondary products value of shipments | \$1,000.. D | Response coverage ratio ⁴ | percent.. 93 |
| Total miscellaneous receipts | \$1,000.. 83 348 | Cost of purchased accounting and bookkeeping services ³ | \$1,000.. 525 |
| Value of resales | \$1,000.. 75 692 | Response coverage ratio ⁴ | percent.. 93 |
| Contract receipts | \$1,000.. — | Cost of purchased advertising services ³ | \$1,000.. 2 394 |
| Other miscellaneous receipts | \$1,000.. 7 656 | Response coverage ratio ⁴ | percent.. 93 |
| Primary products specialization ratio | percent.. D | Cost of purchased software and other data processing services ³ | \$1,000.. 3 645 |
| Value of primary products shipments made in all industries | \$1,000.. 2 334 069 | Response coverage ratio ⁴ | percent.. 93 |
| Value of primary products shipments made in this industry | \$1,000.. D | Cost of purchased refuse removal (including hazardous waste) services ³ | \$1,000.. 1 978 |
| Value of primary products shipments made in other industries | \$1,000.. D | Response coverage ratio ⁴ | percent.. 93 |
| 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) |
| 335921, FIBER OPTIC CABLE MFG | | | | | | | | | | | | |
| All establishments | - | 38 | 38 | 8 589 | 364 654 | 6 200 | 12 272 | 216 609 | 1 370 361 | 1 451 218 | 2 767 017 | 192 111 |
| Establishments with 1 to 4 employees | - | - | - | - | - | - | - | - | - | - | - | - |
| Establishments with 5 to 9 employees | - | - | - | - | - | - | - | - | - | - | - | - |
| Establishments with 10 to 19 employees | - | - | - | - | - | - | - | - | - | - | - | - |
| Establishments with 20 to 49 employees | 1 | 14 | 14 | 463 | 14 881 | 297 | 533 | 7 388 | 44 555 | 48 930 | 94 227 | 1 650 |
| Establishments with 50 to 99 employees | - | 6 | 6 | 394 | 12 177 | 246 | 444 | 6 821 | 45 855 | 55 065 | 101 118 | 1 885 |
| Establishments with 100 to 249 employees | - | 10 | 10 | 1 562 | 67 577 | 965 | 1 847 | 25 698 | 262 279 | 328 577 | 578 203 | D |
| Establishments with 250 to 499 employees | - | 3 | 3 | 1 035 | 38 917 | 675 | 1 372 | 20 413 | 191 089 | 304 720 | 487 203 | D |
| 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 | - | 1 | - | D | D | D | D | D | D | D | D | D |

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

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

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

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

| NAICS industry or product class code | Industry or primary product class | All establishments | All employees | | Production workers | | | Value added by manufacture (\$1,000) | Cost of materials (\$1,000) | Value of shipments (\$1,000) | Total capital expenditures (\$1,000) |
|--------------------------------------|------------------------------------|--------------------|---------------|-------------------|--------------------|---------------|-----------------|--------------------------------------|-----------------------------|------------------------------|--------------------------------------|
| | | | Number | Payroll (\$1,000) | Number | Hours (1,000) | Wages (\$1,000) | | | | |
| 335921 | Fiber optic cable mfg | 38 | 8 589 | 364 654 | 6 200 | 12 272 | 216 609 | 1 370 361 | 1 451 218 | 2 767 017 | 192 111 |

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) |
| 335921 | Fiber optic cable | N | X | X | 2 334 069 | N | X | X | N |
| 3359210 | Fiber optic cable @ | N | X | X | 2 334 069 | N | X | X | N |
| 33592101 | Fiber optic cable for communication | N | X | X | 1 980 723 | N | X | X | N |
| 3359210101 | Fiber optic cable for communication (telephone, telegraph, and electronic) made of aluminum in plants that draw wire | 6 | X | X | 182 435 | N | X | X | N |
| 3359210106 | Fiber optic cable for communication (telephone, telegraph, and electronic) made of copper in plants that draw wire | 17 | X | X | 1 034 341 | N | X | X | N |
| 3359210111 | Fiber optic cable for communication (telephone, telegraph, and electronic) made of other nonferrous products in plants that draw wire | 13 | X | X | 763 947 | N | X | X | N |
| 33592104 | Fiber optic cable for all other uses | N | X | X | 306 581 | N | X | X | N |
| 3359210421 | Fiber optic cable for all other uses, made of aluminum in plants that draw wire | 3 | X | X | 130 246 | N | X | X | N |
| 3359210426 | Fiber optic cable for all other uses, made of copper in plants that draw wire | 4 | X | X | 37 411 | N | X | X | N |
| 3359210431 | Fiber optic cable for all other uses, made of other nonferrous products in plants that draw wire | 9 | X | X | 138 924 | N | X | X | N |
| 3359210Y | Fiber optic cable, nsk, total | N | X | X | 46 765 | N | X | X | N |
| 3359210YWW | Fiber optic cable, nsk, for nonadministrative-record establishments | N | X | X | 46 765 | N | X | X | N |
| 3359210YWY | Fiber optic cable, nsk, for administrative-record establishments | N | X | X | - | N | X | X | N |

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

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

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

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

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

[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) |
| 335921 | FIBER OPTIC CABLE MFG | | | | |
| 33122200 | Bare steel wire | 935.1 | 46 702 | N | X |
| 33120003 | All other steel shapes and forms (except castings, forgings, and fabricated metal products) | 23.1 | 30 035 | N | X |
| 33142119 | Copper and copper-base alloy wire for redrawing | D | D | N | X |
| 33100091 | Bare copper and copper-base alloy wire, electrical (except wire for redrawing) | D | D | N | X |
| 331000A5 | Insulated copper wire and cable | X | 26 351 | X | X |
| 33142147 | All other copper and copper-base alloy shapes and forms including wire bar | 7.9 | 55 509 | N | X |
| 33100089 | Bare aluminum and aluminum-base alloy wire, except for redrawing | D | D | N | X |
| 33100071 | All other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products) | D | D | N | X |
| 33100079 | All other nonferrous shapes and forms (except castings, forgings, and fabricated metal products) | 5.4 | 12 504 | N | X |
| 32521105 | Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. | 9108.0 | 92 932 | N | X |
| 32521205 | Synthetic rubber | D | D | N | X |
| 32500029 | All other chemicals and allied products | D | D | N | X |
| 32721501 | Optical fiber, data and nondata transmission | X | 715 673 | X | X |
| 32799305 | Fiberglass insulating materials | X | 3 696 | X | X |
| 32700003 | All other stone, clay, glass, and concrete products | X | D | X | X |

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) |
| 335921 | FIBER OPTIC CABLE MFG—Con. | | | | |
| 32610013 | Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes | X | 13 984 | X | X |
| 31311103 | Cotton yarns mil lb.. | 2.8 | 13 402 | N | X |
| 33593105 | Connectors | X | 19 007 | X | X |
| 00970099 | All other materials and components, parts, containers, and supplies | X | 218 631 | X | N |
| 00971000 | Materials, ingredients, containers, and supplies, n.s.k. | X | 8 302 | 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

335921 FIBER OPTIC CABLE MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing insulated fiber-optic cable from purchased fiber-optic strand.

The data published with NAICS code 335921 include the following SIC industry:

3357 Nonferrous wire drawing and insulating (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

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

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

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

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

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

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

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

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

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

2. Establishments sent a report form.

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

- a. ASM sample establishments.

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

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

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

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

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

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

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

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

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

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

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

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

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

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

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

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

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

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

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

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

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

ESTABLISHMENT BASIS OF REPORTING

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

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

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

DESCRIPTION OF THE ASM SURVEY SAMPLE

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

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

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

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

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

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

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

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

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

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

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

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

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

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

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

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

QUALIFICATIONS OF THE ASM DATA

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

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

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

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

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

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

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

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

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

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

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

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

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

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

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

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

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

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

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

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

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

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

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

| NAICS product code | Footnote |
|--------------------|----------------------------------------------------------------------------------------|
| @3359210 | For additional detail, see Current Industrial Report MA335J, Insulated Wire and Cable. |

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 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 3351101 | 36411 | 36411 | 3352121 | 36350 pt | 36350 pt | 3353113 pt | 36123 | 36123 |
| 335110100 | 3641100 | 3641100 | 3352121101 | 3635041 | 3635041 | 3353113101 | 3612301 | 3612301 |
| 3351103 | 36412 | 36412 | 3352121103 | 3635011 | 3635011 | 3353113104 | 3612302 | 3612302 |
| 3351103100 | 3641200 | 3641200 | 3352121105 | 3635033 | 3635033 | 3353113107 | 3548105 | 3548104 pt |
| 335110W | 36410 | 36410 | 3352121107 pt | 3635044 pt | 3635031 | 3353113109 | 3612306 | 3612306 |
| 335110WYWW | 3641000 | 3641000 | 3352121107 pt | 3635044 pt | 3635036 | 3353113113 | 3612307 | 3612307 |
| 335110WYWY | 3641002 | 3641002 | 3352121111 | 3635051 | 3635051 | 3353113115 | 3612308 | 3612308 |
| 3351211 | 36451 | 36451 | 3352121113 | 3635071 | 3635071 | 3353113116 | 3612311 | 3612311 |
| 3351211000 | 3645100 | 3645100 | 3352121YWW | 3635000 pt | 3635000 pt | 3353113YWW pt | 3548100 pt | 3548100 pt |
| 3351213 pt | 30897 pt | 30897 pt | 3352122 | 36395 pt | 36395 pt | 3353113YWW pt | 3612300 | 3612300 |
| 3351213 pt | 36457 | 36457 | 335212211 | 3639525 | 3639520 pt | 3353115 | 36124 | 36124 |
| 3351213 pt | 36457 | 36457 | 3352122219 | 3639513 | 3639510 pt | 3353115000 | 3612400 | 3612400 |
| 3351213 pt | 36457 | 36457 | 3352122YWW | 3639500 pt | 3639500 pt | 3353117 | 36126 | 36126 |
| 3351213 pt | 39999 pt | 39999 pt | 335212W pt | 36390 pt | 36390 pt | 335311701 | 3612601 | 3612601 |
| 335121311 | 3645721 | 3645721 | 335212W pt | 36390 pt | 36390 pt | 3353117104 | 3612602 | 3612602 |
| 3351213121 | 3645722 | 3645722 | 335212WYWW pt | 3635000 pt | 3635000 pt | 3353117107 | 3612603 | 3612603 |
| 3351213131 | 3645723 | 3645723 | 335212WYWW pt | 3639000 pt | 3639000 pt | 3353117111 | 3612604 | 3612604 |
| 3351213141 | 3645729 | 3645729 | 335212WYWW pt | 3635002 | 3635002 | 3353117113 pt | 3612608 pt | 3612605 |
| 3351213151 | 3645732 | 3645732 | 335212WYWW pt | 3639002 pt | 3639002 pt | 3353117113 pt | 3612608 pt | 3612609 |
| 3351213161 | 3645761 | 3645761 | 3352211 | 36311 | 36311 | 3353117YWW | 3612600 | 3612600 |
| 3351213165 | 3999961 | 3999961 | 3352211110 | 3631110 | 3631110 | 3353119 | 36127 | 36127 |
| 3351213169 | 3089705 | 3089709 pt | 3352211290 | 3631120 | 3631120 | 3353119101 | 3612701 | 3612701 |
| 3351213171 | 3645773 | 3645773 | 3352211YWW | 3631100 | 3631100 | 3353119104 | 3612778 | 3612778 |
| 3351213YVW pt | 3089700 pt | 3089700 pt | 3352213 | 36313 | 36313 | 3353119YVW | 3612700 | 3612700 |
| 3351213YVW pt | 3645700 | 3645700 | 3352213110 | 3631310 | 3631310 | 335311W pt | 35480 pt | 35480 pt |
| 3351213YVW pt | 3999900 pt | 3999900 pt | 3352213190 | 3631320 | 3631320 | 335311W pt | 36120 | 36120 |
| 335121W pt | 30890 pt | 30890 pt | 3352213YVW | 3631300 | 3631300 | 335311WYWW pt | 3548000 pt | 3548000 pt |
| 335121W pt | 36450 | 36450 | 3352215 | 36314 | 36314 | 335311WYWW pt | 3612000 | 3612000 |
| 335121W pt | 39990 pt | 39990 pt | 3352215110 | 3631410 | 3631410 | 335311WYWW pt | 3548002 pt | 3548002 pt |
| 335121WYWW pt | 3089000 pt | 3089000 pt | 3352215190 | 3631420 | 3631420 | 335311WYWW pt | 3612002 | 3612002 |
| 335121WYWW pt | 3645000 | 3645000 | 3352215YVW | 3631400 | 3631400 | 3353121 | 36211 | 36211 |
| 335121WYWW pt | 3999000 pt | 3999000 pt | 335221W | 36310 | 36310 | 3353121000 | 3621100 | 3621100 |
| 335121WYWW pt | 3089002 pt | 3089002 pt | 335221WYWW | 3631000 | 3631000 | 3353123 | 36212 | 36212 |
| 335121WYWW pt | 3645002 | 3645002 | 335221WYWW | 3631002 | 3631002 | 3353123000 | 3621200 | 3621200 |
| 335121WYWW pt | 3999002 pt | 3999002 pt | 3352221 | 36321 | 36321 | 3353125 | 36213 | 36213 |
| 3351221 | 36462 | 36462 | 3352221000 | 3632100 | 3632100 | 3353125000 | 3621300 | 3621300 |
| 3351221000 | 3646200 | 3646200 | 3352222 | 36322 | 36322 | 3353127 | 36214 | 36214 |
| 3351222 | 36463 | 36463 | 3352222000 | 3632200 | 3632200 | 3353127000 | 3621400 | 3621400 |
| 3351222000 | 3646300 | 3646300 | 3352223 | 36323 | 36323 | 3353129 | 36217 | 36217 |
| 335122W | 36460 | 36460 | 3352223000 | 3632300 | 3632300 | 3353129000 | 3621700 | 3621700 |
| 335122WYWW | 3646000 | 3646000 | 335222W | 36320 | 36320 | 335312A | 36218 | 36218 |
| 335122WYWY | 3646002 | 3646002 | 335222WYWW | 3632000 | 3632000 | 335312A000 | 3621800 | 3621800 |
| 3351291 | 36485 | 36485 | 335222WYWY | 3632002 | 3632002 | 335312C | 36219 | 36219 |
| 3351291000 | 3648500 | 3648500 | 3352240 | 36330 | 36330 | 335312C000 | 3621900 | 3621900 |
| 3351293 pt | 36489 | 36489 | 335224010 | 3633010 | 3633010 | 335312E | 76940 pt | 76940 pt |
| 3351293 pt | 36996 pt | 36996 pt | 3352240190 | 3633020 | 3633020 | 335312E100 pt | 7694020 | 7694000 pt |
| 3351293109 | 3648912 | 3648912 | 3352240YWW | 3633000 | 3633000 | 335312E100 pt | 7694000 pt | 7694000 pt |
| 3351293112 | 3648916 | 3648916 | 3352240YWY | 3633002 | 3633002 | 335312W pt | 36210 | 36210 |
| 3351293114 | 3648917 | 3648917 | 3352281 | 36391 | 36391 | 335312W pt | 76940 pt | 76940 pt |
| 3351293116 | 3648931 | 3648931 | 3352281000 | 3639100 | 3639100 | 335312WYWW pt | 3621000 | 3621000 |
| 3351293118 | 3648975 | 3648975 | 3352283 | 36392 | 36392 | 335312WYWW pt | 7694000 pt | 7694000 pt |
| 3351293122 pt | 3648979 pt | 3648921 | 3352283000 | 3639200 | 3639200 | 335312WYWY pt | 3621002 | 3621002 |
| 3351293122 pt | 3648979 pt | 3648991 | 3352285 | 36395 pt | 36395 pt | 335312WYWY pt | 7694002 | 7694000 pt |
| 3351293122 pt | 3648979 pt | 3648991 | 3352285110 | 3639511 | 3639510 pt | 3353131 | 36132 | 36132 |
| 3351293124 | 3648970 | 3648970 | 3352285190 | 3639521 | 3639520 pt | 3353131000 | 3613200 | 3613200 |
| 3351293126 pt | 3648984 pt | 3648983 | 3352285YVW | 3639500 pt | 3639500 pt | 3353133 | 36133 | 36133 |
| 3351293126 pt | 3648984 pt | 3648987 | 335228W | 36390 pt | 36390 pt | 3353133000 | 3613300 | 3613300 |
| 3351293131 | 3648985 | 3648985 | 335228WYWW | 3639000 pt | 3639000 pt | 3353135 | 36134 | 36134 |
| 3351293YVW pt | 3648900 | 3648900 | 335228WYWY | 3639002 pt | 3639002 pt | 3353135000 | 3613400 | 3613400 |
| 3351293YVW pt | 3699600 pt | 3699600 pt | 3353111 | 36122 | 36122 | 3353137 | 36135 | 36135 |
| 335129W pt | 36480 | 36480 | 335311101 | 3612202 | 3612202 | 3353137000 | 3613500 | 3613500 |
| 335129W pt | 36990 pt | 36990 pt | 3353111204 | 3612204 | 3612204 | 3353139 | 36136 | 36136 |
| 335129WYWW pt | 3648000 | 3648000 | 3353111307 | 3612206 | 3612206 | 3353139000 | 3613600 | 3613600 |
| 335129WYWW pt | 3699000 pt | 3699000 pt | 3353111311 | 3612214 | 3612214 | 335313A | 36139 | 36139 |
| 335129WYWY pt | 3648002 | 3648002 | 3353111313 | 3612216 | 3612216 | 335313A000 | 3613900 | 3613900 |
| 335129WYWY pt | 3699002 pt | 3699002 pt | 3353111316 | 3612219 | 3612219 | 335313W | 36130 | 36130 |
| 3352111 | 36341 | 36341 | 3353111419 | 3612221 | 3612221 | 335313WYWW | 3613000 | 3613000 |
| 3352111000 | 3634100 | 3634100 | 3353111422 | 3612223 | 3612223 | 335313WYWY | 3613002 | 3613002 |
| 3352113 | 36345 pt | 36345 pt | 3353111425 | 3612228 | 3612228 | 3353141 | 36251 | 36251 |
| 3352113000 | 3634510 | 3634500 pt | 3353111428 | 3612229 | 3612229 | 3353141000 | 3625100 | 3625100 |
| 3352115 | 36349 pt | 36349 pt | 3353111431 | 3612232 | 3612232 | 3353143 | 36252 | 36252 |
| 3352115010 | 3634911 | 3634911 | 3353111434 | 3612233 | 3612233 | 3353143000 | 3625200 | 3625200 |
| 3352115090 | 3634920 | 3634920 pt | 3353111537 | 3612237 | 3612237 | 3353145 | 36253 | 36253 |
| 3352115YVW | 3634900 pt | 3634900 pt | 3353111541 | 3612239 | 3612239 | 3353145000 | 3625300 | 3625300 |
| 335211W | 36340 pt | 36340 pt | 3353111543 | 3612241 | 3612241 | 3353147 | 36254 | 36254 |
| 335211WYWW | 3634000 pt | 3634000 pt | 3353111546 | 3612242 | 3612242 | 3353147000 | 3625400 | 3625400 |
| 335211WYWY | 3634002 pt | 3634002 pt | 3353111549 | 3612243 | 3612243 | | | |
| | | | 3353111552 | 3612244 | 3612244 | | | |
| | | | 3353111YVW | 3612200 | 3612200 | | | |
| | | | 3353113 pt | 35481 pt | 35481 pt | | | |

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|---------------------|------------------|------------------|---------------------|------------------|------------------|----------------------|------------------|------------------|
| 335314W | 36250 | 36250 | 335929A | 3357A | 3357A | 3359913322 | 3624996 | 3624996 |
| 335314WYWW | 3625000 | 3625000 | 335929A100 | 3357A00 | 3357A00 | 3359913YVW | 3624900 | 3624900 |
| 335314WYVW | 3625002 | 3625002 | 335929B | 3357B | 3357B | 335991W | 36240 | 36240 |
| 3359111 | 36913 | 36913 | 335929B100 | 3357B00 | 3357B00 | 335991WYVW | 3624000 | 3624000 |
| 3359111101 | 3691311 | 3691311 | 335929C | 3357C | 3357C | 335991WYVWY | 3624002 | 3624002 |
| 3359111204 | 3691312 | 3691312 | 335929C100 | 3357C00 | 3357C00 | 3359991 | 36291 | 36291 |
| 3359111307 | 3691317 | 3691317 | 335929D | 3357D | 3357D | 3359991101 | 3629101 | 3629101 |
| 3359111YVW | 3691300 | 3691300 | 335929D100 | 3357D00 | 3357D00 | 3359991103 | 3629104 | 3629104 |
| 3359114 | 36914 | 36914 | 335929E | 3357E | 3357E | 3359991YVW | 3629100 | 3629100 |
| 3359114101 | 3691411 | 3691411 | 335929E100 | 3357E00 | 3357E00 | 3359993 | 36292 | 36292 |
| 3359114104 | 3691419 | 3691419 | 335929W | 33570 pt | 33570 pt | 3359993101 | 3629221 | 3629221 |
| 3359114201 | 3691421 | 3691421 | 335929WYVW | 3357000 pt | 3357000 pt | 3359993104 | 3629225 | 3629225 |
| 3359114204 | 3691422 | 3691422 | 335929WYVWY | 3357002 pt | 3357002 pt | 3359993107 | 3629241 | 3629241 |
| 3359114207 | 3691479 | 3691479 | 3359311 | 36431 | 36431 | 3359993111 | 3629245 | 3629245 |
| 3359114YVW | 3691400 | 3691400 | 33593111000 | 3643100 | 3643100 | 3359993213 | 3629251 | 3629251 |
| 3359117 | 36915 | 36915 | 3359313 | 36432 | 36432 | 3359993216 | 3629253 | 3629253 |
| 3359117101 | 3691501 | 3691501 | 3359313000 | 3643200 | 3643200 | 3359993219 | 3629255 | 3629255 |
| 3359117104 | 3691502 | 3691502 | 3359315 | 36433 | 36433 | 3359993219 | 3629255 | 3629255 |
| 3359117201 | 3691591 | 3691591 | 3359315000 | 3643300 | 3643300 | 3359993YVW | 3629200 | 3629200 |
| 3359117YVW | 3691500 | 3691500 | 3359317 | 36434 | 36434 | 3359995 pt | 36293 | 36293 |
| 335911W | 36910 | 36910 | 3359317000 | 3643400 | 3643400 | 3359995 pt | 3699A pt | 3699A pt |
| 335911WYVW | 3691000 | 3691000 | 3359319 | 36435 | 36435 | 3359995101 | 3629301 | 3629301 |
| 335911WYVWY | 3691002 | 3691002 | 3359319000 | 3643500 | 3643500 | 3359995104 | 3629302 | 3629302 |
| 3359120 | 36920 | 36920 | 335931A | 36436 | 36436 | 3359995107 | 3629303 | 3629303 |
| 3359120101 | 3692001 pt | 3692001 pt | 335931A000 | 3643600 | 3643600 | 3359995111 | 3629304 | 3629304 |
| 3359120101 pt | 3692011 pt | 3692011 pt | 3359319 | 36435 | 36435 | 3359995137 pt | 3629311 | 3629311 |
| 3359120104 | 3692013 pt | 3692013 pt | 3359319000 | 3643500 | 3643500 | 3359995137 pt | 3699A21 | 3699A21 |
| 3359120104 pt | 3692013 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359995YVW pt | 3629300 | 3629300 |
| 3359120107 | 3692015 pt | 3692007 pt | 335931A | 36436 | 36436 | 3359995YVW pt | 3629304 | 3629304 |
| 3359120107 pt | 3692015 pt | 3692007 pt | 335931A000 | 3643600 | 3643600 | 3359997 | 36992 pt | 36992 pt |
| 3359120111 | 3692017 pt | 3692005 pt | 335931W | 36430 | 36430 | 3359997000 pt | 3699271 | 3699271 |
| 3359120111 pt | 3692017 pt | 3692007 pt | 335931WYVW | 3643000 | 3643000 | 3359997000 pt | 3699273 | 3699273 |
| 3359120114 | 3692019 pt | 3692003 pt | 335931WYVWY | 3643002 | 3643002 | 3359997000 pt | 3699200 pt | 3699200 pt |
| 3359120114 pt | 3692019 pt | 3692005 pt | 3359321 | 36441 | 36441 | 3359999 | 36992 pt | 36992 pt |
| 3359120114 pt | 3692019 pt | 3692007 pt | 3359321000 | 3644100 | 3644100 | 3359999100 pt | 3699297 | 3699297 |
| 3359120201 | 3692021 | 3692003 pt | 3359323 | 36442 | 36442 | 3359999100 pt | 3699200 pt | 3699200 pt |
| 3359120201 pt | 3692021 | 3692003 pt | 3359323000 | 3644200 | 3644200 | 3359999A | 36995 | 36995 |
| 3359120204 | 3692023 | 3692001 pt | 3359325 | 36443 | 36443 | 335999A000 | 3699500 | 3699500 |
| 3359120207 | 3692025 | 3692005 pt | 3359325000 | 3644300 | 3644300 | 335999B | 36996 pt | 36996 pt |
| 3359120211 | 3692027 | 3692005 pt | 335932W | 36440 | 36440 | 335999B100 pt | 3699600 pt | 3699600 pt |
| 3359120214 | 3692029 pt | 3692004 pt | 335932WYVW | 3644000 | 3644000 | 335999B100 pt | 3699605 | 3699605 |
| 3359120214 pt | 3692029 pt | 3692005 pt | 335932WYVWY | 3644002 | 3644002 | 335999C | 36999 | 36999 |
| 3359120301 | 3692009 | 3692009 | 3359911 | 36241 | 36241 | 335999C000 | 3699900 | 3699900 |
| 3359120YVW | 3692000 | 3692000 | 3359911101 | 3624152 | 3624152 | 335999D | 3699A pt | 3699A pt |
| 3359120YVWY | 3692002 | 3692002 | 3359911101 | 3624152 | 3624152 | 335999D101 | 3699A01 | 3699A01 |
| 3359210 pt | 33570 pt | 33570 pt | 3359911204 | 3624156 | 3624156 | 335999D203 | 3699A03 | 3699A03 |
| 3359210 pt | 33579 | 33579 | 3359911YVW | 3624100 | 3624100 | 335999D305 | 3699A05 | 3699A05 |
| 3359210101 | 3357931 | 3357911 pt | 3359913 | 36249 | 36249 | 335999D407 | 3699A02 | 3699A02 |
| 3359210106 | 3357941 | 3357911 pt | 3359913101 pt | 3624916 pt | 3624916 pt | 335999DYVW | 3699A00 pt | 3699A00 pt |
| 3359210111 | 3357951 | 3357911 pt | 3359913101 pt | 3624916 pt | 3624916 pt | 335999W pt | 36290 | 36290 |
| 3359210421 | 3357932 | 3357921 pt | 3359913207 | 3624988 | 3624988 | 335999W pt | 36990 pt | 36990 pt |
| 3359210426 | 3357942 | 3357921 pt | 3359913311 | 3624981 | 3624981 | 335999WYVW pt | 3629000 | 3629000 |
| 3359210431 | 3357952 | 3357921 pt | 3359913316 | 3624986 | 3624986 | 335999WYVWY pt | 3699000 pt | 3699000 pt |
| 3359210YVW pt | 3357000 pt | 3357000 pt | 3359913319 | 3624994 | 3624994 | 3359999YVWY pt | 3629002 | 3629002 |
| 3359210YVW pt | 3357900 | 3357900 | 3359913319 | 3624994 | 3624994 | 3359999YVWY pt | 3699002 pt | 3699002 pt |
| 3359210YVWY | 3357002 pt | 3357002 pt | 3359913319 | 3624994 | 3624994 | 3359999YVWY pt | 3699002 pt | 3699002 pt |
| 3359291 | 33578 | 33578 | 3359913319 | 3624994 | 3624994 | 3359999YVWY pt | 3699002 pt | 3699002 pt |
| 3359291800 | 3357800 | 3357800 | 3359913319 | 3624994 | 3624994 | 3359999YVWY pt | 3699002 pt | 3699002 pt |

Other Communication and Energy Wire Manufacturing

1997

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1997 Economic Census

Manufacturing

Industry Series



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Industry Series



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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

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

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

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

ALL-NEW INDUSTRY CLASSIFICATIONS

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

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

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

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

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

RELATIONSHIP TO SIC

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

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

GEOGRAPHIC AREA CODING

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

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

BASIS OF REPORTING

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

DOLLAR VALUES

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

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

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

Special Tabulations

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

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

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

HISTORICAL INFORMATION

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

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

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

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

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

SOURCES FOR MORE INFORMATION

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

ABBREVIATIONS AND SYMBOLS

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

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

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

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Manufacturing

SCOPE

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

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

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) | | | | |
| 335929 | Other communication & energy wire mfg | 194 | 275 | 46 267 | 1 532 861 | 33 376 | 71 387 | 932 391 | 4 842 846 | 7 629 823 | 12 482 860 | 417 340 |
| 335750 | Nonferrous wire drawing & insulating (pt) | N | 275 | 46 267 | 1 532 861 | 33 376 | 71 387 | 932 391 | 4 842 846 | 7 629 823 | 12 482 860 | 417 340 |

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) | | | | |
| 335929, OTHER COMMUNICATION & ENERGY WIRE MFG | | | | | | | | | | | | |
| United States | - | 275 | 262 | 46 267 | 1 532 861 | 33 376 | 71 387 | 932 391 | 4 842 846 | 7 629 823 | 12 482 860 | 417 340 |
| Alabama | - | 4 | 4 | 607 | 17 704 | 472 | 1 115 | 13 361 | 81 091 | 210 018 | 286 232 | 17 046 |
| Arizona | - | 6 | 6 | 2 246 | 69 384 | 1 477 | 3 082 | 38 812 | 258 495 | 341 449 | 630 890 | 19 095 |
| Arkansas | - | 6 | 6 | 1 076 | 30 656 | 848 | 1 851 | 20 554 | 61 045 | 235 193 | 297 087 | 4 101 |
| Colorado | - | 3 | 3 | 153 | 3 146 | 120 | 160 | 1 926 | 3 117 | 6 990 | 10 102 | 513 |
| Indiana | 1 | 9 | 9 | 2 308 | 75 038 | 1 895 | 4 158 | 58 577 | 276 709 | 411 845 | 676 671 | 11 958 |
| Kansas | - | 6 | 6 | 860 | 25 168 | 630 | 1 365 | 18 538 | 108 859 | 232 646 | 346 005 | 6 583 |
| Kentucky | - | 5 | 5 | 1 627 | 53 825 | 1 382 | 3 032 | 43 195 | 193 690 | 285 976 | 490 666 | 10 417 |
| Michigan | - | 6 | 6 | 1 148 | 32 461 | 926 | 1 816 | 22 680 | 72 704 | 74 719 | 148 315 | 7 095 |
| Mississippi | - | 5 | 5 | 892 | 23 848 | 741 | 1 410 | 15 767 | 81 122 | 147 601 | 229 436 | 4 149 |
| Missouri | - | 5 | 5 | 665 | 18 796 | 566 | 1 127 | 14 156 | 99 125 | 179 048 | 272 992 | 4 437 |
| Ohio | - | 12 | 11 | 1 183 | 38 580 | 833 | 1 709 | 21 304 | 110 338 | 137 960 | 254 026 | 6 163 |
| Texas | - | 18 | 18 | 4 083 | 116 780 | 2 887 | 6 392 | 73 873 | 475 304 | 780 053 | 1 253 392 | 50 986 |

* 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 |
|----------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------|---------------------|
| 335929, OTHER COMMUNICATION & ENERGY WIRE MFG | | 335929, OTHER COMMUNICATION & ENERGY WIRE MFG—Con. | |
| Companies ¹ | number.. 194 | Value added | \$1,000.. 4 842 846 |
| All establishments | number.. 275 | Total inventories, beginning of year | \$1,000.. 1 457 864 |
| Establishments with 1 to 19 employees | number.. 13 | Finished goods inventories, beginning of year | \$1,000.. 714 013 |
| Establishments with 20 to 99 employees | number.. 127 | Work-in-process inventories, beginning of year | \$1,000.. 388 726 |
| Establishments with 100 employees or more | number.. 135 | Materials and supplies inventories, beginning of year | \$1,000.. 355 125 |
| All employees | number.. 46 267 | Total inventories, end of year | \$1,000.. 1 515 096 |
| Total compensation ² | \$1,000.. 1 949 691 | Finished goods inventories, end of year | \$1,000.. 706 145 |
| Annual payroll | \$1,000.. 1 532 861 | Work-in-process inventories, end of year | \$1,000.. 386 403 |
| Total fringe benefits | \$1,000.. 416 830 | Materials and supplies inventories, end of year | \$1,000.. 422 548 |
| Production workers, average for year | number.. 33 376 | Gross book value of total assets at beginning of year | \$1,000.. 3 259 934 |
| Production workers on March 12 | number.. 32 950 | Total capital expenditures (new and used) | \$1,000.. 417 340 |
| Production workers on May 12 | number.. 33 221 | Capital expenditures for buildings and other structures (new and used) | \$1,000.. 82 074 |
| Production workers on August 12 | number.. 33 517 | Capital expenditures for machinery and equipment (new and used) | \$1,000.. 335 266 |
| Production workers on November 12 | number.. 34 016 | Total retirements ² | \$1,000.. 76 638 |
| Production-worker hours | 1,000.. 71 387 | Gross book value of total assets at end of year | \$1,000.. 3 600 636 |
| Production-worker wages | \$1,000.. 932 391 | Total depreciation during year ² | \$1,000.. 242 281 |
| Total cost of materials | \$1,000.. 7 629 823 | Total rental payments ² | \$1,000.. 48 591 |
| Cost of materials, parts, containers, etc., consumed | \$1,000.. 7 260 010 | Buildings and other structures rental payments ² | \$1,000.. 22 383 |
| Cost of resales | \$1,000.. 210 644 | Machinery and equipment rental payments ² | \$1,000.. 26 208 |
| Cost of fuels | \$1,000.. 20 326 | Cost of purchased services for the repair of buildings and other structures ³ | \$1,000.. 17 684 |
| Cost of purchased electricity | \$1,000.. 109 400 | Response coverage ratio ⁴ | percent.. 83 |
| Cost of contract work | \$1,000.. 29 443 | Cost of purchased services for the repair of machinery and equipment ³ | \$1,000.. 70 580 |
| Quantity of electricity purchased for heat and power | 1,000 kWh.. 1 980 275 | 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.. 15 787 |
| Total value of shipments | \$1,000.. 12 482 860 | Response coverage ratio ⁴ | percent.. 83 |
| Primary products value of shipments | \$1,000.. 11 296 016 | Cost of purchased legal services ³ | \$1,000.. 9 114 |
| Secondary products value of shipments | \$1,000.. 885 691 | Response coverage ratio ⁴ | percent.. 83 |
| Total miscellaneous receipts | \$1,000.. 301 153 | Cost of purchased accounting and bookkeeping services ³ | \$1,000.. 12 144 |
| Value of resales | \$1,000.. 229 667 | Response coverage ratio ⁴ | percent.. 83 |
| Contract receipts | \$1,000.. 5 156 | Cost of purchased advertising services ³ | \$1,000.. 12 104 |
| Other miscellaneous receipts | \$1,000.. 66 330 | Response coverage ratio ⁴ | percent.. 83 |
| Primary products specialization ratio | percent.. 92 | Cost of purchased software and other data processing services ³ | \$1,000.. 8 884 |
| Value of primary products shipments made in all industries | \$1,000.. 11 682 502 | Response coverage ratio ⁴ | percent.. 83 |
| Value of primary products shipments made in this industry | \$1,000.. 11 296 016 | Cost of purchased refuse removal (including hazardous waste) services ³ | \$1,000.. 14 696 |
| Value of primary products shipments made in other industries | \$1,000.. 386 486 | Response coverage ratio ⁴ | percent.. 83 |
| 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) | | | | |
| 335929, OTHER COMMUNICATION & ENERGY WIRE MFG | | | | | | | | | | | | |
| All establishments | - | 275 | 262 | 46 267 | 1 532 861 | 33 376 | 71 387 | 932 391 | 4 842 846 | 7 629 823 | 12 482 860 | 417 340 |
| Establishments with 1 to 4 employees | - | - | - | - | - | - | - | - | - | - | - | - |
| Establishments with 5 to 9 employees | - | - | - | - | - | - | - | - | - | - | - | - |
| Establishments with 10 to 19 employees | 2 | 13 | - | 210 | 7 323 | 136 | 283 | 4 046 | 17 845 | 33 917 | 52 932 | 2 053 |
| Establishments with 20 to 49 employees | - | 61 | 61 | 2 072 | 70 805 | 1 478 | 2 997 | 38 153 | 144 851 | 239 022 | 384 757 | 8 887 |
| Establishments with 50 to 99 employees | - | 66 | 66 | 4 725 | 148 804 | 3 390 | 6 893 | 82 075 | 394 009 | 608 239 | 995 147 | 26 669 |
| Establishments with 100 to 249 employees | - | 84 | 84 | 13 952 | 465 462 | 10 230 | 21 299 | 275 851 | 1 580 369 | 2 613 903 | 4 204 224 | 138 959 |
| Establishments with 250 to 499 employees | 1 | 38 | 38 | 12 738 | 400 203 | 9 443 | 20 717 | 264 199 | 1 132 208 | 2 388 738 | 3 527 217 | 126 948 |
| Establishments with 500 to 999 employees | - | 9 | 9 | 5 977 | 198 180 | 4 600 | 10 002 | 143 794 | 738 031 | 865 867 | 1 571 749 | 39 249 |
| Establishments with 1,000 to 2,499 employees | - | 4 | 4 | 6 593 | 242 084 | 4 099 | 9 196 | 124 273 | 835 533 | 880 137 | 1 746 834 | 74 575 |
| Establishments with 2,500 employees or more | - | - | - | - | - | - | - | - | - | - | - | - |
| Administrative records ² | 4 | 2 | - | 53 | 1 307 | 42 | 68 | 877 | 3 633 | 6 149 | 9 902 | 412 |

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) | | | | |
| 335929 | Other communication & energy wire mfg | 275 | 46 267 | 1 532 861 | 33 376 | 71 387 | 932 391 | 4 842 846 | 7 629 823 | 12 482 860 | 417 340 |
| 3359291 | Power wire and cable, made in plants that draw wire | 33 | 5 535 | 191 958 | 4 167 | 8 650 | 123 366 | 582 789 | 1 069 580 | 1 637 092 | 61 693 |
| 335929A | Electronic wire and cable, made in plants that draw wire | 114 | 18 954 | 617 493 | 12 799 | 26 721 | 342 392 | 1 799 401 | 2 091 072 | 3 860 660 | 167 146 |
| 335929B | Telephone and telegraph wire and cable, made in plants that draw wire | 19 | 6 434 | 232 944 | 4 852 | 10 904 | 162 333 | 833 522 | 1 178 825 | 2 046 583 | 55 870 |
| 335929C | Control and signal wire and cable, made in plants that draw wire | 16 | 1 938 | 70 710 | 1 481 | 3 223 | 41 653 | 166 456 | 210 596 | 376 051 | 17 970 |
| 335929D | Building wire and cable, made in plants that draw wire | 26 | 6 091 | 187 535 | 4 836 | 10 812 | 132 471 | 867 253 | 2 201 880 | 3 076 876 | 70 028 |
| 335929E | Other insulated wire and cable, including automotive, made in plants that draw wire | 49 | 5 992 | 189 307 | 4 338 | 9 272 | 108 331 | 516 833 | 771 804 | 1 299 410 | 37 836 |

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) |
| 335929 | Other communication & energy wire mfg. | N | X | X | 11 682 502 | N | X | X | N |
| 3359291 | Power wire and cable, made in plants that draw wire @ | N | X | X | 1 612 689 | N | X | X | 1 278 318 |
| 33592918 | Power wire and cable, made in plants that draw wire | N | X | X | 1 612 689 | N | X | X | N |
| 3359291800 | Power wire and cable, made in plants that draw wire | 40 | X | X | 1 612 689 | 38 | X | X | 1 278 318 |
| 335929A | Electronic wire and cable, made in plants that draw wire @ | N | X | X | 3 410 831 | N | X | X | 1 821 865 |
| 335929A1 | Electronic wire and cable, made in plants that draw wire | N | X | X | 3 410 831 | N | X | X | N |
| 335929A100 | Electronic wire and cable, made in plants that draw wire | 162 | X | X | 3 410 831 | 126 | X | X | 1 821 865 |
| 335929B | Telephone and telegraph wire and cable, made in plants that draw wire @ | N | X | X | 2 013 716 | N | X | X | 1 532 770 |
| 335929B1 | Telephone and telegraph wire and cable, made in plants that draw wire | N | X | X | 2 013 716 | N | X | X | N |
| 335929B100 | Telephone and telegraph wire and cable, made in plants that draw wire | 29 | X | X | 2 013 716 | 29 | X | X | 1 532 770 |
| 335929C | Control and signal wire and cable, made in plants that draw wire @ | N | X | X | 487 563 | N | X | X | 394 657 |
| 335929C1 | Control and signal wire and cable, made in plants that draw wire | N | X | X | 487 563 | N | X | X | N |
| 335929C100 | Control and signal wire and cable, made in plants that draw wire | 38 | X | X | 487 563 | 45 | X | X | 394 657 |
| 335929D | Building wire and cable, made in plants that draw wire @ | N | X | X | 2 675 449 | N | X | X | 2 083 061 |
| 335929D1 | Building wire and cable, made in plants that draw wire | N | X | X | 2 675 449 | N | X | X | N |
| 335929D100 | Building wire and cable, made in plants that draw wire | 27 | X | X | 2 675 449 | 22 | X | X | 2 083 061 |
| 335929E | Other insulated wire and cable, including automotive, made in plants that draw wire @ | N | X | X | 1 215 638 | N | X | X | 645 791 |
| 335929E1 | Other insulated wire and cable, including automotive, made in plants that draw wire | N | X | X | 1 215 638 | N | X | X | N |
| 335929E100 | Other insulated wire and cable, including automotive, made in plants that draw wire | 77 | X | X | 1 215 638 | 60 | X | X | 645 791 |
| 335929W | Other communication & energy wire mfg, nsk, total | N | X | X | 266 616 | N | X | X | N |
| 335929WY | Other communication & energy wire mfg, nsk, total | N | X | X | 266 616 | N | X | X | N |
| 335929WYWW | Other communication & energy wire mfg, nsk, for nonadministrative-record establishments | N | X | X | 266 616 | N | X | X | N |
| 335929WYWY | Other communication & energy wire mfg, nsk, for administrative-record establishments | N | X | X | - | N | X | X | N |

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

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

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

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

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

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

| NAICS product class code | Product class and geographic area | Value of product shipments (\$1,000) | |
|--------------------------|--------------------------------------------------------------|--------------------------------------|------------------|
| | | 1997 | 1992 |
| 3359291 | POWER WIRE AND CABLE, MADE IN PLANTS THAT DRAW WIRE @ | | |
| | United States | 1 612 689 | 1 278 318 |
| | California | 129 003 | 74 833 |
| | Illinois | 89 146 | 93 214 |
| | New York | 148 832 | N |
| | Pennsylvania | 90 695 | 102 599 |
| | Rhode Island | 43 401 | N |
| | Texas | 102 892 | 115 833 |

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 |
| 335929A | ELECTRONIC WIRE AND CABLE, MADE IN PLANTS THAT DRAW WIRE @ | | |
| | United States | 3 410 831 | 1 821 865 |
| | Arizona | 88 184 | N |
| | California | 176 457 | 84 376 |
| | Colorado | 12 929 | N |
| | Connecticut | 190 134 | 141 423 |
| | Illinois | 308 130 | 117 217 |
| | Massachusetts | 372 386 | 210 412 |
| | Minnesota | 34 326 | N |
| | New Jersey | 7 730 | 69 354 |
| | New York | 73 076 | 55 444 |
| | Ohio | 54 537 | N |
| | Oregon | 11 144 | N |
| | Pennsylvania | 102 930 | 53 630 |
| | Texas | 201 308 | 31 192 |
| 335929B | TELEPHONE AND TELEGRAPH WIRE AND CABLE, MADE IN PLANTS THAT DRAW WIRE @ | | |
| | United States | 2 013 716 | 1 532 770 |
| | Massachusetts | 68 183 | 33 809 |
| | Texas | 286 828 | 173 122 |
| 335929C | CONTROL AND SIGNAL WIRE AND CABLE, MADE IN PLANTS THAT DRAW WIRE @ | | |
| | United States | 487 563 | 394 657 |
| | California | 24 440 | N |
| | Connecticut | 64 070 | 40 960 |
| | Massachusetts | 20 878 | 23 608 |
| | New York | 27 680 | 43 206 |
| | Pennsylvania | 65 776 | 35 775 |
| | Rhode Island | 50 194 | 38 149 |
| | Texas | 49 041 | 31 718 |
| 335929D | BUILDING WIRE AND CABLE, MADE IN PLANTS THAT DRAW WIRE @ | | |
| | United States | 2 675 449 | 2 083 061 |
| | Missouri | 239 468 | N |
| | New York | 97 757 | 135 814 |
| 335929E | OTHER INSULATED WIRE AND CABLE, INCLUDING AUTOMOTIVE, MADE IN PLANTS THAT DRAW WIRE @ | | |
| | United States | 1 215 638 | 645 791 |
| | Connecticut | 18 567 | 3 755 |
| | Florida | 15 065 | N |
| | Illinois | 73 907 | 46 582 |
| | Massachusetts | 60 501 | 45 663 |
| | New Jersey | 28 567 | 9 368 |
| | New York | 24 566 | 15 282 |
| | Ohio | 58 425 | 40 448 |
| | Pennsylvania | 123 045 | 57 805 |
| | Texas | 76 543 | 44 178 |

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) |
| 335929 | OTHER COMMUNICATION & ENERGY WIRE MFG | | | | |
| 33122200 | Bare steel wire | 14 763.1 | 35 639 | N | N |
| 33120003 | All other steel shapes and forms (except castings, forgings, and fabricated metal products) | | | N | N |
| 33142127 | Unalloyed copper and copper-base alloy rods | 4 514.7 | 92 733 | N | N |
| 33142129 | Alloyed copper and copper-base alloy rods | 1 261.9 | 1 666 951 | N | N |
| 33142119 | Copper and copper-base alloy wire for redrawing | 191.5 | 200 519 | N | N |
| | mil lb.. | P436.3 | 454 201 | N | N |
| 33100091 | Bare copper and copper-base alloy wire, electrical (except wire for redrawing) | 335.6 | 576 381 | N | N |
| 331000A5 | Insulated copper wire and cable | X | 156 523 | X | N |
| 33141101 | Copper and copper-base alloy cathodes | 124.8 | 260 751 | N | N |
| 33142147 | All other copper and copper-base alloy shapes and forms including wire bar | 187.9 | 312 618 | N | N |
| 33100051 | Aluminum and aluminum-base alloy rods | 238.7 | 209 251 | N | N |
| | mil lb.. | | | | |

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) |
| 335929 | OTHER COMMUNICATION & ENERGY WIRE MFG—Con. | | | | |
| 33131900 | Aluminum and aluminum-base alloy wire for redrawing mil lb.. | D | D | N | N |
| 33100089 | Bare aluminum and aluminum-base alloy wire, except for redrawing mil lb.. | P20.5 | 74 572 | N | N |
| 33100071 | All other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products) mil lb.. | P55.3 | 182 736 | N | N |
| 33141941 | Refined unalloyed tin shapes and forms (except castings, forgings, and fabricated metal products) mil lb.. | X | D | X | N |
| 33100079 | All other nonferrous shapes and forms (except castings, forgings, and fabricated metal products) mil lb.. | 79.1 | 123 177 | N | N |
| 32521105 | Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. mil lb.. | 1 153.9 | 1 078 732 | N | N |
| 32521205 | Synthetic rubber mil lb.. | 53.7 | 86 234 | N | N |
| 32500029 | All other chemicals and allied products mil lb.. | 101.9 | 107 651 | N | N |
| 32721501 | Optical fiber, data and nondata transmission mil lb.. | X | 64 633 | X | N |
| 32799305 | Fiberglass insulating materials mil lb.. | X | 5 500 | X | N |
| 32700003 | All other stone, clay, glass, and concrete products mil lb.. | X | 5 446 | X | N |
| 11321001 | Natural rubber mil lb.. | 9.2 | 11 962 | N | N |
| 32610013 | Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes mil lb.. | X | 69 656 | X | N |
| 31311103 | Cotton yarns mil lb.. | P0.3 | 2 247 | N | N |
| 33593105 | Connectors mil lb.. | X | 40 807 | X | N |
| 00970099 | All other materials and components, parts, containers, and supplies mil lb.. | X | 1 361 092 | X | N |
| 00971000 | Materials, ingredients, containers, and supplies, n.s.k. mil lb.. | X | 1 983 | 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

335929 OTHER COMMUNICATION AND ENERGY WIRE MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing insulated wire and cable of nonferrous metals from purchased wire.

The data published with NAICS code 335929 include the following SIC industry:

3357 Nonferrous wire drawing and insulating (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

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

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

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

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

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

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

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

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

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

2. Establishments sent a report form.

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

- a. ASM sample establishments.

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

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

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

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

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

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

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

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

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

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

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

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

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

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

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

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

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

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

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

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

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

ESTABLISHMENT BASIS OF REPORTING

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

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

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

DESCRIPTION OF THE ASM SURVEY SAMPLE

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

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

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

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

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

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

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

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

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

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

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

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

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

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

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

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

QUALIFICATIONS OF THE ASM DATA

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

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

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

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

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

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

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

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

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

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

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

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

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

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

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

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

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

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

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

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

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F.

Footnotes for Products Statistics and Materials Consumed by Kind

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

| NAICS product code | Footnote |
|--------------------|----------------------------------------------------------------------------------------|
| @3359291 | For additional detail, see Current Industrial Report MA335J, Insulated Wire and Cable. |
| @335929A | For additional detail, see Current Industrial Report MA335J, Insulated Wire and Cable. |
| @335929B | For additional detail, see Current Industrial Report MA335J, Insulated Wire and Cable. |
| @335929C | For additional detail, see Current Industrial Report MA335J, Insulated Wire and Cable. |
| @335929D | For additional detail, see Current Industrial Report MA335J, Insulated Wire and Cable. |
| @335929E | For additional detail, see Current Industrial Report MA335J, Insulated Wire and Cable. |

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 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 3351101 | 36411 | 36411 | 3352121 | 36350 pt | 36350 pt | 3353113 pt | 36123 | 36123 |
| 335110100 | 3641100 | 3641100 | 3352121101 | 3635041 | 3635041 | 3353113101 | 3612301 | 3612301 |
| 3351103 | 36412 | 36412 | 3352121103 | 3635011 | 3635011 | 3353113104 | 3612302 | 3612302 |
| 3351103100 | 3641200 | 3641200 | 3352121105 | 3635033 | 3635033 | 3353113107 | 3548105 | 3548104 pt |
| 335110W | 36410 | 36410 | 3352121107 pt | 3635044 pt | 3635031 | 3353113109 | 3612306 | 3612306 |
| 335110WYWW | 3641000 | 3641000 | 3352121107 pt | 3635044 pt | 3635036 | 3353113113 | 3612307 | 3612307 |
| 335110WYWY | 3641002 | 3641002 | 3352121111 | 3635051 | 3635051 | 3353113115 | 3612308 | 3612308 |
| 3351211 | 36451 | 36451 | 3352121113 | 3635071 | 3635071 | 3353113116 | 3612311 | 3612311 |
| 3351211000 | 3645100 | 3645100 | 3352121YWW | 3635000 pt | 3635000 pt | 3353113YWW pt | 3548100 pt | 3548100 pt |
| 3351213 pt | 30897 pt | 30897 pt | 3352122 | 36395 pt | 36395 pt | 3353113YWW pt | 3612300 | 3612300 |
| 3351213 pt | 30897 pt | 30897 pt | 335212211 | 3639525 | 3639520 pt | 3353115 | 36124 | 36124 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122219 | 3639513 | 3639510 pt | 3353115000 | 3612400 | 3612400 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122YWW | 3639500 pt | 3639500 pt | 3353117 | 36126 | 36126 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36350 pt | 36350 pt | 335311701 | 3612601 | 3612601 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36390 pt | 36390 pt | 3353117104 | 3612602 | 3612602 |
| 335121311 | 39999 pt | 39999 pt | 335212WYWW pt | 3635000 pt | 3635000 pt | 3353117107 | 3612603 | 3612603 |
| 3351213111 | 3645721 | 3645721 | 335212WYWW pt | 3639000 pt | 3639000 pt | 3353117111 | 3612604 | 3612604 |
| 335121312 | 3645722 | 3645722 | 335212WYWW pt | 3639000 pt | 3639000 pt | 3353117113 pt | 3612608 pt | 3612605 |
| 335121313 | 3645723 | 3645723 | 335212WYWY pt | 3635002 | 3635002 | 3353117113 pt | 3612608 pt | 3612609 |
| 3351213131 | 3645729 | 3645729 | 335212WYWY pt | 3639002 pt | 3639002 pt | 3353117YWW | 3612600 | 3612600 |
| 335121314 | 3645729 | 3645729 | 3352211 | 36311 | 36311 | 3353119 | 36127 | 36127 |
| 335121315 | 3645732 | 3645732 | 3352211110 | 3631110 | 3631110 | 3353119101 | 3612701 | 3612701 |
| 335121316 | 3645761 | 3645761 | 3352211290 | 3631120 | 3631120 | 3353119104 | 3612778 | 3612778 |
| 3351213165 | 3999961 | 3999961 | 3352211YWW | 3631100 | 3631100 | 3353119YWW | 3612700 | 3612700 |
| 3351213169 | 3089705 | 3089709 pt | 3352213 | 36313 | 36313 | 335311W pt | 35480 pt | 35480 pt |
| 3351213171 | 3645773 | 3645773 | 3352213110 | 3631310 | 3631310 | 335311W pt | 36120 | 36120 |
| 3351213YVV pt | 3089700 pt | 3089700 pt | 3352213110 | 3631310 | 3631310 | 335311WYWW pt | 3548000 pt | 3548000 pt |
| 3351213YVV pt | 3089700 pt | 3089700 pt | 3352213190 | 3631320 | 3631320 | 335311WYWW pt | 3612000 | 3612000 |
| 3351213YVV pt | 3999900 pt | 3999900 pt | 3352213YVV | 3631300 | 3631300 | 335311WYWY pt | 3548002 pt | 3548002 pt |
| 335121W pt | 30890 pt | 30890 pt | 3352215 | 36314 | 36314 | 335311WYWY pt | 3612002 | 3612002 |
| 335121W pt | 30890 pt | 30890 pt | 3352215110 | 3631410 | 3631410 | 3353121 | 36211 | 36211 |
| 335121W pt | 30890 pt | 30890 pt | 3352215190 | 3631420 | 3631420 | 3353121000 | 3621100 | 3621100 |
| 335121W pt | 30890 pt | 30890 pt | 3352215YVV | 3631400 | 3631400 | 3353123 | 36212 | 36212 |
| 335121WYWW pt | 3089000 pt | 3089000 pt | 335221W | 36310 | 36310 | 3353123000 | 3621200 | 3621200 |
| 335121WYWW pt | 3089000 pt | 3089000 pt | 335221WYWW | 3631000 | 3631000 | 3353125 | 36213 | 36213 |
| 335121WYWY pt | 3089002 pt | 3089002 pt | 335221WYWY | 3631002 | 3631002 | 3353125000 | 3621300 | 3621300 |
| 335121WYWY pt | 3089002 pt | 3089002 pt | 3352221 | 36321 | 36321 | 3353127 | 36214 | 36214 |
| 335121WYWY pt | 3089002 pt | 3089002 pt | 3352221000 | 3632100 | 3632100 | 3353127000 | 3621400 | 3621400 |
| 3351221 | 36462 | 36462 | 3352222 | 36322 | 36322 | 3353129 | 36217 | 36217 |
| 3351221000 | 3646200 | 3646200 | 3352222000 | 3632200 | 3632200 | 3353129000 | 3621700 | 3621700 |
| 3351222 | 36463 | 36463 | 3352223 | 36323 | 36323 | 335312A | 36218 | 36218 |
| 3351222000 | 3646300 | 3646300 | 3352223000 | 3632300 | 3632300 | 335312A000 | 3621800 | 3621800 |
| 335122W | 36460 | 36460 | 335222W | 36320 | 36320 | 335312C | 36219 | 36219 |
| 335122WYWW | 3646000 | 3646000 | 335222WYWW | 3632000 | 3632000 | 335312C000 | 3621900 | 3621900 |
| 335122WYWY | 3646002 | 3646002 | 335222WYWY | 3632002 | 3632002 | 335312E | 76940 pt | 76940 pt |
| 3351291 | 36485 | 36485 | 3352240 | 36330 | 36330 | 335312E100 pt | 7694020 | 7694000 pt |
| 3351291000 | 3648500 | 3648500 | 3352240110 | 3633010 | 3633010 | 335312E100 pt | 7694000 pt | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352240190 | 3633020 | 3633020 | 335312W pt | 36210 | 36210 |
| 3351293 pt | 36489 | 36489 | 3352240YWW | 3633000 | 3633000 | 335312W pt | 36210 | 36210 |
| 3351293 pt | 36489 | 36489 | 3352240YWY | 3633002 | 3633002 | 335312WYWW pt | 76940 pt | 76940 pt |
| 3351293 pt | 36489 | 36489 | 3352281 | 36391 | 36391 | 335312WYWW pt | 3621000 | 3621000 |
| 3351293109 | 3648912 | 3648912 | 3352281000 | 3639100 | 3639100 | 335312WYWW pt | 7694000 pt | 7694000 pt |
| 3351293112 | 3648916 | 3648916 | 3352283 | 36392 | 36392 | 335312WYWY pt | 3621002 | 3621002 |
| 3351293114 | 3648917 | 3648917 | 3352283000 | 3639200 | 3639200 | 335312WYWY pt | 7694002 | 7694000 pt |
| 3351293116 | 3648931 | 3648931 | 3352285 | 36395 | 36395 | 3353131 | 36132 | 36132 |
| 3351293118 | 3648975 | 3648975 | 3352285110 | 3639511 | 3639510 pt | 3353131000 | 3613200 | 3613200 |
| 3351293122 pt | 3648979 pt | 3648921 | 3352285190 | 3639521 | 3639520 pt | 3353133 | 36133 | 36133 |
| 3351293122 pt | 3648979 pt | 3648991 | 3352285YVV | 3639500 pt | 3639500 pt | 3353133000 | 3613300 | 3613300 |
| 3351293122 pt | 3648979 pt | 3648991 | 335228W | 36390 pt | 36390 pt | 3353135 | 36134 | 36134 |
| 3351293124 | 3648970 | 3648970 | 335228WYWW | 3639000 pt | 3639000 pt | 3353135000 | 3613400 | 3613400 |
| 3351293126 pt | 3648984 pt | 3648983 | 335228WYWY | 3639002 pt | 3639002 pt | 3353137 | 36135 | 36135 |
| 3351293126 pt | 3648984 pt | 3648987 | 3353111 | 36122 | 36122 | 3353137000 | 3613500 | 3613500 |
| 3351293131 | 3648985 | 3648985 | 335311101 | 3612202 | 3612202 | 3353139 | 36136 | 36136 |
| 3351293YVV pt | 3648900 | 3648900 | 3353111204 | 3612204 | 3612204 | 3353139000 | 3613600 | 3613600 |
| 3351293YVV pt | 3648960 pt | 3648960 pt | 3353111307 | 3612206 | 3612206 | 335313A | 36139 | 36139 |
| 335129W pt | 36480 | 36480 | 3353111311 | 3612214 | 3612214 | 335313A000 | 3613900 | 3613900 |
| 335129W pt | 36480 | 36480 | 3353111313 | 3612216 | 3612216 | 335313W | 36130 | 36130 |
| 335129WYWW pt | 3648000 | 3648000 | 3353111316 | 3612219 | 3612219 | 335313WYWW | 3613000 | 3613000 |
| 335129WYWW pt | 3648000 | 3648000 | 3353111419 | 3612221 | 3612221 | 335313WYWY | 3613002 | 3613002 |
| 335129WYWY pt | 3648002 | 3648002 | 3353111422 | 3612223 | 3612223 | 3353141 | 36251 | 36251 |
| 335129WYWY pt | 3648002 pt | 3648002 pt | 3353111425 | 3612228 | 3612228 | 3353141000 | 3625100 | 3625100 |
| 3352111 | 36341 | 36341 | 3353111428 | 3612229 | 3612229 | 3353143 | 36252 | 36252 |
| 3352111000 | 3634100 | 3634100 | 3353111431 | 3612232 | 3612232 | 3353143000 | 3625200 | 3625200 |
| 3352113 | 36345 | 36345 | 3353111434 | 3612233 | 3612233 | 3353145 | 36253 | 36253 |
| 3352113000 | 3634510 | 3634500 pt | 3353111537 | 3612237 | 3612237 | 3353145000 | 3625300 | 3625300 |
| 3352115 | 36349 pt | 36349 pt | 3353111541 | 3612239 | 3612239 | 3353147 | 36254 | 36254 |
| 3352115010 | 3634911 | 3634911 | 3353111543 | 3612241 | 3612241 | 3353147000 | 3625400 | 3625400 |
| 3352115090 | 3634920 | 3634920 pt | 3353111546 | 3612242 | 3612242 | | | |
| 3352115YVV | 3634900 pt | 3634900 pt | 3353111549 | 3612243 | 3612243 | | | |
| 335211W | 36340 pt | 36340 pt | 3353111552 | 3612244 | 3612244 | | | |
| 335211WYWW | 3634000 pt | 3634000 pt | 3353111YVV | 3612200 | 3612200 | | | |
| 335211WYWY | 3634002 pt | 3634002 pt | 3353113 pt | 35481 pt | 35481 pt | | | |

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|---------------------|------------------|------------------|-------------------|------------------|------------------|----------------------|------------------|------------------|
| 335314W | 36250 | 36250 | 335929A | 3357A | 3357A | 3359913322 | 3624996 | 3624996 |
| 335314WYWW | 3625000 | 3625000 | 335929A100 | 3357A00 | 3357A00 | 3359913YVW | 3624900 | 3624900 |
| 335314WYVW | 3625002 | 3625002 | 335929B | 3357B | 3357B | 335991W | 36240 | 36240 |
| 3359111 | 36913 | 36913 | 335929B100 | 3357B00 | 3357B00 | 335991WYVW | 3624000 | 3624000 |
| 3359111101 | 3691311 | 3691311 | 335929C | 3357C | 3357C | 335991WYVWY | 3624002 | 3624002 |
| 3359111204 | 3691312 | 3691312 | 335929C100 | 3357C00 | 3357C00 | 3359991 | 36291 | 36291 |
| 3359111307 | 3691317 | 3691317 | 335929D | 3357D | 3357D | 3359991101 | 3629101 | 3629101 |
| 3359111YVW | 3691300 | 3691300 | 335929D100 | 3357D00 | 3357D00 | 3359991103 | 3629104 | 3629104 |
| 3359114 | 36914 | 36914 | 335929E | 3357E | 3357E | 3359991YVW | 3629100 | 3629100 |
| 3359114101 | 3691411 | 3691411 | 335929E100 | 3357E00 | 3357E00 | 3359993 | 36292 | 36292 |
| 3359114104 | 3691419 | 3691419 | 335929W | 33570 pt | 33570 pt | 3359993101 | 3629221 | 3629221 |
| 3359114201 | 3691421 | 3691421 | 335929WYVW | 3357000 pt | 3357000 pt | 3359993104 | 3629225 | 3629225 |
| 3359114204 | 3691422 | 3691422 | 335929WYVWY | 3357002 pt | 3357002 pt | 3359993107 | 3629241 | 3629241 |
| 3359114207 | 3691479 | 3691479 | 3359311 | 36431 | 36431 | 3359993111 | 3629245 | 3629245 |
| 3359114YVW | 3691400 | 3691400 | 33593111000 | 3643100 | 3643100 | 3359993213 | 3629251 | 3629251 |
| 3359117 | 36915 | 36915 | 3359313 | 36432 | 36432 | 3359993216 | 3629253 | 3629253 |
| 3359117101 | 3691501 | 3691501 | 3359313000 | 3643200 | 3643200 | 3359993219 | 3629255 | 3629255 |
| 3359117104 | 3691502 | 3691502 | 3359315 | 36433 | 36433 | 3359993219 | 3629255 | 3629255 |
| 3359117201 | 3691591 | 3691591 | 3359315000 | 3643300 | 3643300 | 3359993310 | 3629255 | 3629255 |
| 3359117YVW | 3691500 | 3691500 | 3359317 | 36434 | 36434 | 3359993311 | 3629255 | 3629255 |
| 335911W | 36910 | 36910 | 3359317000 | 3643400 | 3643400 | 3359993321 | 3629255 | 3629255 |
| 335911WYVW | 3691000 | 3691000 | 3359319 | 36435 | 36435 | 33599933216 | 3629255 | 3629255 |
| 335911WYVWY | 3691002 | 3691002 | 3359319000 | 3643500 | 3643500 | 33599933219 | 3629255 | 3629255 |
| 3359120 | 36920 | 36920 | 335931A | 36436 | 36436 | 33599933219 | 3629255 | 3629255 |
| 3359120101 pt | 3692011 pt | 3692001 pt | 335931A000 | 3643600 | 3643600 | 33599933219 | 3629255 | 3629255 |
| 3359120101 pt | 3692011 pt | 3692007 pt | 3359319 | 36435 | 36435 | 3359997 | 36992 pt | 36992 pt |
| 3359120104 pt | 3692013 pt | 3692001 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699271 | 3699200 pt |
| 3359120104 pt | 3692013 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120107 pt | 3692015 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120107 pt | 3692015 pt | 3692004 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120107 pt | 3692015 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120111 pt | 3692017 pt | 3692005 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120111 pt | 3692017 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120111 pt | 3692017 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120114 pt | 3692019 pt | 3692003 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120114 pt | 3692019 pt | 3692005 pt | 3359321 | 36441 | 36441 | 3359999 | 36992 pt | 36992 pt |
| 3359120114 pt | 3692019 pt | 3692007 pt | 3359321000 | 3644100 | 3644100 | 3359999100 pt | 3699297 | 3699200 pt |
| 3359120201 | 3692021 | 3692003 pt | 3359323 | 36442 | 36442 | 3359999100 pt | 3699297 | 3699200 pt |
| 3359120201 | 3692021 | 3692003 pt | 3359323000 | 3644200 | 3644200 | 3359999100 pt | 3699297 | 3699200 pt |
| 3359120204 | 3692023 | 3692001 pt | 3359325 | 36443 | 36443 | 3359999A | 36995 | 36995 |
| 3359120207 | 3692025 | 3692005 pt | 3359325000 | 3644300 | 3644300 | 3359999A000 | 3699500 | 3699500 |
| 3359120211 | 3692027 | 3692005 pt | 3359325 | 36443 | 36443 | 3359999B | 36996 pt | 36996 pt |
| 3359120214 pt | 3692029 pt | 3692004 pt | 3359325000 | 3644300 | 3644300 | 3359999B100 pt | 3699600 pt | 3699600 pt |
| 3359120214 pt | 3692029 pt | 3692005 pt | 3359325000 | 3644300 | 3644300 | 3359999B100 pt | 3699605 | 3699600 pt |
| 3359120301 | 3692009 | 3692009 | 3359325000 | 3644300 | 3644300 | 3359999C | 36999 | 36999 |
| 3359120301 | 3692009 | 3692009 | 3359325000 | 3644300 | 3644300 | 3359999C000 | 3699900 | 3699900 |
| 3359120YVW | 3692000 | 3692000 | 3359325000 | 3644300 | 3644300 | 3359999D | 36999 | 36999 |
| 3359120YVWY | 3692002 | 3692002 | 3359325000 | 3644300 | 3644300 | 3359999D101 | 36999 | 36999 |
| 3359210 pt | 33570 pt | 33570 pt | 3359325000 | 3644300 | 3644300 | 3359999D203 | 36999 | 36999 |
| 3359210 pt | 33579 | 33579 | 3359325000 | 3644300 | 3644300 | 3359999D305 | 36999 | 36999 |
| 3359210101 | 3357931 | 3357911 pt | 3359325000 | 3644300 | 3644300 | 3359999D407 | 36999 | 36999 |
| 3359210106 | 3357941 | 3357911 pt | 3359325000 | 3644300 | 3644300 | 3359999DYVW | 36999 | 36999 |
| 3359210111 | 3357951 | 3357911 pt | 3359325000 | 3644300 | 3644300 | 3359999W pt | 36290 | 36290 |
| 3359210421 | 3357932 | 3357921 pt | 3359325000 | 3644300 | 3644300 | 3359999W pt | 36990 pt | 36990 pt |
| 3359210426 | 3357942 | 3357921 pt | 3359325000 | 3644300 | 3644300 | 3359999WYVW | 3699000 | 3699000 |
| 3359210431 | 3357952 | 3357921 pt | 3359325000 | 3644300 | 3644300 | 3359999WYVWY | 3699000 | 3699000 |
| 3359210YVW pt | 3357000 pt | 3357000 pt | 3359325000 | 3644300 | 3644300 | 3359999WYVWY | 3699002 | 3699002 |
| 3359210YVW pt | 3357900 | 3357900 | 3359325000 | 3644300 | 3644300 | 3359999WYVWY | 3699002 | 3699002 |
| 3359210YVWY | 3357002 pt | 3357002 pt | 3359325000 | 3644300 | 3644300 | 3359999WYVWY | 3699002 | 3699002 |
| 3359291 | 33578 | 33578 | 3359325000 | 3644300 | 3644300 | 3359999WYVWY | 3699002 | 3699002 |
| 3359291800 | 3357800 | 3357800 | 3359325000 | 3644300 | 3644300 | 3359999WYVWY | 3699002 | 3699002 |

Current-Carrying Wiring Device Manufacturing

1997

Issued October 1999

EC97M-3359E

1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

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

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

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

ALL-NEW INDUSTRY CLASSIFICATIONS

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

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

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

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

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

RELATIONSHIP TO SIC

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

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

GEOGRAPHIC AREA CODING

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

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

BASIS OF REPORTING

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

DOLLAR VALUES

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

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

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

Special Tabulations

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

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

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

HISTORICAL INFORMATION

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

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

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

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

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

SOURCES FOR MORE INFORMATION

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

ABBREVIATIONS AND SYMBOLS

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

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

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

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Manufacturing

SCOPE

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

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

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

GENERAL

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

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

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

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

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

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

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

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

GEOGRAPHIC AREAS COVERED

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

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

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

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

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

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

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

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

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

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

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

DISCLOSURE

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

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

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

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

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

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

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

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

| NAICS or SIC code | Industry | Com-panies ¹ | All estab-lish-ments ² | All employees | | Production workers | | | Value added by manufacture (\$1,000) | Cost of materials (\$1,000) | Value of shipments (\$1,000) | Total capital expendi-tures (\$1,000) |
|-------------------|-------------------------------------------------|-------------------------|-----------------------------------|---------------|-------------------|--------------------|---------------|-----------------|--------------------------------------|-----------------------------|------------------------------|---------------------------------------|
| | | | | Number | Payroll (\$1,000) | Number | Hours (1,000) | Wages (\$1,000) | | | | |
| 335931 | Current-carrying wiring device mfg | 446 | 519 | 44 907 | 1 293 583 | 32 867 | 63 417 | 754 029 | 3 553 628 | 2 326 114 | 5 877 522 | 219 293 |
| 364300 | Current-carrying wiring devices | N | 519 | 44 907 | 1 293 583 | 32 867 | 63 417 | 754 029 | 3 553 628 | 2 326 114 | 5 877 522 | 219 293 |

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) | | | | |
| 335931, CURRENT-CARRYING WIRING DEVICE MFG | | | | | | | | | | | | |
| United States | - | 519 | 274 | 44 907 | 1 293 583 | 32 867 | 63 417 | 754 029 | 3 553 628 | 2 326 114 | 5 877 522 | 219 293 |
| Alabama | - | 12 | 7 | 1 355 | 33 823 | 1 054 | 1 962 | 23 446 | 91 388 | 55 751 | 151 596 | 3 040 |
| California | 1 | 62 | 29 | 2 977 | 97 086 | 2 076 | 4 108 | 49 696 | 254 309 | 138 502 | 394 168 | 11 994 |
| Connecticut | - | 18 | 14 | 1 198 | 32 412 | 805 | 1 707 | 21 252 | 131 895 | 54 615 | 181 386 | 4 938 |
| Florida | 1 | 27 | 12 | 1 539 | 38 487 | 1 105 | 2 139 | 21 247 | 99 923 | 57 180 | 157 121 | 11 318 |
| Illinois | - | 38 | 29 | 8 888 | 293 885 | 6 120 | 11 261 | 161 954 | 592 954 | 382 419 | 978 431 | 39 948 |
| New Jersey | 1 | 25 | 13 | 833 | 26 039 | 668 | 1 372 | 18 429 | 76 927 | 53 511 | 131 126 | 2 664 |
| New York | - | 33 | 12 | 2 624 | 75 383 | 1 798 | 2 964 | 40 404 | 220 628 | 103 530 | 318 008 | 18 127 |
| Ohio | - | 35 | 20 | 2 698 | 71 861 | 2 099 | 4 249 | 45 093 | 152 964 | 173 437 | 326 143 | 9 682 |
| Pennsylvania | - | 43 | 23 | 3 344 | 119 503 | 2 327 | 4 683 | 69 734 | 416 835 | 241 525 | 654 820 | 18 161 |
| Texas | 1 | 27 | 13 | 1 704 | 55 157 | 1 068 | 1 866 | 20 738 | 100 306 | 68 192 | 169 555 | 4 794 |

* 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 |
|----------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|---------------------|
| 335931, CURRENT-CARRYING WIRING DEVICE MFG | | 335931, CURRENT-CARRYING WIRING DEVICE MFG—Con. | |
| Companies ¹ | number.. 446 | Value added | \$1,000.. 3 553 628 |
| All establishments | number.. 519 | Total inventories, beginning of year | \$1,000.. 704 636 |
| Establishments with 1 to 19 employees | number.. 245 | Finished goods inventories, beginning of year | \$1,000.. 212 218 |
| Establishments with 20 to 99 employees | number.. 152 | Work-in-process inventories, beginning of year | \$1,000.. 193 362 |
| Establishments with 100 employees or more | number.. 122 | Materials and supplies inventories, beginning of year | \$1,000.. 299 056 |
| All employees | number.. 44 907 | Total inventories, end of year | \$1,000.. 726 650 |
| Total compensation ² | \$1,000.. 1 648 592 | Finished goods inventories, end of year | \$1,000.. 215 414 |
| Annual payroll | \$1,000.. 1 293 583 | Work-in-process inventories, end of year | \$1,000.. 192 386 |
| Total fringe benefits | \$1,000.. 355 009 | Materials and supplies inventories, end of year | \$1,000.. 318 850 |
| Production workers, average for year | number.. 32 867 | Gross book value of total assets at beginning of year | \$1,000.. 1 788 458 |
| Production workers on March 12 | number.. 32 670 | Total capital expenditures (new and used) | \$1,000.. 219 293 |
| Production workers on May 12 | number.. 32 813 | Capital expenditures for buildings and other structures (new and used) | \$1,000.. 35 755 |
| Production workers on August 12 | number.. 32 858 | Capital expenditures for machinery and equipment (new and used) | \$1,000.. 183 538 |
| Production workers on November 12 | number.. 33 127 | Total retirements ² | \$1,000.. 61 903 |
| Production-worker hours | 1,000.. 63 417 | Gross book value of total assets at end of year | \$1,000.. 1 945 848 |
| Production-worker wages | \$1,000.. 754 029 | Total depreciation during year ² | \$1,000.. 151 999 |
| Total cost of materials | \$1,000.. 2 326 114 | Total rental payments ² | \$1,000.. 41 067 |
| Cost of materials, parts, containers, etc., consumed | \$1,000.. 2 002 579 | Buildings and other structures rental payments ² | \$1,000.. 24 222 |
| Cost of resales | \$1,000.. 197 365 | Machinery and equipment rental payments ² | \$1,000.. 16 845 |
| Cost of fuels | \$1,000.. 8 704 | Cost of purchased services for the repair of buildings and other structures ³ | \$1,000.. 8 440 |
| Cost of purchased electricity | \$1,000.. 49 468 | Response coverage ratio ⁴ | percent.. 74 |
| Cost of contract work | \$1,000.. 67 998 | Cost of purchased services for the repair of machinery and equipment ³ | \$1,000.. 40 219 |
| Quantity of electricity purchased for heat and power | 1,000 kWh.. 740 457 | 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.. 12 388 |
| Total value of shipments | \$1,000.. 5 877 522 | Response coverage ratio ⁴ | percent.. 74 |
| Primary products value of shipments | \$1,000.. 4 783 737 | Cost of purchased legal services ³ | \$1,000.. 5 334 |
| Secondary products value of shipments | \$1,000.. 688 534 | Response coverage ratio ⁴ | percent.. 74 |
| Total miscellaneous receipts | \$1,000.. 405 251 | Cost of purchased accounting and bookkeeping services ³ | \$1,000.. 3 499 |
| Value of resales | \$1,000.. 329 958 | Response coverage ratio ⁴ | percent.. 74 |
| Contract receipts | \$1,000.. 4 895 | Cost of purchased advertising services ³ | \$1,000.. 13 033 |
| Other miscellaneous receipts | \$1,000.. 70 398 | Response coverage ratio ⁴ | percent.. 74 |
| Primary products specialization ratio | percent.. 87 | Cost of purchased software and other data processing services ³ | \$1,000.. 6 526 |
| Value of primary products shipments made in all industries | \$1,000.. 5 724 763 | Response coverage ratio ⁴ | percent.. 74 |
| Value of primary products shipments made in this industry | \$1,000.. 4 783 737 | Cost of purchased refuse removal (including hazardous waste) services ³ | \$1,000.. 4 121 |
| Value of primary products shipments made in other industries | \$1,000.. 941 026 | Response coverage ratio ⁴ | percent.. 74 |
| 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) | | | | |
| 335931, CURRENT-CARRYING WIRING DEVICE MFG | | | | | | | | | | | | |
| All establishments | - | 519 | 274 | 44 907 | 1 293 583 | 32 867 | 63 417 | 754 029 | 3 553 628 | 2 326 114 | 5 877 522 | 219 293 |
| Establishments with 1 to 4 employees | 9 | 106 | - | 222 | 5 324 | 187 | 279 | 3 488 | 12 932 | 8 712 | 21 739 | 855 |
| Establishments with 5 to 9 employees | 9 | 68 | - | 465 | 13 150 | 348 | 598 | 8 259 | 30 547 | 21 525 | 52 973 | 2 039 |
| Establishments with 10 to 19 employees | 5 | 71 | - | 1 015 | 29 813 | 737 | 1 333 | 17 159 | 63 150 | 47 601 | 111 004 | 3 583 |
| Establishments with 20 to 49 employees | 2 | 101 | 101 | 3 209 | 84 932 | 2 362 | 4 240 | 47 794 | 180 614 | 129 065 | 311 652 | 8 533 |
| Establishments with 50 to 99 employees | 1 | 51 | 51 | 3 518 | 106 595 | 2 549 | 5 099 | 60 339 | 273 687 | 208 864 | 487 380 | 17 471 |
| Establishments with 100 to 249 employees | - | 80 | 80 | 12 804 | 356 016 | 9 719 | 18 680 | 216 138 | 1 104 942 | 757 458 | 1 863 907 | 57 363 |
| Establishments with 250 to 499 employees | - | 30 | 30 | 10 393 | 317 245 | 7 755 | 15 455 | 195 451 | 940 391 | 525 627 | 1 463 281 | 67 794 |
| Establishments with 500 to 999 employees | - | 8 | 8 | 5 656 | 151 719 | 4 061 | 8 301 | 85 590 | 508 405 | 431 724 | 937 231 | 22 820 |
| 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 | 203 | - | 1 618 | 39 135 | 1 253 | 1 972 | 25 279 | 100 857 | 62 781 | 166 524 | 6 379 |

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) | | | | |
| 335931 | Current-carrying wiring device mfg | 519 | 44 907 | 1 293 583 | 32 867 | 63 417 | 754 029 | 3 553 628 | 2 326 114 | 5 877 522 | 219 293 |
| 3359311 | Current-carrying lampholders | 10 | 2 336 | 51 137 | 2 003 | 4 340 | 41 080 | 77 309 | 37 720 | 115 936 | 5 698 |
| 3359313 | Current-carrying general-and special-purpose convenience and power outlets (excluding pin-and-sleeve type) | 9 | 4 258 | 92 578 | 3 222 | 5 801 | 53 246 | 442 587 | 232 293 | 670 006 | 24 251 |
| 3359315 | Current-carrying switches for electrical circuitry (including vehicular switches) | 77 | 16 481 | 513 640 | 11 521 | 21 728 | 276 048 | 1 139 084 | 761 043 | 1 906 374 | 70 962 |
| 3359317 | Current-carrying metal contacts, including precious metal | 20 | 1 380 | 50 046 | 973 | 2 166 | 32 877 | 110 458 | 107 046 | 216 810 | 5 339 |
| 3359319 | Current-carrying wire connectors for electrical circuitry | 77 | 9 656 | 296 360 | 7 219 | 14 372 | 184 126 | 1 002 597 | 672 027 | 1 674 235 | 54 997 |
| 335931A | Other current-carrying wiring devices, nec (attachments, plug caps, connector bodies, lightning arrestors, etc.) | 77 | 7 721 | 216 596 | 5 543 | 11 259 | 120 227 | 659 889 | 395 147 | 1 047 062 | 46 671 |

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) |
| 335931 | Current-carrying wiring devices | N | X | X | 5 724 763 | N | X | X | 4 186 075 |
| 3359311 | Current-carrying lampholders @ | N | X | X | 194 736 | N | X | X | 196 788 |
| 33593110 | Current-carrying lampholders | N | X | X | 194 736 | N | X | X | N |
| 3359311000 | Current-carrying lampholders | 24 | X | X | 194 736 | 32 | X | X | 196 788 |
| 3359313 | Current-carrying general- and special-purpose convenience and power outlets (excluding pin-and-sleeve type) @ | N | X | X | 460 810 | N | X | X | 332 568 |
| 33593130 | Current-carrying general- and special-purpose convenience and power outlets (excluding pin-and-sleeve type) | N | X | X | 460 810 | N | X | X | N |
| 3359313000 | Current-carrying general- and special-purpose convenience and power outlets (excluding pin-and-sleeve type) | 19 | X | X | 460 810 | 20 | X | X | 332 568 |
| 3359315 | Current-carrying switches for electrical circuitry (including vehicular switches) @ | N | X | X | 1 803 008 | N | X | X | 1 342 324 |
| 33593150 | Current-carrying switches for electrical circuitry (including vehicular switches) | N | X | X | 1 803 008 | N | X | X | N |
| 3359315000 | Current-carrying switches for electrical circuitry (including vehicular switches) | 120 | X | X | 1 803 008 | 123 | X | X | 1 342 324 |
| 3359317 | Current-carrying metal contacts, including precious metal | N | X | X | 221 032 | N | X | X | 241 931 |
| 33593170 | Current-carrying metal contacts, including precious metal | N | X | X | 221 032 | N | X | X | N |
| 3359317000 | Current-carrying metal contacts, including precious metal | 24 | X | X | 221 032 | 27 | X | X | 241 931 |
| 3359319 | Current-carrying wire connectors for electrical circuitry @ | N | X | X | 1 615 489 | N | X | X | 1 003 129 |
| 33593190 | Current-carrying wire connectors for electrical circuitry | N | X | X | 1 615 489 | N | X | X | N |
| 3359319000 | Current-carrying wire connectors for electrical circuitry | 87 | X | X | 1 615 489 | 101 | X | X | 1 003 129 |
| 335931A | Other current-carrying wiring devices, nec (attachments, plug caps, connector bodies, lightning arrestors, pin-and-sleeve convenience, power outlets, etc.) @ | N | X | X | 1 185 367 | N | X | X | 945 246 |
| 335931A0 | Other current-carrying wiring devices, nec (attachments, plug caps, connector bodies, lightning arrestors, pin-and-sleeve convenience, power outlets, etc.) | N | X | X | 1 185 367 | N | X | X | N |
| 335931A000 | Other current-carrying wiring devices, nec (attachments, plug caps, connector bodies, lightning arrestors, pin-and-sleeve convenience, power outlets, etc.) | 116 | X | X | 1 185 367 | 148 | X | X | 945 246 |
| 335931W | Current-carrying wiring devices, nsk, total | N | X | X | 244 321 | N | X | X | 124 089 |
| 335931WY | Current-carrying wiring devices, nsk, total | N | X | X | 244 321 | N | X | X | N |
| 335931WYWW | Current-carrying wiring devices, nsk, for nonadministrative-record establishments | N | X | X | 69 711 | N | X | X | 72 541 |
| 335931WYWY | Current-carrying wiring devices, nsk, for administrative-record establishments | N | X | X | 174 610 | N | X | X | 51 548 |

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 |
| 3359311 | CURRENT-CARRYING LAMPHOLDERS @ | | |
| | United States | 194 736 | 196 788 |
| 3359313 | CURRENT-CARRYING GENERAL- AND SPECIAL-PURPOSE CONVENIENCE AND POWER OUTLETS (EXCLUDING PIN-AND-SLEEVE TYPE) @ | | |
| | United States | 460 810 | 332 568 |
| 3359315 | CURRENT-CARRYING SWITCHES FOR ELECTRICAL CIRCUITRY (INCLUDING VEHICULAR SWITCHES) @ | | |
| | United States | 1 803 008 | 1 342 324 |
| | California | 115 847 | 88 449 |
| | Connecticut | 74 591 | 46 604 |
| | Georgia | 17 019 | N |
| | Illinois | 556 723 | 394 882 |
| | Indiana | 69 264 | 132 397 |
| | Massachusetts | 163 154 | N |
| | Michigan | 162 041 | 87 019 |
| | Nebraska | 17 283 | N |
| | New Jersey | 20 940 | 8 114 |
| | New York | 32 078 | 33 905 |
| | North Carolina | 118 495 | 47 978 |
| | Tennessee | 46 182 | 25 099 |
| | Texas | 54 887 | 42 851 |
| | Wisconsin | 32 925 | 30 707 |
| 3359317 | CURRENT-CARRYING METAL CONTACTS, INCLUDING PRECIOUS METAL | | |
| | United States | 221 032 | 241 931 |
| | California | 10 778 | 6 267 |
| | New Jersey | 37 395 | 28 119 |
| | Pennsylvania | 56 043 | 77 038 |
| 3359319 | CURRENT-CARRYING WIRE CONNECTORS FOR ELECTRICAL CIRCUITRY @ | | |
| | United States | 1 615 489 | 1 003 129 |
| | California | 113 795 | 29 399 |
| | Connecticut | 12 556 | N |
| | Florida | 75 631 | 50 049 |
| | Illinois | 98 531 | 134 389 |
| | Massachusetts | 52 606 | 29 447 |
| | Michigan | 123 815 | N |
| | New Jersey | 53 089 | 37 407 |
| | North Carolina | 30 770 | 13 295 |
| | Ohio | 100 392 | 69 442 |
| | Pennsylvania | 283 273 | 205 405 |
| | Wisconsin | 69 567 | N |
| 335931A | OTHER CURRENT-CARRYING WIRING DEVICES, NEC (ATTACHMENTS, PLUG CAPS, CONNECTOR BODIES, LIGHTNING ARRESTORS, PIN-AND-SLEEVE CONVENIENCE, POWER OUTLETS, ETC.) @ | | |
| | United States | 1 185 367 | 945 246 |
| | Arkansas | 27 580 | N |
| | California | 38 281 | 29 082 |
| | Connecticut | 47 305 | N |
| | Florida | 72 394 | 30 481 |
| | Georgia | 29 132 | 21 679 |
| | Illinois | 151 530 | 98 474 |
| | Indiana | 79 659 | 46 100 |
| | Kansas | 5 445 | N |
| | Massachusetts | 23 669 | 11 708 |
| | Minnesota | 33 168 | 23 942 |
| | Missouri | 66 192 | 45 272 |
| | North Carolina | 74 777 | 44 070 |
| | Ohio | 85 451 | 63 562 |
| | Pennsylvania | 17 173 | 19 804 |
| | Texas | 42 461 | 27 628 |
| | Wisconsin | 59 826 | 19 669 |

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) |
| 335931 | CURRENT-CARRYING WIRING DEVICE MFG | | | | |
| 33200AC | Metal stampings | X | 86 626 | X | 77 092 |
| 33272203 | Metal bolts, nuts, screws, washers, rivets, and other screw machine products | X | 112 521 | X | 71 124 |
| 33200085 | All other fabricated metal products (except forgings) | X | 65 916 | X | 19 426 |
| 33210001 | Forgings | X | 5 591 | X | 2 185 |
| 33151001 | Iron and steel castings (rough and semifinished) | X | 6 756 | X | 12 255 |
| 33152005 | Aluminum and aluminum-base alloy castings (rough and semifinished) | X | 26 812 | X | 17 954 |
| 33152500 | Copper and copper-base alloy castings (rough and semifinished) | X | 11 828 | X | 18 210 |
| 33152009 | Other nonferrous castings (rough and semifinished) | X | 12 628 | X | 2 368 |
| 33120007 | Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products) | X | 16 234 | X | 7 310 |
| 33120017 | Steel sheet and strip, including tin plate | X | 36 153 | X | 25 975 |
| 33120033 | All other steel shapes and forms (except castings, forgings, and fabricated metal products) | X | 2 693 | X | 1 550 |
| 33142107 | Copper and copper-base alloy rod, bar, and bar shapes (except castings, forgings, and fabricated metal products) | X | 25 336 | X | 13 241 |
| 33142131 | Copper and copper-base alloy plate, sheet, and strip, including military cups and discs | X | 132 042 | X | 95 260 |
| 33142115 | All other copper and copper-base alloy mill shapes and forms (including mechanical wire) (except castings and forgings) | X | 26 112 | X | 20 383 |
| 33100039 | Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products) | X | 42 756 | X | 25 811 |
| 33100083 | Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products) | X | 14 285 | X | 18 492 |
| 32521105 | Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. | X | 120 720 | X | 107 037 |
| 32610013 | Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes | X | 94 729 | X | 64 030 |
| 33593101 | Current-carrying wiring devices | X | 88 320 | X | 76 919 |
| 33141901 | Precious metals (gold, platinum, etc.), all forms, including ingot, sheet, strip, solder, plating, electrodes, etc. | X | 62 326 | X | 54 620 |
| 331000A1 | Insulated wire and cable, except magnet wire | X | 45 369 | X | 45 619 |
| 33441300 | Semiconductors, including transistors, diodes, rectifiers, and integrated circuits for electronic circuitry | X | 56 707 | X | 74 337 |
| 32220017 | Paper and paperboard containers, including shipping sacks and other paper packaging supplies | X | 35 459 | X | 21 796 |
| 00970099 | All other materials and components, parts, containers, and supplies | X | 567 573 | X | 239 469 |
| 00971000 | Materials, ingredients, containers, and supplies, n.s.k. | X | 307 087 | X | 301 241 |

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

335931 CURRENT-CARRYING WIRING DEVICE MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing current-carrying wiring devices.

The data published with NAICS code 335931 include the following SIC industry:

3643 Current-carrying wiring devices

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 |
|--------------------|-------------------------------------------------------------------------------------------|
| @3359311 | For additional detail, see Current Industrial Report MA335K, Wiring Devices and Supplies. |
| @3359313 | For additional detail, see Current Industrial Report MA335K, Wiring Devices and Supplies. |
| @3359315 | For additional detail, see Current Industrial Report MA335K, Wiring Devices and Supplies. |
| @3359319 | For additional detail, see Current Industrial Report MA335K, Wiring Devices and Supplies. |
| @335931A | For additional detail, see Current Industrial Report MA335K, Wiring Devices and Supplies. |

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 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 3351101 | 36411 | 36411 | 3352121 | 36350 pt | 36350 pt | 3353113 pt | 36123 | 36123 |
| 335110100 | 3641100 | 3641100 | 3352121101 | 3635041 | 3635041 | 3353113101 | 3612301 | 3612301 |
| 3351103 | 36412 | 36412 | 3352121103 | 3635011 | 3635011 | 3353113104 | 3612302 | 3612302 |
| 3351103100 | 3641200 | 3641200 | 3352121105 | 3635033 | 3635033 | 3353113107 | 3548105 | 3548104 pt |
| 335110W | 36410 | 36410 | 3352121107 pt | 3635044 pt | 3635031 | 3353113109 | 3612306 | 3612306 |
| 335110WYWW | 3641000 | 3641000 | 3352121107 pt | 3635044 pt | 3635036 | 3353113113 | 3612307 | 3612307 |
| 335110WYWY | 3641002 | 3641002 | 3352121111 | 3635051 | 3635051 | 3353113115 | 3612308 | 3612308 |
| 3351211 | 36451 | 36451 | 3352121113 | 3635071 | 3635071 | 3353113116 | 3612311 | 3612311 |
| 3351211000 | 3645100 | 3645100 | 3352121YWW | 3635000 pt | 3635000 pt | 3353113YWW pt | 3548100 pt | 3548100 pt |
| 3351213 pt | 30897 pt | 30897 pt | 3352122 | 36395 pt | 36395 pt | 3353113YWW pt | 3612300 | 3612300 |
| 3351213 pt | 30897 pt | 30897 pt | 335212211 | 3639525 | 3639520 pt | 3353115 | 36124 | 36124 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122219 | 3639513 | 3639510 pt | 3353115000 | 3612400 | 3612400 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122YWW | 3639500 pt | 3639500 pt | 3353117 | 36126 | 36126 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36350 pt | 36350 pt | 335311701 | 3612601 | 3612601 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36390 pt | 36390 pt | 3353117104 | 3612602 | 3612602 |
| 335121311 | 39999 pt | 39999 pt | 335212WYWW pt | 3635000 pt | 3635000 pt | 3353117107 | 3612603 | 3612603 |
| 3351213111 | 3645721 | 3645721 | 335212WYWW pt | 3639000 pt | 3639000 pt | 3353117111 | 3612604 | 3612604 |
| 3351213121 | 3645722 | 3645722 | 335212WYWW pt | 3635002 | 3635002 | 3353117113 pt | 3612608 pt | 3612605 |
| 3351213131 | 3645723 | 3645723 | 335212WYWY pt | 3639002 pt | 3639002 pt | 335311713 pt | 3612608 pt | 3612609 |
| 3351213131 | 3645729 | 3645729 | 3352211 | 36311 | 36311 | 3353117YWW | 3612600 | 3612600 |
| 3351213141 | 3645729 | 3645729 | 3352211110 | 3631110 | 3631110 | 3353119 | 36127 | 36127 |
| 3351213151 | 3645732 | 3645732 | 3352211290 | 3631120 | 3631120 | 3353119101 | 3612701 | 3612701 |
| 3351213161 | 3645761 | 3645761 | 3352211YWW | 3631100 | 3631100 | 3353119104 | 3612778 | 3612778 |
| 3351213165 | 3999961 | 3999961 | 3352213 | 36313 | 36313 | 3353119YWW | 3612700 | 3612700 |
| 3351213169 | 3089705 | 3089709 pt | 3352213110 | 3631310 | 3631310 | 335311W pt | 35480 pt | 35480 pt |
| 3351213171 | 3645773 | 3645773 | 3352213190 | 3631320 | 3631320 | 335311W pt | 36120 | 36120 |
| 3351213YVW pt | 3089700 pt | 3089700 pt | 3352213YVW | 3631300 | 3631300 | 335311WYWW pt | 3548000 pt | 3548000 pt |
| 3351213YVW pt | 3089700 pt | 3089700 pt | 3352215 | 36314 | 36314 | 335311WYWW pt | 3612000 | 3612000 |
| 3351213YVW pt | 3089700 pt | 3089700 pt | 335221510 | 3631410 | 3631410 | 335311WYWY pt | 3548002 pt | 3548002 pt |
| 335121W pt | 30890 pt | 30890 pt | 3352215190 | 3631420 | 3631420 | 335311WYWY pt | 3612002 | 3612002 |
| 335121W pt | 30890 pt | 30890 pt | 3352215YVW | 3631400 | 3631400 | 3353121 | 36211 | 36211 |
| 335121W pt | 30890 pt | 30890 pt | 335221W | 36310 | 36310 | 3353121000 | 3621100 | 3621100 |
| 335121WYWW pt | 3089000 pt | 3089000 pt | 335221WYWW | 3631000 | 3631000 | 3353123 | 36212 | 36212 |
| 335121WYWW pt | 3089000 pt | 3089000 pt | 335221WYWY | 3631002 | 3631002 | 3353123000 | 3621200 | 3621200 |
| 335121WYWY pt | 3089002 pt | 3089002 pt | 3352221 | 36321 | 36321 | 3353125 | 36213 | 36213 |
| 335121WYWY pt | 3089002 pt | 3089002 pt | 3352221000 | 3632100 | 3632100 | 3353125000 | 3621300 | 3621300 |
| 3351221 | 36462 | 36462 | 3352222 | 36322 | 36322 | 3353127 | 36214 | 36214 |
| 3351221000 | 3646200 | 3646200 | 3352222000 | 3632200 | 3632200 | 3353127000 | 3621400 | 3621400 |
| 3351222 | 36463 | 36463 | 3352223 | 36323 | 36323 | 3353129 | 36217 | 36217 |
| 3351222000 | 3646300 | 3646300 | 3352223000 | 3632300 | 3632300 | 3353129000 | 3621700 | 3621700 |
| 335122W | 36460 | 36460 | 335222W | 36320 | 36320 | 335312A | 36218 | 36218 |
| 335122WYWW | 3646000 | 3646000 | 335222WYWW | 3632000 | 3632000 | 335312A000 | 3621800 | 3621800 |
| 335122WYWY | 3646002 | 3646002 | 335222WYWY | 3632002 | 3632002 | 335312C | 36219 | 36219 |
| 3351291 | 36485 | 36485 | 3352240 | 36330 | 36330 | 335312C000 | 3621900 | 3621900 |
| 3351291000 | 3648500 | 3648500 | 335224010 | 3633010 | 3633010 | 335312E | 76940 pt | 76940 pt |
| 3351293 pt | 36489 | 36489 | 3352240190 | 3633020 | 3633020 | 335312E100 pt | 7694020 | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352240YWW | 3633000 | 3633000 | 335312E100 pt | 7694000 pt | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352240YWY | 3633002 | 3633002 | 335312W pt | 36210 | 36210 |
| 3351293 pt | 36489 | 36489 | 3352281 | 36391 | 36391 | 335312W pt | 76940 pt | 76940 pt |
| 3351293109 | 3648912 | 3648912 | 3352281000 | 3639100 | 3639100 | 335312WYWW pt | 3621000 | 3621000 |
| 3351293112 | 3648916 | 3648916 | 3352283 | 36392 | 36392 | 335312WYWW pt | 7694000 pt | 7694000 pt |
| 3351293114 | 3648917 | 3648917 | 3352283000 | 3639200 | 3639200 | 335312WYWY pt | 3621002 | 3621002 |
| 3351293116 | 3648931 | 3648931 | 3352285 | 36395 pt | 36395 pt | 335312WYWY pt | 7694002 | 7694000 pt |
| 3351293118 | 3648975 | 3648975 | 335228510 | 3639511 | 3639510 pt | 3353131 | 36132 | 36132 |
| 3351293122 pt | 3648979 pt | 3648921 | 3352285190 | 3639521 | 3639520 pt | 3353131000 | 3613200 | 3613200 |
| 3351293122 pt | 3648979 pt | 3648991 | 3352285YVW | 3639500 pt | 3639500 pt | 3353133 | 36133 | 36133 |
| 3351293122 pt | 3648979 pt | 3648991 | 335228W | 36390 pt | 36390 pt | 3353133000 | 3613300 | 3613300 |
| 3351293124 | 3648970 | 3648970 | 335228WYWW | 3639000 pt | 3639000 pt | 3353135 | 36134 | 36134 |
| 3351293126 pt | 3648984 pt | 3648983 | 335228WYWY | 3639002 pt | 3639002 pt | 3353135000 | 3613400 | 3613400 |
| 3351293126 pt | 3648984 pt | 3648987 | 3353111 | 36122 | 36122 | 3353137 | 36135 | 36135 |
| 3351293131 | 3648985 | 3648985 | 335311101 | 3612202 | 3612202 | 3353137000 | 3613500 | 3613500 |
| 3351293YVW pt | 3648900 | 3648900 | 3353111204 | 3612204 | 3612204 | 3353139 | 36136 | 36136 |
| 3351293YVW pt | 3648900 pt | 3648900 pt | 3353111307 | 3612206 | 3612206 | 3353139000 | 3613600 | 3613600 |
| 3351293YVW pt | 3648900 pt | 3648900 pt | 3353111311 | 3612214 | 3612214 | 335313A | 36139 | 36139 |
| 3351293YVW pt | 3648900 pt | 3648900 pt | 3353111313 | 3612216 | 3612216 | 335313A000 | 3613900 | 3613900 |
| 3352111 | 36341 | 36341 | 3353111316 | 3612219 | 3612219 | 335313W | 36130 | 36130 |
| 3352111000 | 3634100 | 3634100 | 3353111419 | 3612221 | 3612221 | 335313WYWW | 3613000 | 3613000 |
| 3352113 | 36345 pt | 36345 pt | 3353111422 | 3612223 | 3612223 | 335313WYWY | 3613002 | 3613002 |
| 3352113000 | 3634510 | 3634500 pt | 3353111425 | 3612228 | 3612228 | 3353141 | 36251 | 36251 |
| 3352115 | 36349 pt | 36349 pt | 3353111428 | 3612229 | 3612229 | 3353141000 | 3625100 | 3625100 |
| 3352115010 | 3634911 | 3634911 | 3353111431 | 3612232 | 3612232 | 3353143 | 36252 | 36252 |
| 3352115090 | 3634920 | 3634920 pt | 3353111434 | 3612233 | 3612233 | 3353143000 | 3625200 | 3625200 |
| 3352115YVW | 3634900 pt | 3634900 pt | 3353111537 | 3612237 | 3612237 | 3353145 | 36253 | 36253 |
| 335211W | 36340 pt | 36340 pt | 3353111541 | 3612239 | 3612239 | 3353145000 | 3625300 | 3625300 |
| 335211WYWW | 3634000 pt | 3634000 pt | 3353111543 | 3612241 | 3612241 | 3353147 | 36254 | 36254 |
| 335211WYWY | 3634002 pt | 3634002 pt | 3353111546 | 3612242 | 3612242 | 3353147000 | 3625400 | 3625400 |
| | | | 3353111549 | 3612243 | 3612243 | | | |
| | | | 3353111552 | 3612244 | 3612244 | | | |
| | | | 3353111YVW | 3612200 | 3612200 | | | |
| | | | 3353113 pt | 35481 pt | 35481 pt | | | |

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|---------------------|------------------|------------------|---------------------|------------------|------------------|---------------------|------------------|------------------|
| 335314W | 36250 | 36250 | 335929A | 3357A | 3357A | 3359913322 | 3624996 | 3624996 |
| 335314WYWW | 3625000 | 3625000 | 335929A100 | 3357A00 | 3357A00 | 3359913YVW | 3624900 | 3624900 |
| 335314WYVW | 3625002 | 3625002 | 335929B | 3357B | 3357B | 335991W | 36240 | 36240 |
| 3359111 | 36913 | 36913 | 335929B100 | 3357B00 | 3357B00 | 335991WYVW | 3624000 | 3624000 |
| 3359111101 | 3691311 | 3691311 | 335929C | 3357C | 3357C | 335991WYVY | 3624002 | 3624002 |
| 3359111204 | 3691312 | 3691312 | 335929C100 | 3357C00 | 3357C00 | 3359991 | 36291 | 36291 |
| 3359111307 | 3691317 | 3691317 | 335929D | 3357D | 3357D | 3359991101 | 3629101 | 3629101 |
| 3359111YVW | 3691300 | 3691300 | 335929D100 | 3357D00 | 3357D00 | 3359991103 | 3629104 | 3629104 |
| 3359114 | 36914 | 36914 | 335929E | 3357E | 3357E | 3359991YVW | 3629100 | 3629100 |
| 3359114101 | 3691411 | 3691411 | 335929E100 | 3357E00 | 3357E00 | 3359993 | 36292 | 36292 |
| 3359114104 | 3691419 | 3691419 | 335929W | 33570 pt | 33570 pt | 3359993101 | 3629221 | 3629221 |
| 3359114201 | 3691421 | 3691421 | 335929WYVW | 3357000 pt | 3357000 pt | 3359993104 | 3629225 | 3629225 |
| 3359114204 | 3691422 | 3691422 | 335929WYVY | 3357002 pt | 3357002 pt | 3359993107 | 3629241 | 3629241 |
| 3359114207 | 3691479 | 3691479 | 3359311 | 36431 | 36431 | 3359993111 | 3629245 | 3629245 |
| 3359114YVW | 3691400 | 3691400 | 3359311000 | 3643100 | 3643100 | 3359993213 | 3629251 | 3629251 |
| 3359117 | 36915 | 36915 | 3359311000 | 3643100 | 3643100 | 3359993216 | 3629253 | 3629253 |
| 3359117101 | 3691501 | 3691501 | 3359313 | 36432 | 36432 | 3359993219 | 3629255 | 3629255 |
| 3359117104 | 3691502 | 3691502 | 3359313000 | 3643200 | 3643200 | 3359993YVW | 3629200 | 3629200 |
| 3359117201 | 3691591 | 3691591 | 3359315 | 36433 | 36433 | 3359995 pt | 36293 | 36293 |
| 3359117YVW | 3691500 | 3691500 | 3359315000 | 3643300 | 3643300 | 3359995101 | 3699A pt | 3699A pt |
| 335911W | 36910 | 36910 | 3359317 | 36434 | 36434 | 3359995104 | 3629301 | 3629301 |
| 335911WYVW | 3691000 | 3691000 | 3359317000 | 3643400 | 3643400 | 3359995107 | 3629302 | 3629302 |
| 335911WYVY | 3691002 | 3691002 | 335931A | 36436 | 36436 | 3359995111 | 3629303 | 3629303 |
| 3359120 | 36920 | 36920 | 335931A000 | 3643600 | 3643600 | 3359995137 pt | 3629304 | 3629304 |
| 3359120101 pt | 3692011 pt | 3692011 pt | 3359319 | 36435 | 36435 | 3359995137 pt | 3629311 | 3629311 |
| 3359120101 pt | 3692011 pt | 3692011 pt | 3359319000 | 3643500 | 3643500 | 3359995YVW pt | 3699A21 | 3699A21 |
| 3359120104 pt | 3692013 pt | 3692013 pt | 335931A | 36436 | 36436 | 3359995YVW pt | 3629300 | 3629300 |
| 3359120104 pt | 3692013 pt | 3692013 pt | 335931A000 | 3643600 | 3643600 | 3359997 | 3629304 | 3629304 |
| 3359120107 pt | 3692015 pt | 3692015 pt | 335931W | 36430 | 36430 | 3359997000 pt | 3629311 | 3629311 |
| 3359120107 pt | 3692015 pt | 3692015 pt | 335931WYVW | 3643000 | 3643000 | 3359997000 pt | 3699A21 | 3699A21 |
| 3359120107 pt | 3692015 pt | 3692015 pt | 335931WYVY | 3643002 | 3643002 | 3359997000 pt | 3629300 | 3629300 |
| 3359120111 pt | 3692017 pt | 3692017 pt | 3359321 | 36441 | 36441 | 3359999 | 36992 pt | 36992 pt |
| 3359120111 pt | 3692017 pt | 3692017 pt | 3359321000 | 3644100 | 3644100 | 3359999100 pt | 3699271 | 3699271 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359323 | 36442 | 36442 | 3359999100 pt | 3699200 pt | 3699200 pt |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359323000 | 3644200 | 3644200 | 3359999A | 3699200 pt | 3699200 pt |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359325 | 36443 | 36443 | 335999A000 | 36995 | 36995 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359325000 | 3644300 | 3644300 | 335999B | 3699500 | 3699500 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 335932W | 36440 | 36440 | 335999B100 pt | 36996 pt | 36996 pt |
| 3359120114 pt | 3692019 pt | 3692019 pt | 335932WYVW | 3644000 | 3644000 | 335999B100 pt | 3699600 pt | 3699600 pt |
| 3359120114 pt | 3692019 pt | 3692019 pt | 335932WYVY | 3644002 | 3644002 | 335999C | 3699605 | 3699605 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359911 | 36241 | 36241 | 335999C000 | 36999 | 36999 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 335991101 | 3624152 | 3624152 | 335999D | 3699900 | 3699900 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359911101 | 3624156 | 3624156 | 335999D101 | 3699A pt | 3699A pt |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359911204 | 3624156 | 3624156 | 335999D203 | 3699A01 | 3699A01 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359911YVW | 3624100 | 3624100 | 335999D305 | 3699A03 | 3699A03 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359913 | 36249 | 36249 | 335999D407 | 3699A05 | 3699A05 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359913101 pt | 3624916 | 3624916 | 335999D407 | 3699A02 | 3699A02 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359913101 pt | 3624916 pt | 3624916 pt | 335999DYVW | 3699A00 pt | 3699A00 pt |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359913104 | 3624917 | 3624917 | 335999W pt | 36290 | 36290 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359913207 | 3624988 | 3624988 | 335999W pt | 36990 pt | 36990 pt |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359913311 | 3624981 | 3624981 | 335999WYVW pt | 3629000 | 3629000 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359913313 | 3624983 | 3624983 | 335999WYVY pt | 3699000 pt | 3699000 pt |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359913316 | 3624986 | 3624986 | 335999WYVY pt | 3629002 | 3629002 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359913319 | 3624994 | 3624994 | 335999WYVY pt | 3699002 pt | 3699002 pt |

Noncurrent-Carrying Wiring Device Manufacturing

1997

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

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

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

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

ALL-NEW INDUSTRY CLASSIFICATIONS

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

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

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

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

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

RELATIONSHIP TO SIC

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

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

GEOGRAPHIC AREA CODING

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

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

BASIS OF REPORTING

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

DOLLAR VALUES

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

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

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

Special Tabulations

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

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

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

HISTORICAL INFORMATION

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

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

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

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

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

SOURCES FOR MORE INFORMATION

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

ABBREVIATIONS AND SYMBOLS

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

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

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

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Manufacturing

SCOPE

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

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

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) | | | | |
| 335932 | Noncurrent-carrying wiring device mfg | 169 | 220 | 23 221 | 776 700 | 16 975 | 35 794 | 479 726 | 2 456 968 | 1 985 645 | 4 451 671 | 161 549 |
| 364400 | Noncurrent-carrying wiring devices | N | 220 | 23 221 | 776 700 | 16 975 | 35 794 | 479 726 | 2 456 968 | 1 985 645 | 4 451 671 | 161 549 |

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) | | | | |
| 335932, NONCURRENT-CARRYING WIRING DEVICE MFG | | | | | | | | | | | | |
| United States | - | 220 | 125 | 23 221 | 776 700 | 16 975 | 35 794 | 479 726 | 2 456 968 | 1 985 645 | 4 451 671 | 161 549 |
| Alabama | - | 9 | 6 | 586 | 13 592 | 450 | 945 | 9 075 | 23 624 | 38 366 | 63 584 | 2 124 |
| California | - | 29 | 13 | 1 538 | 48 296 | 1 182 | 2 457 | 30 817 | 181 523 | 237 327 | 422 960 | 12 053 |
| Connecticut | 2 | 9 | 6 | 2 033 | 84 425 | 1 350 | 2 774 | 43 686 | 249 773 | 112 967 | 372 326 | 16 170 |
| Florida | 1 | 6 | 3 | 318 | 7 733 | 229 | 488 | 5 842 | 42 331 | 31 440 | 74 008 | 2 307 |
| Georgia | - | 6 | 4 | 523 | 16 066 | 388 | 1 054 | 9 946 | 63 291 | 74 332 | 135 534 | 7 352 |
| Illinois | - | 21 | 13 | 2 267 | 82 931 | 1 611 | 3 360 | 50 150 | 208 247 | 187 731 | 399 172 | 21 934 |
| New Jersey | 2 | 7 | 5 | 490 | 15 535 | 394 | 854 | 11 043 | 42 576 | 42 509 | 85 561 | 1 604 |
| New York | 1 | 13 | 5 | 1 814 | 64 445 | 1 247 | 2 386 | 37 277 | 221 177 | 86 123 | 315 058 | 5 686 |
| Ohio | - | 16 | 11 | 1 343 | 38 972 | 835 | 1 455 | 19 775 | 87 360 | 75 284 | 161 488 | 5 803 |
| Pennsylvania | - | 12 | 9 | 1 320 | 41 981 | 1 069 | 2 133 | 29 769 | 157 360 | 159 172 | 317 237 | 6 936 |
| Texas | - | 16 | 8 | 1 033 | 28 483 | 745 | 1 480 | 18 887 | 123 827 | 84 528 | 208 180 | 11 244 |

* 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 |
|----------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|---------------------|
| 335932, NONCURRENT-CARRYING WIRING DEVICE MFG | | 335932, NONCURRENT-CARRYING WIRING DEVICE MFG—Con. | |
| Companies ¹ | number.. 169 | Value added | \$1,000.. 2 456 968 |
| All establishments | number.. 220 | Total inventories, beginning of year | \$1,000.. 584 224 |
| Establishments with 1 to 19 employees | number.. 95 | Finished goods inventories, beginning of year | \$1,000.. 272 603 |
| Establishments with 20 to 99 employees | number.. 58 | Work-in-process inventories, beginning of year | \$1,000.. 98 927 |
| Establishments with 100 employees or more | number.. 67 | Materials and supplies inventories, beginning of year | \$1,000.. 212 694 |
| All employees | number.. 23 221 | Total inventories, end of year | \$1,000.. 591 007 |
| Total compensation ² | \$1,000.. 970 084 | Finished goods inventories, end of year | \$1,000.. 267 634 |
| Annual payroll | \$1,000.. 776 700 | Work-in-process inventories, end of year | \$1,000.. 94 838 |
| Total fringe benefits | \$1,000.. 193 384 | Materials and supplies inventories, end of year | \$1,000.. 228 535 |
| Production workers, average for year | number.. 16 975 | Gross book value of total assets at beginning of year | \$1,000.. 1 227 917 |
| Production workers on March 15 | number.. 16 978 | Total capital expenditures (new and used) | \$1,000.. 161 549 |
| Production workers on May 15 | number.. 16 904 | Capital expenditures for buildings and other structures (new and used) | \$1,000.. 19 278 |
| Production workers on August 15 | number.. 17 007 | Capital expenditures for machinery and equipment (new and used) | \$1,000.. 142 271 |
| Production workers on November 15 | number.. 17 011 | Total retirements ² | \$1,000.. 18 702 |
| Production-worker hours | 1,000.. 35 794 | Gross book value of total assets at end of year | \$1,000.. 1 370 764 |
| Production-worker wages | \$1,000.. 479 726 | Total depreciation during year ² | \$1,000.. 97 767 |
| Total cost of materials | \$1,000.. 1 985 645 | Total rental payments ² | \$1,000.. 23 606 |
| Cost of materials, parts, containers, etc., consumed | \$1,000.. 1 787 795 | Buildings and other structures rental payments ² | \$1,000.. 11 947 |
| Cost of resales | \$1,000.. 85 316 | Machinery and equipment rental payments ² | \$1,000.. 11 659 |
| Cost of fuels | \$1,000.. 12 635 | Cost of purchased services for the repair of buildings and other structures ³ | \$1,000.. 4 585 |
| Cost of purchased electricity | \$1,000.. 50 908 | Response coverage ratio ⁴ | percent.. 85 |
| Cost of contract work | \$1,000.. 48 991 | Cost of purchased services for the repair of machinery and equipment ³ | \$1,000.. 25 474 |
| Quantity of electricity purchased for heat and power | 1,000 kWh.. 907 955 | 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.. 7 751 |
| Total value of shipments | \$1,000.. 4 451 671 | Response coverage ratio ⁴ | percent.. 85 |
| Primary products value of shipments | \$1,000.. 3 687 838 | Cost of purchased legal services ³ | \$1,000.. 1 322 |
| Secondary products value of shipments | \$1,000.. 643 093 | Response coverage ratio ⁴ | percent.. 85 |
| Total miscellaneous receipts | \$1,000.. 120 740 | Cost of purchased accounting and bookkeeping services ³ | \$1,000.. 1 416 |
| Value of resales | \$1,000.. 104 599 | Response coverage ratio ⁴ | percent.. 85 |
| Contract receipts | \$1,000.. 5 540 | Cost of purchased advertising services ³ | \$1,000.. 14 811 |
| Other miscellaneous receipts | \$1,000.. 10 601 | Response coverage ratio ⁴ | percent.. 85 |
| Primary products specialization ratio | percent.. 85 | Cost of purchased software and other data processing services ³ | \$1,000.. 4 854 |
| Value of primary products shipments made in all industries | \$1,000.. 4 222 000 | Response coverage ratio ⁴ | percent.. 85 |
| Value of primary products shipments made in this industry | \$1,000.. 3 687 838 | Cost of purchased refuse removal (including hazardous waste) services ³ | \$1,000.. 3 067 |
| Value of primary products shipments made in other industries | \$1,000.. 534 162 | Response coverage ratio ⁴ | percent.. 85 |
| Coverage ratio | percent.. 87 | | |

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

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

³Based on ASM sample data.

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

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

Table 4. Industry Statistics by Employment Size: 1997

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

| Employment size class | E ¹ | All establishments | | All employees | | Production workers | | | Value added by manufacture (\$1,000) | Cost of materials (\$1,000) | Value of shipments (\$1,000) | Total capital expenditures (\$1,000) |
|------------------------------------------------------|----------------|--------------------|---------------------------|---------------|-------------------|--------------------|---------------|-----------------|--------------------------------------|-----------------------------|------------------------------|--------------------------------------|
| | | Total | With 20 employees or more | Number | Payroll (\$1,000) | Number | Hours (1,000) | Wages (\$1,000) | | | | |
| 335932, NONCURRENT-CARRYING WIRING DEVICE MFG | | | | | | | | | | | | |
| All establishments | - | 220 | 125 | 23 221 | 776 700 | 16 975 | 35 794 | 479 726 | 2 456 968 | 1 985 645 | 4 451 671 | 161 549 |
| Establishments with 1 to 4 employees | 9 | 52 | - | 102 | 2 770 | 87 | 142 | 1 886 | 6 688 | 6 763 | 13 487 | 439 |
| Establishments with 5 to 9 employees | 7 | 23 | - | 148 | 4 384 | 121 | 202 | 3 064 | 13 833 | 10 566 | 24 466 | 888 |
| Establishments with 10 to 19 employees | 3 | 20 | - | 283 | 8 602 | 215 | 386 | 5 365 | 48 602 | 18 453 | 67 278 | 1 262 |
| Establishments with 20 to 49 employees | 2 | 29 | 29 | 944 | 30 386 | 679 | 1 283 | 17 246 | 73 210 | 68 735 | 142 051 | 3 742 |
| Establishments with 50 to 99 employees | - | 29 | 29 | 2 216 | 68 392 | 1 707 | 3 346 | 45 827 | 254 943 | 287 599 | 540 444 | 7 976 |
| Establishments with 100 to 249 employees | - | 40 | 40 | 6 274 | 191 061 | 4 566 | 10 889 | 122 487 | 594 272 | 648 648 | 1 239 992 | 61 520 |
| Establishments with 250 to 499 employees | - | 18 | 18 | 5 723 | 182 302 | 4 339 | 8 996 | 115 830 | 638 471 | 448 166 | 1 093 118 | 33 753 |
| Establishments with 500 to 999 employees | - | 6 | 6 | 3 486 | 124 324 | 2 506 | 4 743 | 71 466 | 312 493 | 257 865 | 574 400 | 29 116 |
| Establishments with 1,000 to 2,499 employees | - | 3 | 3 | 4 045 | 164 479 | 2 755 | 5 807 | 96 555 | 514 456 | 238 850 | 756 435 | 22 853 |
| Establishments with 2,500 employees or more | - | - | - | - | - | - | - | - | - | - | - | - |
| Administrative records ² | 9 | 77 | - | 389 | 10 021 | 321 | 492 | 7 046 | 30 519 | 24 095 | 54 766 | 1 659 |

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) | | | | |
| 335932 | Noncurrent-carrying wiring device mfg | 220 | 23 221 | 776 700 | 16 975 | 35 794 | 479 726 | 2 456 968 | 1 985 645 | 4 451 671 | 161 549 |
| 3359321 | Noncurrent-carrying pole and transmission line hardware | 28 | 5 140 | 160 455 | 3 600 | 7 598 | 90 590 | 439 329 | 373 867 | 813 515 | 32 916 |
| 3359323 | Noncurrent-carrying electrical conduit and conduit fittings, including plastics conduit and conduit fittings . | 57 | 9 570 | 315 503 | 7 149 | 15 960 | 206 745 | 1 233 354 | 1 113 306 | 2 351 294 | 69 482 |
| 3359325 | Other noncurrent-carrying wiring devices and supplies (boxes, covers, bar hangers, etc.) | 47 | 7 937 | 284 929 | 5 761 | 11 456 | 171 474 | 752 244 | 463 524 | 1 219 658 | 56 706 |

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) |
| 335932 | Noncurrent-carrying wiring devices @ | N | X | X | 4 222 000 | N | X | X | 3 220 890 |
| 3359321 | Noncurrent-carrying pole and transmission line hardware @ | N | X | X | 794 218 | N | X | X | 586 306 |
| 33593210 | Noncurrent-carrying pole and transmission line hardware | N | X | X | 794 218 | N | X | X | N |
| 3359321000 | Noncurrent-carrying pole and transmission line hardware | 30 | X | X | 794 218 | 30 | X | X | 586 306 |
| 3359323 | Noncurrent-carrying electrical conduit and conduit fittings, including plastics conduit and conduit fittings @ | N | X | X | 2 057 217 | N | X | X | 1 531 424 |
| 33593230 | Noncurrent-carrying electrical conduit and conduit fittings, including plastics conduit and conduit fittings | N | X | X | 2 057 217 | N | X | X | N |
| 3359323000 | Noncurrent-carrying electrical conduit and conduit fittings, including plastics conduit and conduit fittings | 54 | X | X | 2 057 217 | 69 | X | X | 1 531 424 |
| 3359325 | Other noncurrent-carrying wiring devices and supplies (boxes, covers, bar hangers, etc.) @ | N | X | X | 1 303 056 | N | X | X | 1 056 307 |
| 33593250 | Other noncurrent-carrying wiring devices and supplies (boxes, covers, bar hangers, etc.) | N | X | X | 1 303 056 | N | X | X | N |
| 3359325000 | Other noncurrent-carrying wiring devices and supplies (boxes, covers, bar hangers, etc.) | 59 | X | X | 1 303 056 | 71 | X | X | 1 056 307 |
| 335932W | Noncurrent-carrying wiring devices, nsk, total | N | X | X | 67 509 | N | X | X | 46 853 |
| 335932WY | Noncurrent-carrying wiring devices, nsk, total | N | X | X | 67 509 | N | X | X | N |
| 335932WYWW | Noncurrent-carrying wiring devices, nsk, for nonadministrative-record establishments | N | X | X | 14 353 | N | X | X | 30 379 |
| 335932WYWY | Noncurrent-carrying wiring devices, nsk, for administrative-record establishments | N | X | X | 53 156 | N | X | X | 16 474 |

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 |
| 3359321 | NONCURRENT-CARRYING POLE AND TRANSMISSION LINE HARDWARE @ | | |
| | United States | 794 218 | 586 306 |
| | Alabama | 66 434 | 74 859 |
| | California | 18 337 | N |
| | Illinois | 154 910 | 103 366 |
| | Ohio | 4 042 | N |
| | Pennsylvania | 30 443 | 29 036 |
| | Tennessee | 31 364 | N |
| 3359323 | NONCURRENT-CARRYING ELECTRICAL CONDUIT AND CONDUIT FITTINGS, INCLUDING PLASTICS CONDUIT AND CONDUIT FITTINGS @ | | |
| | United States | 2 057 217 | 1 531 424 |
| | California | 266 296 | 156 852 |
| | Connecticut | 271 967 | 164 587 |
| | Florida | 56 838 | 37 508 |
| | Illinois | 223 631 | 230 822 |
| | North Carolina | 5 027 | 5 794 |
| | Ohio | 114 010 | 111 231 |
| | Pennsylvania | 242 260 | 176 235 |
| | Texas | 112 939 | 81 731 |

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 |
| 3359325 | OTHER NONCURRENT-CARRYING WIRING DEVICES AND SUPPLIES (BOXES, COVERS, BAR HANGERS, ETC.) @ | | |
| | United States | 1 303 056 | 1 056 307 |
| | California | 59 746 | 70 554 |
| | Illinois | 131 720 | N |
| | New Jersey | 34 316 | 33 033 |
| | New York | 56 594 | 81 546 |
| | North Carolina | 65 610 | 41 552 |
| | Ohio | 54 787 | 39 252 |
| | Pennsylvania | 35 604 | 58 391 |
| | Texas | 31 295 | 23 857 |

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) |
| 335932 | NONCURRENT-CARRYING WIRING DEVICE MFG | | | | |
| 332000AC | Metal stampings | X | 20 357 | X | 18 064 |
| 33272203 | Metal bolts, nuts, screws, washers, rivets, and other screw machine products | X | 46 954 | X | 37 970 |
| 33200085 | All other fabricated metal products (except forgings) | X | 27 646 | X | 8 434 |
| 33210001 | Forgings | X | D | X | 1 325 |
| 33151001 | Iron and steel castings (rough and semifinished) | X | 39 862 | X | 46 685 |
| 33152005 | Aluminum and aluminum-base alloy castings (rough and semifinished) | X | 58 109 | X | 48 231 |
| 33152500 | Copper and copper-base alloy castings (rough and semifinished) | X | 2 878 | X | 3 838 |
| 33152009 | Other nonferrous castings (rough and semifinished) | X | 12 137 | X | 9 204 |
| 33120007 | Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products) | X | 56 875 | X | 52 918 |
| 33120017 | Steel sheet and strip, including tin plate | X | 438 859 | X | 225 134 |
| 33120033 | All other steel shapes and forms (except castings, forgings, and fabricated metal products) | X | 125 649 | X | 156 943 |
| 33142107 | Copper and copper-base alloy rod, bar, and bar shapes (except castings, forgings, and fabricated metal products) | X | 36 788 | X | N |
| 33142131 | Copper and copper-base alloy plate, sheet, and strip, including military cups and discs | X | D | X | N |
| 33142115 | All other copper and copper-base alloy mill shapes and forms (including mechanical wire) (except castings and forgings) | X | D | X | N |
| 33100039 | Aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products) | X | 50 339 | X | 20 562 |
| 33100083 | Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products) | X | 10 108 | X | 10 939 |
| 32521105 | Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. | X | 266 020 | X | 186 727 |
| 32610013 | Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes | X | 27 784 | X | 15 598 |
| 33593101 | Current-carrying wiring devices | X | 38 657 | X | 4 383 |
| 33141901 | Precious metals (gold, platinum, etc.), all forms, including ingot, sheet, strip, solder, plating, electrodes, etc. | X | 6 217 | X | 15 144 |
| 331000A1 | Insulated wire and cable, except magnet wire | X | 20 411 | X | 10 903 |
| 33441300 | Semiconductors, including transistors, diodes, rectifiers, and integrated circuits for electronic circuitry | X | 9 903 | X | 2 590 |
| 32220017 | Paper and paperboard containers, including shipping sacks and other paper packaging supplies | X | 37 670 | X | 21 793 |
| 00970099 | All other materials and components, parts, containers, and supplies | X | 311 255 | X | 182 379 |
| 00971000 | Materials, ingredients, containers, and supplies, n.s.k. | X | 138 661 | X | 165 674 |

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

335932 NONCURRENT-CARRYING WIRING DEVICE MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing noncurrent-carrying wiring devices.

The data published with NAICS code 335932 include the following SIC industry:

3644 Noncurrent-carrying wiring devices

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 |
|--------------------|-------------------------------------------------------------------------------------------|
| @3359321 | For additional detail, see Current Industrial Report MA335K, Wiring Devices and Supplies. |
| @3359323 | For additional detail, see Current Industrial Report MA335K, Wiring Devices and Supplies. |
| @3359325 | For additional detail, see Current Industrial Report MA335K, Wiring Devices and Supplies. |

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 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 3351101 | 36411 | 36411 | 3352121 | 36350 pt | 36350 pt | 3353113 pt | 36123 | 36123 |
| 335110100 | 3641100 | 3641100 | 3352121101 | 3635041 | 3635041 | 3353113101 | 3612301 | 3612301 |
| 3351103 | 36412 | 36412 | 3352121103 | 3635011 | 3635011 | 3353113104 | 3612302 | 3612302 |
| 3351103100 | 3641200 | 3641200 | 3352121105 | 3635033 | 3635033 | 3353113107 | 3548105 | 3548104 pt |
| 335110W | 36410 | 36410 | 3352121107 pt | 3635044 pt | 3635031 | 3353113109 | 3612306 | 3612306 |
| 335110WYWW | 3641000 | 3641000 | 3352121107 pt | 3635044 pt | 3635036 | 3353113113 | 3612307 | 3612307 |
| 335110WYWY | 3641002 | 3641002 | 3352121111 | 3635051 | 3635051 | 3353113115 | 3612308 | 3612308 |
| 3351211 | 36451 | 36451 | 3352121113 | 3635071 | 3635071 | 3353113116 | 3612311 | 3612311 |
| 3351211000 | 3645100 | 3645100 | 3352121YWW | 3635000 pt | 3635000 pt | 3353113YWW pt | 3548100 pt | 3548100 pt |
| 3351213 pt | 30897 pt | 30897 pt | 3352122 | 36395 pt | 36395 pt | 3353113YWW pt | 3612300 | 3612300 |
| 3351213 pt | 36457 | 36457 | 335212211 | 3639525 | 3639520 pt | 3353115 | 36124 | 36124 |
| 3351213 pt | 36457 | 36457 | 3352122219 | 3639513 | 3639510 pt | 3353115000 | 3612400 | 3612400 |
| 3351213 pt | 36457 | 36457 | 3352122YWW | 3639500 pt | 3639500 pt | 3353117 | 36126 | 36126 |
| 3351213 pt | 39999 pt | 39999 pt | 335212W pt | 36350 pt | 36350 pt | 335311701 | 3612601 | 3612601 |
| 335121311 | 3645721 | 3645721 | 335212W pt | 36390 pt | 36390 pt | 3353117104 | 3612602 | 3612602 |
| 3351213121 | 3645722 | 3645722 | 335212WYWW pt | 3635000 pt | 3635000 pt | 3353117107 | 3612603 | 3612603 |
| 3351213131 | 3645723 | 3645723 | 335212WYWW pt | 3639000 pt | 3639000 pt | 3353117111 | 3612604 | 3612604 |
| 3351213131 | 3645723 | 3645723 | 335212WYWW pt | 3635002 | 3635002 | 3353117113 pt | 3612608 pt | 3612605 |
| 3351213141 | 3645729 | 3645729 | 335212WYWW pt | 3639002 pt | 3639002 pt | 3353117113 pt | 3612608 pt | 3612609 |
| 3351213151 | 3645732 | 3645732 | 3352211 | 36311 | 36311 | 3353117YWW | 3612600 | 3612600 |
| 3351213161 | 3645761 | 3645761 | 3352211110 | 3631110 | 3631110 | 3353119 | 36127 | 36127 |
| 3351213165 | 3999961 | 3999961 | 3352211290 | 3631120 | 3631120 | 3353119101 | 3612701 | 3612701 |
| 3351213169 | 3089705 | 3089709 pt | 3352211YWW | 3631100 | 3631100 | 3353119104 | 3612778 | 3612778 |
| 3351213171 | 3645773 | 3645773 | 3352213 | 36313 | 36313 | 3353119YWW | 3612700 | 3612700 |
| 3351213YVW pt | 3089700 pt | 3089700 pt | 3352213110 | 3631310 | 3631310 | 335311W pt | 35480 pt | 35480 pt |
| 3351213YVW pt | 3645700 | 3645700 | 3352213190 | 3631320 | 3631320 | 335311W pt | 36120 | 36120 |
| 3351213YVW pt | 3999900 pt | 3999900 pt | 3352213YVW | 3631300 | 3631300 | 335311WYWW pt | 3548000 pt | 3548000 pt |
| 335121W pt | 30890 pt | 30890 pt | 3352215 | 36314 | 36314 | 335311WYWW pt | 3612000 | 3612000 |
| 335121W pt | 36450 | 36450 | 3352215110 | 3631410 | 3631410 | 335311WYWW pt | 3548002 pt | 3548002 pt |
| 335121W pt | 36450 | 36450 | 3352215190 | 3631420 | 3631420 | 335311WYWW pt | 3612002 | 3612002 |
| 335121W pt | 39990 pt | 39990 pt | 3352215YVW | 3631400 | 3631400 | 3353121 | 36211 | 36211 |
| 335121WYWW pt | 3089000 pt | 3089000 pt | 335221W | 36310 | 36310 | 3353121000 | 3621100 | 3621100 |
| 335121WYWW pt | 3645000 | 3645000 | 335221WYWW | 3631000 | 3631000 | 3353123 | 36212 | 36212 |
| 335121WYWW pt | 3999000 pt | 3999000 pt | 335221WYWW | 3631002 | 3631002 | 3353123000 | 3621200 | 3621200 |
| 335121WYWW pt | 3089002 pt | 3089002 pt | 3352221 | 36321 | 36321 | 3353125 | 36213 | 36213 |
| 335121WYWW pt | 3645002 | 3645002 | 3352221000 | 3632100 | 3632100 | 3353125000 | 3621300 | 3621300 |
| 335121WYWW pt | 3999002 pt | 3999002 pt | 3352222 | 36322 | 36322 | 3353127 | 36214 | 36214 |
| 3351221 | 36462 | 36462 | 3352222000 | 3632200 | 3632200 | 3353127000 | 3621400 | 3621400 |
| 3351221000 | 3646200 | 3646200 | 3352223 | 36323 | 36323 | 3353129 | 36217 | 36217 |
| 3351222 | 36463 | 36463 | 3352223000 | 3632300 | 3632300 | 3353129000 | 3621700 | 3621700 |
| 3351222000 | 3646300 | 3646300 | 335222W | 36320 | 36320 | 335312A | 36218 | 36218 |
| 335122W | 36460 | 36460 | 335222WYWW | 3632000 | 3632000 | 335312A000 | 3621800 | 3621800 |
| 335122WYWW | 3646000 | 3646000 | 335222WYWW | 3632002 | 3632002 | 335312C | 36219 | 36219 |
| 335122WYWY | 3646002 | 3646002 | 3352240 | 36330 | 36330 | 335312C000 | 3621900 | 3621900 |
| 3351291 | 36485 | 36485 | 335224010 | 3633010 | 3633010 | 335312E | 76940 pt | 76940 pt |
| 3351291000 | 3648500 | 3648500 | 3352240190 | 3633020 | 3633020 | 335312E100 pt | 7694020 | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352240YWW | 3633000 | 3633000 | 335312E100 pt | 7694000 pt | 7694000 pt |
| 3351293 pt | 36996 pt | 36996 pt | 3352240YWY | 3633002 | 3633002 | 335312W pt | 36210 | 36210 |
| 3351293109 | 3648912 | 3648912 | 3352281 | 36391 | 36391 | 335312W pt | 76940 pt | 76940 pt |
| 3351293112 | 3648916 | 3648916 | 3352281000 | 3639100 | 3639100 | 335312WYWW pt | 3621000 | 3621000 |
| 3351293114 | 3648917 | 3648917 | 3352283 | 36392 | 36392 | 335312WYWW pt | 7694000 pt | 7694000 pt |
| 3351293116 | 3648931 | 3648931 | 3352283000 | 3639200 | 3639200 | 335312WYWY pt | 3621002 | 3621002 |
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| 3351293122 pt | 3648979 pt | 3648991 | 3352285190 | 3639521 | 3639520 pt | 3353131000 | 3613200 | 3613200 |
| 3351293122 pt | 3699601 | 3699600 pt | 3352285YVW | 3639500 pt | 3639500 pt | 3353133 | 36133 | 36133 |
| 3351293124 | 3648970 | 3648970 | 335228W | 36390 pt | 36390 pt | 3353133000 | 3613300 | 3613300 |
| 3351293126 pt | 3648984 pt | 3648983 | 335228WYWW | 3639000 pt | 3639000 pt | 3353135 | 36134 | 36134 |
| 3351293126 pt | 3648984 pt | 3648987 | 335228WYWY | 3639002 pt | 3639002 pt | 3353135000 | 3613400 | 3613400 |
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| | | | 3353113 pt | 35481 pt | 35481 pt | | | |

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|---------------------|------------------|----------------|---------------------|------------------|----------------|----------------------|------------------|----------------|
| 335314W | 36250 | 36250 | 335929A | 3357A | 3357A | 335991332Z | 3624996 | 3624996 |
| 335314WYWW | 3625000 | 3625000 | 335929A100 | 3357A00 | 3357A00 | 3359913YVW | 3624900 | 3624900 |
| 335314WYVW | 3625002 | 3625002 | 335929B | 3357B | 3357B | 335991W | 36240 | 36240 |
| 3359111 | 36913 | 36913 | 335929B100 | 3357B00 | 3357B00 | 335991WYVW | 3624000 | 3624000 |
| 3359111101 | 3691311 | 3691311 | 335929C | 3357C | 3357C | 335991WYVY | 3624002 | 3624002 |
| 3359111204 | 3691312 | 3691312 | 335929C100 | 3357C00 | 3357C00 | 3359991 | 36291 | 36291 |
| 3359111307 | 3691317 | 3691317 | 335929D | 3357D | 3357D | 3359991101 | 3629101 | 3629101 |
| 3359111YVW | 3691300 | 3691300 | 335929D100 | 3357D00 | 3357D00 | 3359991103 | 3629104 | 3629104 |
| 3359114 | 36914 | 36914 | 335929E | 3357E | 3357E | 3359991YVW | 3629100 | 3629100 |
| 3359114101 | 3691411 | 3691411 | 335929E100 | 3357E00 | 3357E00 | 3359993 | 36292 | 36292 |
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| 3359117 | 36915 | 36915 | 3359313 | 36432 | 36432 | 3359993216 | 3629253 | 3629253 |
| 3359117101 | 3691501 | 3691501 | 3359313000 | 3643200 | 3643200 | 3359993219 | 3629255 | 3629255 |
| 3359117104 | 3691502 | 3691502 | 3359315 | 36433 | 36433 | 3359993219 | 3629255 | 3629255 |
| 3359117201 | 3691591 | 3691591 | 3359315000 | 3643300 | 3643300 | 3359993YVW | 3629200 | 3629200 |
| 3359117YVW | 3691500 | 3691500 | 3359317 | 36434 | 36434 | 3359995 pt | 36293 | 36293 |
| 335911W | 36910 | 36910 | 3359317000 | 3643400 | 3643400 | 3359995 pt | 3699A pt | 3699A pt |
| 335911WYVW | 3691000 | 3691000 | 3359319 | 36435 | 36435 | 3359995101 | 3629301 | 3629301 |
| 335911WYVY | 3691002 | 3691002 | 3359319000 | 3643500 | 3643500 | 3359995104 | 3629302 | 3629302 |
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| 3359120101 pt | 3692011 pt | 3692007 pt | 3359319 | 36435 | 36435 | 3359995137 pt | 3629311 | 3629311 |
| 3359120104 pt | 3692013 pt | 3692001 pt | 3359319000 | 3643500 | 3643500 | 3359995137 pt | 3699A21 | 3699A21 |
| 3359120104 pt | 3692013 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359995YVW pt | 3629300 | 3629300 |
| 3359120104 pt | 3692013 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359995YVW pt | 3699A00 pt | 3699A00 pt |
| 3359120107 pt | 3692015 pt | 3692004 pt | 3359319000 | 3643500 | 3643500 | 3359997 | 36992 pt | 36992 pt |
| 3359120107 pt | 3692015 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699271 | 3699200 pt |
| 3359120107 pt | 3692015 pt | 3692005 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699273 | 3699200 pt |
| 3359120111 pt | 3692017 pt | 3692005 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699200 pt | 3699200 pt |
| 3359120111 pt | 3692017 pt | 3692007 pt | 3359319000 | 3643500 | 3643500 | 3359997000 pt | 3699200 pt | 3699200 pt |
| 3359120114 pt | 3692019 pt | 3692003 pt | 3359321 | 36441 | 36441 | 3359999 | 36992 pt | 36992 pt |
| 3359120114 pt | 3692019 pt | 3692005 pt | 3359321000 | 3644100 | 3644100 | 3359999100 pt | 3699297 | 3699200 pt |
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| 3359120207 | 3692025 | 3692005 pt | 3359325000 | 3644300 | 3644300 | 3359999A000 | 3699500 | 3699500 |
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| 3359120214 pt | 3692029 pt | 3692005 pt | 3359325000 | 3644300 | 3644300 | 3359999B100 pt | 3699605 | 3699600 pt |
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| 3359120304 | 3692009 | 3692009 | 335932WYVW | 3644000 | 3644000 | 3359999C000 | 3699900 | 3699900 |
| 3359120YVW | 3692000 | 3692000 | 335932WYVY | 3644002 | 3644002 | 3359999D | 3699900 | 3699900 |
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| 3359210431 | 3357952 | 3357921 pt | 3359913104 | 3624917 | 3624917 | 3359999W pt | 36990 pt | 36990 pt |
| 3359210YVW pt | 3357000 pt | 3357000 pt | 3359913207 | 3624988 | 3624988 | 3359999WYVW pt | 3629000 | 3629000 |
| 3359210YVW pt | 3357900 | 3357900 | 3359913311 | 3624981 | 3624981 | 3359999WYVW pt | 3699000 pt | 3699000 pt |
| 3359210YVY | 3357002 pt | 3357002 pt | 3359913313 | 3624983 | 3624983 | 3359999WYVY pt | 3629002 | 3629002 |
| 3359291 | 33578 | 33578 | 3359913316 | 3624986 | 3624986 | 3359999WYVY pt | 3699002 pt | 3699002 pt |
| 3359291800 | 3357800 | 3357800 | 3359913319 | 3624994 | 3624994 | 3359999WYVY pt | 3699002 pt | 3699002 pt |

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1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

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

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

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

ALL-NEW INDUSTRY CLASSIFICATIONS

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

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

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

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

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

RELATIONSHIP TO SIC

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

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

GEOGRAPHIC AREA CODING

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

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

BASIS OF REPORTING

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

DOLLAR VALUES

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

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

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

Special Tabulations

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

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

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

HISTORICAL INFORMATION

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

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

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

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

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

SOURCES FOR MORE INFORMATION

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

ABBREVIATIONS AND SYMBOLS

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

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

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

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) | | | | |
| 335991 | Carbon & graphite product mfg | 99 | 125 | 10 849 | 406 881 | 8 048 | 17 698 | 264 092 | 1 224 231 | 1 044 498 | 2 249 193 | 182 503 |
| 362400 | Carbon & graphite products | N | 125 | 10 849 | 406 881 | 8 048 | 17 698 | 264 092 | 1 224 231 | 1 044 498 | 2 249 193 | 182 503 |

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 expenditures (\$1,000) | |
|--------------------------------------------------|--------------------|------------|-----------------------------|---------------|--------------------|--------------|---------------|--------------------------------------|-----------------------------|------------------------------|--------------------------------------|-----------------|
| | E ¹ | Total | With 20 em-ploy-ees or more | Number | Payroll (\$1,000) | Number | Hours (1,000) | | | | | Wages (\$1,000) |
| 335991, CARBON & GRAPHITE PRODUCT MFG | | | | | | | | | | | | |
| United States | - | 125 | 72 | 10 849 | 406 881 | 8 048 | 17 698 | 264 092 | 1 224 231 | 1 044 498 | 2 249 193 | 182 503 |
| Alabama | 2 | 5 | 2 | 118 | 3 081 | 80 | 151 | 1 678 | 9 940 | 5 062 | 15 029 | 411 |
| California | - | 12 | 6 | 702 | 22 293 | 440 | 976 | 13 298 | 75 463 | 69 341 | 146 260 | 9 938 |
| Connecticut | 1 | 6 | 3 | 165 | 8 362 | 117 | 266 | 5 445 | 17 560 | 17 080 | 35 139 | 1 916 |
| New Jersey | 2 | 4 | 4 | 257 | 9 139 | 202 | 406 | 5 994 | 22 608 | 10 406 | 33 227 | 2 322 |
| New York | - | 7 | 6 | 780 | 32 991 | 598 | 1 322 | 23 701 | 111 887 | 122 371 | 227 820 | 21 188 |
| Ohio | - | 15 | 7 | 899 | 33 672 | 663 | 1 420 | 20 399 | 64 184 | 68 020 | 132 110 | 7 526 |
| Pennsylvania | - | 18 | 13 | 1 886 | 79 117 | 1 439 | 3 575 | 54 680 | 189 692 | 183 171 | 372 443 | 43 902 |
| South Carolina | - | 4 | 3 | 981 | 39 775 | 648 | 1 271 | 22 323 | 193 388 | 112 778 | 294 882 | 8 139 |

* 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 |
|-----------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------|---------------------|
| 335991, CARBON & GRAPHITE PRODUCT MFG | | 335991, CARBON & GRAPHITE PRODUCT MFG— Con. | |
| Companies ¹ | number.. 99 | Value added | \$1,000.. 1 224 231 |
| All establishments | number.. 125 | Total inventories, beginning of year | \$1,000.. 449 810 |
| Establishments with 1 to 19 employees | number.. 53 | Finished goods inventories, beginning of year | \$1,000.. 117 944 |
| Establishments with 20 to 99 employees | number.. 40 | Work-in-process inventories, beginning of year | \$1,000.. 214 896 |
| Establishments with 100 employees or more | number.. 32 | Materials and supplies inventories, beginning of year | \$1,000.. 116 970 |
| All employees | number.. 10 849 | Total inventories, end of year | \$1,000.. 499 849 |
| Total compensation ² | \$1,000.. 533 009 | Finished goods inventories, end of year | \$1,000.. 125 657 |
| Annual payroll | \$1,000.. 406 881 | Work-in-process inventories, end of year | \$1,000.. 226 719 |
| Total fringe benefits | \$1,000.. 126 128 | Materials and supplies inventories, end of year | \$1,000.. 147 473 |
| Production workers, average for year | number.. 8 048 | Gross book value of total assets at beginning of year | \$1,000.. 1 535 443 |
| Production workers on March 15 | number.. 7 988 | Total capital expenditures (new and used) | \$1,000.. 182 503 |
| Production workers on May 15 | number.. 8 100 | Capital expenditures for buildings and other structures (new and used) | \$1,000.. 32 270 |
| Production workers on August 15 | number.. 8 033 | Capital expenditures for machinery and equipment (new and used) | \$1,000.. 150 233 |
| Production workers on November 15 | number.. 8 071 | Total retirements ² | \$1,000.. 46 288 |
| Production-worker hours | 1,000.. 17 698 | Gross book value of total assets at end of year | \$1,000.. 1 671 658 |
| Production-worker wages | \$1,000.. 264 092 | Total depreciation during year ² | \$1,000.. 77 875 |
| Total cost of materials | \$1,000.. 1 044 498 | Total rental payments ² | \$1,000.. 16 336 |
| Cost of materials, parts, containers, etc., consumed | \$1,000.. 860 503 | Buildings and other structures rental payments ² | \$1,000.. 5 521 |
| Cost of resales | \$1,000.. 54 262 | Machinery and equipment rental payments ² | \$1,000.. 10 815 |
| Cost of fuels | \$1,000.. 37 017 | Cost of purchased services for the repair of buildings and other structures ³ | \$1,000.. 10 487 |
| Cost of purchased electricity | \$1,000.. 64 780 | Response coverage ratio ⁴ | percent.. 96 |
| Cost of contract work | \$1,000.. 27 936 | Cost of purchased services for the repair of machinery and equipment ³ | \$1,000.. 28 955 |
| Quantity of electricity purchased for heat and power | 1,000 kWh.. 1 744 107 | Response coverage ratio ⁴ | percent.. 96 |
| Quantity of electricity generated less sold for heat and power | 1,000 kWh.. — | Cost of purchased communications services ³ | \$1,000.. 4 949 |
| Total value of shipments | \$1,000.. 2 249 193 | Response coverage ratio ⁴ | percent.. 96 |
| Primary products value of shipments | \$1,000.. 2 066 114 | Cost of purchased legal services ³ | \$1,000.. 2 077 |
| Secondary products value of shipments | \$1,000.. 107 696 | Response coverage ratio ⁴ | percent.. 96 |
| Total miscellaneous receipts | \$1,000.. 75 383 | Cost of purchased accounting and bookkeeping services ³ | \$1,000.. 1 427 |
| Value of resales | \$1,000.. 57 776 | Response coverage ratio ⁴ | percent.. 96 |
| Contract receipts | \$1,000.. 7 378 | Cost of purchased advertising services ³ | \$1,000.. 2 060 |
| Other miscellaneous receipts | \$1,000.. 10 229 | Response coverage ratio ⁴ | percent.. 96 |
| Primary products specialization ratio | percent.. 95 | Cost of purchased software and other data processing services ³ | \$1,000.. 3 784 |
| Value of primary products shipments made in all industries | \$1,000.. 2 097 502 | Response coverage ratio ⁴ | percent.. 96 |
| Value of primary products shipments made in this industry | \$1,000.. 2 066 114 | Cost of purchased refuse removal (including hazardous waste) services ³ | \$1,000.. 4 566 |
| Value of primary products shipments made in other industries | \$1,000.. 31 388 | Response coverage ratio ⁴ | percent.. 96 |
| 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) | | | | |
| 335991, CARBON & GRAPHITE PRODUCT MFG | | | | | | | | | | | | |
| All establishments | - | 125 | 72 | 10 849 | 406 881 | 8 048 | 17 698 | 264 092 | 1 224 231 | 1 044 498 | 2 249 193 | 182 503 |
| Establishments with 1 to 4 employees | 2 | 24 | - | 43 | 2 143 | 35 | 241 | 815 | 12 838 | 8 680 | 20 597 | 1 309 |
| Establishments with 5 to 9 employees | 9 | 13 | - | 90 | 3 190 | 67 | 137 | 2 041 | 8 995 | 6 372 | 15 615 | 797 |
| Establishments with 10 to 19 employees | 7 | 16 | - | 224 | 7 107 | 170 | 327 | 4 691 | 19 791 | 17 355 | 37 186 | 1 830 |
| Establishments with 20 to 49 employees | 3 | 23 | 23 | 749 | 24 240 | 526 | 1 039 | 14 076 | 59 853 | 49 794 | 108 571 | 5 612 |
| Establishments with 50 to 99 employees | - | 17 | 17 | 1 265 | 44 125 | 962 | 2 089 | 26 756 | 170 023 | 145 000 | 314 021 | 29 867 |
| Establishments with 100 to 249 employees | - | 18 | 18 | 2 937 | 109 942 | 2 101 | 4 603 | 70 350 | 364 142 | 270 681 | 629 721 | 44 502 |
| Establishments with 250 to 499 employees | - | 13 | 13 | D | D | D | D | D | D | D | D | D |
| Establishments with 500 to 999 employees | - | - | - | - | - | - | - | - | - | - | - | - |
| 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 | 43 | - | 417 | 12 336 | 311 | 556 | 7 818 | 33 057 | 25 357 | 59 386 | 3 631 |

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) | | | | |
| 335991 | Carbon & graphite product mfg | 125 | 10 849 | 406 881 | 8 048 | 17 698 | 264 092 | 1 224 231 | 1 044 498 | 2 249 193 | 182 503 |
| 3359911 | Carbon and graphite electrodes for electric furnaces and electrolytic cell use | 19 | 3 185 | 142 136 | 2 470 | 5 672 | 101 659 | 483 521 | 551 424 | 1 028 942 | 69 799 |
| 3359913 | All other carbon and graphite products | 54 | 7 151 | 248 408 | 5 193 | 11 303 | 152 178 | 698 178 | 460 099 | 1 143 627 | 108 368 |

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) |
| 335991 | Carbon and graphite products | N | X | X | 2 097 502 | N | X | X | 1 226 906 |
| 3359911 | Carbon and graphite electrodes for electric furnaces and electrolytic cell use | N | X | X | 905 137 | N | X | X | 572 278 |
| 33599111 | Carbon electrodes for electric furnaces and electrolytic cell use | N | X | X | 166 094 | N | X | X | N |
| 3359911101 | Carbon electrodes for electric furnaces and electrolytic cell use | 6 | X | X | 166 094 | 7 | X | X | 121 433 |
| 33599112 | Graphite electrodes for electric furnaces and electrolytic cell use | N | X | X | 731 716 | N | X | X | N |
| 3359911204 | Graphite electrodes for electric furnaces and electrolytic cell use | 11 | X | X | 731 716 | 6 | X | X | 435 708 |
| 3359911Y | Carbon and graphite electrodes, nsk | N | X | X | 7 327 | N | X | X | N |
| 3359911YWV | Carbon and graphite electrodes, nsk | N | X | X | 7 327 | N | X | X | 15 137 |
| 3359913 | All other carbon and graphite products | N | X | X | 1 118 237 | N | X | X | 625 522 |
| 33599131 | Carbon and graphite brushes, contacts, and brush plates | N | X | X | 208 617 | N | X | X | N |
| 3359913101 | Brushes and contacts (including automotive, fractional horsepower, and industrial brushes) | 11 | X | X | 189 765 | 5 | X | X | N |
| 3359913104 | Carbon and graphite brush plates | 5 | X | X | 18 852 | 5 | X | X | 28 462 |
| 33599132 | Carbon and graphite fibers | N | X | X | 325 955 | N | X | X | N |
| 3359913207 | Carbon and graphite fibers | 13 | X | X | 325 955 | 9 | X | X | 164 716 |
| 33599133 | All other carbon and graphite products, except refractories | N | X | X | 583 665 | N | X | X | N |
| 3359913311 | All other carbon and graphite products, except refractories, for electrical uses, including welding products, illuminating carbons, battery (except silver or other metal contacts) | 12 | X | X | 108 616 | 12 | X | X | 70 161 |
| 3359913313 | All other carbon and graphite products, except refractories, for mechanical uses, rotor vanes, and other uses where motion is between two parts, except metallic oilless bearings | 13 | X | X | 180 452 | 17 | X | X | 116 646 |
| 3359913316 | All other carbon and graphite products, except refractories, for aerospace uses, including unmachined stock and machined items not included elsewhere | 5 | X | X | D | 8 | X | X | 12 144 |
| 3359913319 | All other carbon and graphite paste products, except refractories, for all other uses (including chemical, metallurgical, etc.) | 2 | X | X | D | 9 | X | X | 45 792 |
| 3359913322 | All other carbon and graphite products, except refractories, for all other uses (including chemical, metallurgical, etc.) | 16 | X | X | 230 529 | 14 | X | X | 62 654 |
| 3359913Y | All other carbon and graphite products, nsk | N | X | X | - | N | X | X | N |
| 3359913YWV | All other carbon and graphite products, nsk | N | X | X | - | N | X | X | 2 259 |
| 335991W | Carbon and graphite products, nsk, total | N | X | X | 74 128 | N | X | X | 29 106 |
| 335991WY | Carbon and graphite products, nsk, total | N | X | X | 74 128 | N | X | X | N |
| 335991WYWW | Carbon and graphite products, nsk, for nonadministrative-record establishments | N | X | X | 16 245 | N | X | X | 21 375 |
| 335991WYWY | Carbon and graphite products, nsk, for administrative-record establishments | N | X | X | 57 883 | N | X | X | 7 731 |

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 |
| 3359911 | CARBON AND GRAPHITE ELECTRODES FOR ELECTRIC FURNACES AND ELECTROLYTIC CELL USE | | |
| | United States | 905 137 | 572 278 |
| | Ohio | 21 550 | N |
| 3359913 | ALL OTHER CARBON AND GRAPHITE PRODUCTS | | |
| | United States | 1 118 237 | 625 522 |
| | California | 133 966 | 63 585 |
| | Michigan | 39 033 | 15 860 |
| | New York | 47 870 | 18 563 |
| | Ohio | 101 259 | 75 409 |
| | Pennsylvania..... | 235 546 | 126 838 |

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) |
| 335991 | CARBON & GRAPHITE PRODUCT MFG | | | | |
| 33200081 | Fabricated metal products (except forgings) | X | D | X | N |
| 33210001 | Forgings | X | - | X | N |
| 33100035 | Castings (rough and semifinished) | X | D | X | N |
| 331000AJ | Nonferrous shapes and forms (except castings, forgings, and fabricated metal products) | X | D | X | N |
| 32519227 | Pitch | X | 51 720 | X | 33 548 |
| 32419900 | Coke, petroleum coke, metallurgical coke, calcined coke, foundry coke, etc. used as raw material | X | 191 885 | X | 91 163 |
| 32799213 | Natural graphite | X | 32 139 | X | 22 406 |
| 32799901 | Artificial graphite | X | 27 111 | X | 28 140 |
| 32799201 | Carbon, ground or treated | X | 43 406 | X | 13 108 |
| 00970099 | All other materials and components, parts, containers, and supplies | X | 423 022 | X | N |
| 00971000 | Materials, ingredients, containers, and supplies, n.s.k. | X | 77 145 | X | 33 454 |

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

335991 CARBON AND GRAPHITE PRODUCT MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing carbon, graphite, and metal-graphite brushes and brush stock; carbon or graphite electrodes for thermal and electrolytic uses; carbon and graphite fibers; and other carbon, graphite, and metal-graphite products.

The data published with NAICS code 335991 include the following SIC industry:

3624 Carbon and graphite products

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

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

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

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

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

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

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

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

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

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

2. Establishments sent a report form.

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

- a. ASM sample establishments.

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

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

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

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

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

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

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

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

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

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

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

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

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

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

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

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

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

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

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

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

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

ESTABLISHMENT BASIS OF REPORTING

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

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

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

DESCRIPTION OF THE ASM SURVEY SAMPLE

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

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

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

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

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

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

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

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

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

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

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

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

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

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

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

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

QUALIFICATIONS OF THE ASM DATA

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

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

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

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

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

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

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

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

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

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

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

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

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

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

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

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

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

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

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

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

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

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

Not applicable for this report.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|---------------------|------------------|------------------|---------------------|------------------|------------------|---------------------|------------------|------------------|
| 3351101 | 36411 | 36411 | 3352121 | 36350 pt | 36350 pt | 3353113 pt | 36123 | 36123 |
| 335110100 | 3641100 | 3641100 | 3352121101 | 3635041 | 3635041 | 3353113101 | 3612301 | 3612301 |
| 3351103 | 36412 | 36412 | 3352121103 | 3635011 | 3635011 | 3353113104 | 3612302 | 3612302 |
| 3351103100 | 3641200 | 3641200 | 3352121105 | 3635033 | 3635033 | 3353113107 | 3548105 | 3548104 pt |
| 335110W | 36410 | 36410 | 3352121107 pt | 3635044 pt | 3635031 | 3353113109 | 3612306 | 3612306 |
| 335110WYWW | 3641000 | 3641000 | 3352121110 pt | 3635044 pt | 3635036 | 3353113113 | 3612307 | 3612307 |
| 335110WYWY | 3641002 | 3641002 | 3352121111 | 3635051 | 3635051 | 3353113115 | 3612308 | 3612308 |
| 3351211 | 36451 | 36451 | 3352121113 | 3635071 | 3635071 | 3353113116 | 3612311 | 3612311 |
| 3351211000 | 3645100 | 3645100 | 3352121YWW | 3635000 pt | 3635000 pt | 3353113YWW pt | 3548100 pt | 3548100 pt |
| 3351213 pt | 30897 pt | 30897 pt | 3352122 | 36395 pt | 36395 pt | 3353115 | 36124 | 36124 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122211 | 3639525 | 3639520 pt | 3353115000 | 3612400 | 3612400 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122219 | 3639513 | 3639510 pt | 3353117 | 36126 | 36126 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122YWW | 3639500 pt | 3639500 pt | 335311701 | 3612601 | 3612601 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36350 pt | 36350 pt | 3353117104 | 3612602 | 3612602 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36390 pt | 36390 pt | 3353117107 | 3612603 | 3612603 |
| 3351213 pt | 30897 pt | 30897 pt | 335212WYWW pt | 3635000 pt | 3635000 pt | 3353117111 | 3612604 | 3612604 |
| 3351213 pt | 30897 pt | 30897 pt | 335212WYWW pt | 3639000 pt | 3639000 pt | 3353117113 pt | 3612608 pt | 3612605 |
| 3351213 pt | 30897 pt | 30897 pt | 335212WYWY pt | 3635002 | 3635002 | 3353117113 pt | 3612608 pt | 3612609 |
| 3351213 pt | 30897 pt | 30897 pt | 335212WYWY pt | 3639002 pt | 3639002 pt | 3353117YWW | 3612600 | 3612600 |
| 3351213 pt | 30897 pt | 30897 pt | 3352211 | 36311 | 36311 | 3353119 | 36127 | 36127 |
| 3351213 pt | 30897 pt | 30897 pt | 3352211110 | 3631110 | 3631110 | 3353119101 | 3612701 | 3612701 |
| 3351213 pt | 30897 pt | 30897 pt | 3352211290 | 3631120 | 3631120 | 3353119104 | 3612778 | 3612778 |
| 3351213 pt | 30897 pt | 30897 pt | 3352211YWW | 3631100 | 3631100 | 3353119YWW | 3612700 | 3612700 |
| 3351213 pt | 30897 pt | 30897 pt | 3352213 | 36313 | 36313 | 335311W pt | 35480 pt | 35480 pt |
| 3351213 pt | 30897 pt | 30897 pt | 3352213110 | 3631310 | 3631310 | 335311W pt | 36120 | 36120 |
| 3351213 pt | 30897 pt | 30897 pt | 3352213190 | 3631320 | 3631320 | 335311WYWW pt | 3548000 pt | 3548000 pt |
| 3351213 pt | 30897 pt | 30897 pt | 3352213YWW | 3631300 | 3631300 | 335311WYWW pt | 3612000 | 3612000 |
| 335121W pt | 30890 pt | 30890 pt | 3352215 | 36314 | 36314 | 335311WYWW pt | 3548002 pt | 3548002 pt |
| 335121W pt | 30890 pt | 30890 pt | 3352215110 | 3631410 | 3631410 | 335311WYWW pt | 3612002 | 3612002 |
| 335121W pt | 30890 pt | 30890 pt | 3352215190 | 3631420 | 3631420 | 3353121 | 36211 | 36211 |
| 335121W pt | 30890 pt | 30890 pt | 3352215YWW | 3631400 | 3631400 | 3353121000 | 3621100 | 3621100 |
| 335121W pt | 30890 pt | 30890 pt | 335221W | 36310 | 36310 | 3353123 | 36212 | 36212 |
| 335121WYWW pt | 3089000 pt | 3089000 pt | 335221WYWW | 3631000 | 3631000 | 3353123000 | 3621200 | 3621200 |
| 335121WYWW pt | 3089000 pt | 3089000 pt | 335221WYWY | 3631002 | 3631002 | 3353125 | 36213 | 36213 |
| 335121WYWW pt | 3089002 pt | 3089002 pt | 3352221 | 36321 | 36321 | 3353125000 | 3621300 | 3621300 |
| 335121WYWW pt | 3089002 pt | 3089002 pt | 3352221000 | 3632100 | 3632100 | 3353127 | 36214 | 36214 |
| 3351221 | 36462 | 36462 | 3352222 | 36322 | 36322 | 3353127000 | 3621400 | 3621400 |
| 3351221000 | 3646200 | 3646200 | 3352222000 | 3632200 | 3632200 | 3353129 | 36217 | 36217 |
| 3351222 | 36463 | 36463 | 3352223 | 36323 | 36323 | 3353129000 | 3621700 | 3621700 |
| 3351222000 | 3646300 | 3646300 | 3352223000 | 3632300 | 3632300 | 335312A | 36218 | 36218 |
| 335122W | 36460 | 36460 | 335222W | 36320 | 36320 | 335312A000 | 3621800 | 3621800 |
| 335122WYWW | 3646000 | 3646000 | 335222WYWW | 3632000 | 3632000 | 335312C | 36219 | 36219 |
| 335122WYWY | 3646002 | 3646002 | 335222WYWY | 3632002 | 3632002 | 335312C000 | 3621900 | 3621900 |
| 3351291 | 36485 | 36485 | 3352240 | 36330 | 36330 | 335312E | 76940 pt | 76940 pt |
| 3351291000 | 3648500 | 3648500 | 335224010 | 3633010 | 3633010 | 335312E100 pt | 7694020 | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352240190 | 3633020 | 3633020 | 335312E100 pt | 7694000 pt | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352240YWW | 3633000 | 3633000 | 335312W pt | 36210 | 36210 |
| 3351293 pt | 36489 | 36489 | 3352240YWY | 3633002 | 3633002 | 335312W pt | 76940 pt | 76940 pt |
| 3351293 pt | 36489 | 36489 | 3352281 | 36391 | 36391 | 335312WYWW pt | 3621000 | 3621000 |
| 3351293 pt | 36489 | 36489 | 3352281000 | 3639100 | 3639100 | 335312WYWW pt | 7694000 pt | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352283 | 36392 | 36392 | 335312WYWY pt | 3621002 | 3621002 |
| 3351293 pt | 36489 | 36489 | 3352283000 | 3639200 | 3639200 | 335312WYWY pt | 7694002 | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352285 | 36395 pt | 36395 pt | 3353131 | 36132 | 36132 |
| 3351293 pt | 36489 | 36489 | 3352285110 | 3639511 | 3639510 pt | 3353131000 | 3613200 | 3613200 |
| 3351293 pt | 36489 | 36489 | 3352285190 | 3639521 | 3639520 pt | 3353133 | 36133 | 36133 |
| 3351293 pt | 36489 | 36489 | 3352285YWW | 3639500 pt | 3639500 pt | 3353133000 | 3613300 | 3613300 |
| 3351293 pt | 36489 | 36489 | 335228W | 36390 pt | 36390 pt | 3353135 | 36134 | 36134 |
| 3351293 pt | 36489 | 36489 | 335228WYWW | 3639000 pt | 3639000 pt | 3353135000 | 3613400 | 3613400 |
| 3351293 pt | 36489 | 36489 | 335228WYWY | 3639002 pt | 3639002 pt | 3353137 | 36135 | 36135 |
| 335129W pt | 36480 | 36480 | 3353111 | 36122 | 36122 | 3353137000 | 3613500 | 3613500 |
| 335129W pt | 36480 | 36480 | 3353111101 | 3612202 | 3612202 | 3353139 | 36136 | 36136 |
| 335129W pt | 36480 | 36480 | 3353111204 | 3612204 | 3612204 | 3353139000 | 3613600 | 3613600 |
| 335129W pt | 36480 | 36480 | 3353111207 | 3612206 | 3612206 | 335313A | 36139 | 36139 |
| 335129W pt | 36480 | 36480 | 3353111311 | 3612214 | 3612214 | 335313A000 | 3613900 | 3613900 |
| 335129W pt | 36480 | 36480 | 3353111313 | 3612216 | 3612216 | 335313W | 36130 | 36130 |
| 335129W pt | 36480 | 36480 | 3353111316 | 3612219 | 3612219 | 335313WYWW | 3613000 | 3613000 |
| 335129W pt | 36480 | 36480 | 3353111419 | 3612221 | 3612221 | 335313WYWY | 3613002 | 3613002 |
| 335129W pt | 36480 | 36480 | 3353111422 | 3612223 | 3612223 | 3353141 | 36251 | 36251 |
| 335129W pt | 36480 | 36480 | 3353111425 | 3612228 | 3612228 | 3353141000 | 3625100 | 3625100 |
| 335129W pt | 36480 | 36480 | 3353111428 | 3612229 | 3612229 | 3353143 | 36252 | 36252 |
| 3352111 | 36341 | 36341 | 3353111431 | 3612232 | 3612232 | 3353143000 | 3625200 | 3625200 |
| 3352111000 | 3634100 | 3634100 | 3353111434 | 3612233 | 3612233 | 3353145 | 36253 | 36253 |
| 3352113 | 36345 pt | 36345 pt | 3353111537 | 3612237 | 3612237 | 3353145000 | 3625300 | 3625300 |
| 3352115 | 36349 pt | 36349 pt | 3353111541 | 3612239 | 3612239 | 3353147 | 36254 | 36254 |
| 3352115010 | 3634911 | 3634911 | 3353111543 | 3612241 | 3612241 | 3353147000 | 3625400 | 3625400 |
| 3352115090 | 3634920 | 3634920 pt | 3353111546 | 3612242 | 3612242 | | | |
| 3352115YWW | 3634900 pt | 3634900 pt | 3353111549 | 3612243 | 3612243 | | | |
| 335211W | 36340 pt | 36340 pt | 3353111552 | 3612244 | 3612244 | | | |
| 335211WYWW | 3634000 pt | 3634000 pt | 3353111YWW | 3612200 | 3612200 | | | |
| 335211WYWY | 3634002 pt | 3634002 pt | 3353113 pt | 35481 pt | 35481 pt | | | |

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|---------------------|------------------|------------------|---------------------|------------------|------------------|------------------|----------------|----------------|
| 335314W | 36250 | 36250 | 335929A | 3357A | 3357A | 3359913322 | 3624996 | 3624996 |
| 335314WYWW | 3625000 | 3625000 | 335929A100 | 3357A00 | 3357A00 | 3359913YVW | 3624900 | 3624900 |
| 335314WYVW | 3625002 | 3625002 | 335929B | 3357B | 3357B | 335991W | 36240 | 36240 |
| 3359111 | 36913 | 36913 | 335929B100 | 3357B00 | 3357B00 | 335991WYVW | 3624000 | 3624000 |
| 3359111101 | 3691311 | 3691311 | 335929C | 3357C | 3357C | 335991WYVY | 3624002 | 3624002 |
| 3359111204 | 3691312 | 3691312 | 335929C100 | 3357C00 | 3357C00 | 3359991 | 36291 | 36291 |
| 3359111307 | 3691317 | 3691317 | 335929D | 3357D | 3357D | 3359991101 | 3629101 | 3629101 |
| 3359111YVW | 3691300 | 3691300 | 335929D100 | 3357D00 | 3357D00 | 3359991103 | 3629104 | 3629104 |
| 3359114 | 36914 | 36914 | 335929E | 3357E | 3357E | 3359991YVW | 3629100 | 3629100 |
| 3359114101 | 3691411 | 3691411 | 335929E100 | 3357E00 | 3357E00 | 3359993 | 36292 | 36292 |
| 3359114104 | 3691419 | 3691419 | 335929W | 33570 pt | 33570 pt | 3359993101 | 3629221 | 3629221 |
| 3359114201 | 3691421 | 3691421 | 335929WYVW | 3357000 pt | 3357000 pt | 3359993104 | 3629225 | 3629225 |
| 3359114204 | 3691422 | 3691422 | 335929WYVY | 3357002 pt | 3357002 pt | 3359993107 | 3629241 | 3629241 |
| 3359114207 | 3691479 | 3691479 | 3359311 | 36431 | 36431 | 3359993111 | 3629245 | 3629245 |
| 3359114YVW | 3691400 | 3691400 | 3359311000 | 3643100 | 3643100 | 3359993213 | 3629251 | 3629251 |
| 3359117 | 36915 | 36915 | 3359313 | 36432 | 36432 | 3359993216 | 3629253 | 3629253 |
| 3359117101 | 3691501 | 3691501 | 3359313000 | 3643200 | 3643200 | 3359993219 | 3629255 | 3629255 |
| 3359117104 | 3691502 | 3691502 | 3359315 | 36433 | 36433 | 3359993219 | 3629255 | 3629255 |
| 3359117201 | 3691591 | 3691591 | 3359315000 | 3643300 | 3643300 | 3359993310 | 3629255 | 3629255 |
| 3359117YVW | 3691500 | 3691500 | 3359317 | 36434 | 36434 | 3359993311 | 3629255 | 3629255 |
| 335911W | 36910 | 36910 | 3359317000 | 3643400 | 3643400 | 3359993313 | 3629255 | 3629255 |
| 335911WYVW | 3691000 | 3691000 | 3359319 | 36435 | 36435 | 3359993316 | 3629255 | 3629255 |
| 335911WYVY | 3691002 | 3691002 | 3359319000 | 3643500 | 3643500 | 3359993319 | 3629255 | 3629255 |
| 3359120 | 36920 | 36920 | 335931A | 36436 | 36436 | 3359993321 | 3629255 | 3629255 |
| 3359120101 | 3692011 pt | 3692011 pt | 335931A000 | 3643600 | 3643600 | 3359993323 | 3629255 | 3629255 |
| 3359120101 pt | 3692011 pt | 3692011 pt | 3359319 | 36435 | 36435 | 3359993326 | 3629255 | 3629255 |
| 3359120104 | 3692013 pt | 3692013 pt | 3359319000 | 3643500 | 3643500 | 3359993329 | 3629255 | 3629255 |
| 3359120104 pt | 3692013 pt | 3692013 pt | 335931A | 36436 | 36436 | 3359993331 | 3629255 | 3629255 |
| 3359120107 | 3692015 pt | 3692015 pt | 335931W | 36430 | 36430 | 3359993337 | 3629255 | 3629255 |
| 3359120107 pt | 3692015 pt | 3692015 pt | 335931WYVW | 3643000 | 3643000 | 3359993339 | 3629255 | 3629255 |
| 3359120111 | 3692017 pt | 3692017 pt | 335931WYVY | 3643002 | 3643002 | 3359993341 | 3629255 | 3629255 |
| 3359120111 pt | 3692017 pt | 3692017 pt | 3359321 | 36441 | 36441 | 3359993343 | 3629255 | 3629255 |
| 3359120114 | 3692019 pt | 3692019 pt | 3359321000 | 3644100 | 3644100 | 3359993346 | 3629255 | 3629255 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359323 | 36442 | 36442 | 3359993349 | 3629255 | 3629255 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359323000 | 3644200 | 3644200 | 3359993351 | 3629255 | 3629255 |
| 3359120201 | 3692021 | 3692021 | 3359325 | 36443 | 36443 | 3359993354 | 3629255 | 3629255 |
| 3359120201 | 3692021 | 3692021 | 3359325000 | 3644300 | 3644300 | 3359993357 | 3629255 | 3629255 |
| 3359120204 | 3692023 | 3692023 | 335932W | 36440 | 36440 | 3359993359 | 3629255 | 3629255 |
| 3359120207 | 3692025 | 3692025 | 335932WYVW | 3644000 | 3644000 | 3359993361 | 3629255 | 3629255 |
| 3359120211 | 3692027 | 3692027 | 335932WYVY | 3644002 | 3644002 | 3359993363 | 3629255 | 3629255 |
| 3359120214 | 3692029 pt | 3692029 pt | 3359911 | 36241 | 36241 | 3359993366 | 3629255 | 3629255 |
| 3359120214 pt | 3692029 pt | 3692029 pt | 3359911101 | 3624152 | 3624152 | 3359993369 | 3629255 | 3629255 |
| 3359120301 | 3692009 | 3692009 | 3359911204 | 3624156 | 3624156 | 3359993371 | 3629255 | 3629255 |
| 3359120YVW | 3692000 | 3692000 | 3359911YVW | 3624100 | 3624100 | 3359993374 | 3629255 | 3629255 |
| 3359120YVY | 3692002 | 3692002 | 3359913 | 36249 | 36249 | 3359993377 | 3629255 | 3629255 |
| 3359210 pt | 33570 pt | 33570 pt | 3359913101 | 3624916 | 3624916 | 3359993380 | 3629255 | 3629255 |
| 3359210 pt | 33579 | 33579 | 3359913101 pt | 3624916 pt | 3624916 pt | 3359993383 | 3629255 | 3629255 |
| 3359210101 | 3357931 | 3357911 pt | 3359913101 pt | 3624916 pt | 3624916 pt | 3359993386 | 3629255 | 3629255 |
| 3359210106 | 3357941 | 3357911 pt | 3359913104 | 3624917 | 3624917 | 3359993389 | 3629255 | 3629255 |
| 3359210111 | 3357951 | 3357911 pt | 3359913207 | 3624988 | 3624988 | 3359993392 | 3629255 | 3629255 |
| 3359210421 | 3357932 | 3357921 pt | 3359913311 | 3624981 | 3624981 | 3359993395 | 3629255 | 3629255 |
| 3359210426 | 3357942 | 3357921 pt | 3359913316 | 3624986 | 3624986 | 3359993398 | 3629255 | 3629255 |
| 3359210431 | 3357952 | 3357921 pt | 3359913319 | 3624988 | 3624988 | 3359993401 | 3629255 | 3629255 |
| 3359210YVW pt | 3357000 pt | 3357000 pt | 3359913319 | 3624988 | 3624988 | 3359993404 | 3629255 | 3629255 |
| 3359210YVW pt | 3357900 | 3357900 | 3359913319 | 3624988 | 3624988 | 3359993407 | 3629255 | 3629255 |
| 3359210YVY | 3357002 pt | 3357002 pt | 3359913319 | 3624988 | 3624988 | 3359993410 | 3629255 | 3629255 |
| 3359291 | 33578 | 33578 | 3359913319 | 3624988 | 3624988 | 3359993413 | 3629255 | 3629255 |
| 3359291800 | 3357800 | 3357800 | 3359913319 | 3624988 | 3624988 | 3359993416 | 3629255 | 3629255 |

All Other Miscellaneous Electrical Equipment and Component Manufacturing

1997

Issued October 1999

EC97M-3359H

1997 Economic Census

Manufacturing

Industry Series



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-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

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

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

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

ALL-NEW INDUSTRY CLASSIFICATIONS

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

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

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

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

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

RELATIONSHIP TO SIC

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

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

GEOGRAPHIC AREA CODING

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

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

BASIS OF REPORTING

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

DOLLAR VALUES

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

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

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

Special Tabulations

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

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

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

HISTORICAL INFORMATION

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

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

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

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

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

SOURCES FOR MORE INFORMATION

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

ABBREVIATIONS AND SYMBOLS

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

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

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

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Manufacturing

SCOPE

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

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

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

GENERAL

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

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

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

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

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

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

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

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

GEOGRAPHIC AREAS COVERED

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

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

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

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

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

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

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

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

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

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

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

DISCLOSURE

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

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

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

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

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

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

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

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

| NAICS or SIC code | Industry | Com-panies ¹ | All estab-lish-ments ² | All employees | | Production workers | | | Value added by manufacture (\$1,000) | Cost of materials (\$1,000) | Value of shipments (\$1,000) | Total capital expendi-tures (\$1,000) |
|-------------------|-------------------------------------------------------------------------------|-------------------------|-----------------------------------|---------------|-------------------|--------------------|---------------|-----------------|--------------------------------------|-----------------------------|------------------------------|---------------------------------------|
| | | | | Number | Payroll (\$1,000) | Number | Hours (1,000) | Wages (\$1,000) | | | | |
| 335999 | All other miscellaneous electrical equipment & component mfg | 932 | 976 | 45 212 | 1 521 413 | 28 355 | 53 948 | 662 836 | 3 773 871 | 3 290 547 | 7 035 631 | 227 211 |
| 362900 | Electrical industrial apparatus, n.e.c. | N | 411 | 18 682 | 565 311 | 12 689 | 24 889 | 279 916 | 1 476 041 | 1 383 087 | 2 838 366 | 82 471 |
| 369980 | Electrical equipment & supplies, n.e.c. (pt) | N | 565 | 26 530 | 956 102 | 15 666 | 29 059 | 382 920 | 2 297 830 | 1 907 460 | 4 197 265 | 144 740 |

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) |
| 335999, ALL OTHER MISCELLANEOUS ELECTRICAL EQUIPMENT & COMPONENT MFG | | | | | | | | | | | | |
| United States | 2 | 976 | 455 | 45 212 | 1 521 413 | 28 355 | 53 948 | 662 836 | 3 773 871 | 3 290 547 | 7 035 631 | 227 211 |
| Arkansas | 5 | 5 | 3 | 244 | 5 813 | 155 | 310 | 2 297 | 5 497 | 9 275 | 15 884 | 602 |
| California | 1 | 174 | 85 | 9 959 | 482 843 | 5 476 | 10 724 | 186 604 | 1 160 828 | 831 683 | 1 944 489 | 105 279 |
| Colorado | 6 | 15 | 4 | 222 | 7 126 | 154 | 293 | 3 417 | 14 181 | 10 448 | 25 347 | 761 |
| Connecticut | 1 | 36 | 18 | 1 967 | 77 800 | 1 017 | 1 942 | 29 667 | 171 660 | 148 324 | 317 800 | 4 986 |
| Florida | 2 | 50 | 18 | 1 520 | 43 336 | 749 | 1 346 | 16 346 | 89 489 | 73 847 | 162 481 | 6 464 |
| Illinois | 1 | 63 | 30 | 3 376 | 104 092 | 2 139 | 4 409 | 45 225 | 229 316 | 254 743 | 484 819 | 8 587 |
| Maryland | 2 | 10 | 2 | 286 | 5 486 | 132 | 120 | 1 889 | 36 351 | 34 349 | 71 053 | 2 277 |
| Massachusetts | 3 | 41 | 23 | 2 909 | 96 172 | 1 834 | 3 937 | 43 826 | 216 155 | 219 912 | 441 824 | 12 617 |
| Michigan | 1 | 31 | 13 | 1 053 | 34 865 | 742 | 1 299 | 17 184 | 70 546 | 64 277 | 137 159 | 4 170 |
| New Jersey | 1 | 36 | 17 | 1 488 | 50 978 | 913 | 1 579 | 22 226 | 103 485 | 91 132 | 194 318 | 3 368 |
| New Mexico | 1 | 8 | 3 | 310 | 11 921 | 135 | 291 | 3 399 | 30 375 | 19 655 | 49 936 | 1 038 |
| New York | 1 | 57 | 34 | 2 428 | 79 078 | 1 497 | 2 790 | 36 980 | 178 854 | 147 044 | 327 597 | 7 126 |
| Ohio | — | 37 | 15 | 2 571 | 70 765 | 1 585 | 3 025 | 29 485 | 235 823 | 199 061 | 435 322 | 5 949 |
| Oklahoma | — | 6 | 3 | 213 | 7 752 | 143 | 308 | 3 741 | 18 237 | 22 092 | 41 828 | 465 |
| Pennsylvania | 2 | 43 | 17 | 1 252 | 39 689 | 812 | 1 630 | 18 862 | 120 532 | 100 942 | 219 176 | 4 578 |
| Virginia | 2 | 13 | 6 | 671 | 14 085 | 495 | 827 | 7 710 | 36 895 | 43 622 | 82 252 | 1 222 |
| Washington | 4 | 20 | 7 | 843 | 22 490 | 576 | 924 | 10 995 | 66 281 | 44 985 | 112 040 | 2 836 |
| Wisconsin | — | 25 | 10 | 574 | 15 813 | 412 | 780 | 6 912 | 34 606 | 46 360 | 78 851 | 956 |

* 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 |
|---------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|---------------------|
| 335999, ALL OTHER MISCELLANEOUS ELECTRICAL EQUIPMENT & COMPONENT MFG | | 335999, ALL OTHER MISCELLANEOUS ELECTRICAL EQUIPMENT & COMPONENT MFG — Con. | |
| Companies ¹ | number.. 932 | Value added | \$1,000.. 3 773 871 |
| All establishments | number.. 976 | Total inventories, beginning of year | \$1,000.. 1 171 238 |
| Establishments with 1 to 19 employees | number.. 521 | Finished goods inventories, beginning of year | \$1,000.. 261 818 |
| Establishments with 20 to 99 employees | number.. 346 | Work-in-process inventories, beginning of year | \$1,000.. 370 333 |
| Establishments with 100 employees or more | number.. 109 | Materials and supplies inventories, beginning of year | \$1,000.. 539 087 |
| All employees | number.. 45 212 | Total inventories, end of year | \$1,000.. 1 285 567 |
| Total compensation ² | \$1,000.. 1 862 325 | Finished goods inventories, end of year | \$1,000.. 280 488 |
| Annual payroll | \$1,000.. 1 521 413 | Work-in-process inventories, end of year | \$1,000.. 380 450 |
| Total fringe benefits | \$1,000.. 340 912 | Materials and supplies inventories, end of year | \$1,000.. 624 629 |
| Production workers, average for year | number.. 28 355 | Gross book value of total assets at beginning of year | \$1,000.. 1 337 207 |
| Production workers on March 12 | number.. 28 214 | Total capital expenditures (new and used) | \$1,000.. 227 211 |
| Production workers on May 12 | number.. 28 219 | Capital expenditures for buildings and other structures (new and used) | \$1,000.. 47 682 |
| Production workers on August 12 | number.. 28 309 | Capital expenditures for machinery and equipment (new and used) | \$1,000.. 179 529 |
| Production workers on November 12 | number.. 28 678 | Total retirements ² | \$1,000.. 50 322 |
| Production-worker hours | 1,000.. 53 948 | Gross book value of total assets at end of year | \$1,000.. 1 514 096 |
| Production-worker wages | \$1,000.. 662 836 | Total depreciation during year ² | \$1,000.. 222 875 |
| Total cost of materials | \$1,000.. 3 290 547 | Total rental payments ² | \$1,000.. 93 416 |
| Cost of materials, parts, containers, etc., consumed | \$1,000.. 2 886 467 | Buildings and other structures rental payments ² | \$1,000.. 52 937 |
| Cost of resales | \$1,000.. 229 954 | Machinery and equipment rental payments ² | \$1,000.. 40 479 |
| Cost of fuels | \$1,000.. 8 128 | Cost of purchased services for the repair of buildings and other structures ³ | \$1,000.. 6 557 |
| Cost of purchased electricity | \$1,000.. 73 609 | Response coverage ratio ⁴ | percent.. 62 |
| Cost of contract work | \$1,000.. 92 389 | Cost of purchased services for the repair of machinery and equipment ³ | \$1,000.. 13 627 |
| Quantity of electricity purchased for heat and power | 1,000 kWh.. 898 684 | Response coverage ratio ⁴ | percent.. 62 |
| Quantity of electricity generated less sold for heat and power | 1,000 kWh.. — | Cost of purchased communications services ³ | \$1,000.. 19 012 |
| Total value of shipments | \$1,000.. 7 035 631 | Response coverage ratio ⁴ | percent.. 62 |
| Primary products value of shipments | \$1,000.. 6 090 912 | Cost of purchased legal services ³ | \$1,000.. 15 831 |
| Secondary products value of shipments | \$1,000.. 482 701 | Response coverage ratio ⁴ | percent.. 62 |
| Total miscellaneous receipts | \$1,000.. 462 018 | Cost of purchased accounting and bookkeeping services ³ | \$1,000.. 10 944 |
| Value of resales | \$1,000.. 335 006 | Response coverage ratio ⁴ | percent.. 62 |
| Contract receipts | \$1,000.. 63 486 | Cost of purchased advertising services ³ | \$1,000.. 28 567 |
| Other miscellaneous receipts | \$1,000.. 63 526 | Response coverage ratio ⁴ | percent.. 62 |
| Primary products specialization ratio | percent.. 92 | Cost of purchased software and other data processing services ³ | \$1,000.. 8 350 |
| Value of primary products shipments made in all industries | \$1,000.. 6 835 989 | Response coverage ratio ⁴ | percent.. 62 |
| Value of primary products shipments made in this industry | \$1,000.. 6 090 912 | Cost of purchased refuse removal (including hazardous waste) services ³ | \$1,000.. 1 825 |
| Value of primary products shipments made in other industries | \$1,000.. 745 077 | Response coverage ratio ⁴ | percent.. 62 |
| Coverage ratio | percent.. 89 | | |

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

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

³Based on ASM sample data.

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

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

Table 4. Industry Statistics by Employment Size: 1997

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

| Employment size class | E ¹ | All establishments | | All employees | | Production workers | | | Value added by manufacture (\$1,000) | Cost of materials (\$1,000) | Value of shipments (\$1,000) | Total capital expenditures (\$1,000) |
|---------------------------------------------------------------------------------|----------------|--------------------|---------------------------|---------------|-------------------|--------------------|---------------|-----------------|--------------------------------------|-----------------------------|------------------------------|--------------------------------------|
| | | Total | With 20 employees or more | Number | Payroll (\$1,000) | Number | Hours (1,000) | Wages (\$1,000) | | | | |
| 335999, ALL OTHER MISCELLANEOUS ELECTRICAL EQUIPMENT & COMPONENT MFG | | | | | | | | | | | | |
| All establishments | 2 | 976 | 455 | 45 212 | 1 521 413 | 28 355 | 53 948 | 662 836 | 3 773 871 | 3 290 547 | 7 035 631 | 227 211 |
| Establishments with 1 to 4 employees | 9 | 243 | — | 498 | 15 236 | 349 | 558 | 7 129 | 28 338 | 29 935 | 60 416 | 1 612 |
| Establishments with 5 to 9 employees | 8 | 122 | — | 816 | 24 775 | 527 | 856 | 11 263 | 53 071 | 43 226 | 99 122 | 2 555 |
| Establishments with 10 to 19 employees | 4 | 156 | — | 2 197 | 70 574 | 1 294 | 2 279 | 30 918 | 156 232 | 125 728 | 288 367 | 6 396 |
| Establishments with 20 to 49 employees | 2 | 213 | 213 | 7 053 | 230 607 | 4 244 | 8 062 | 95 460 | 499 946 | 379 577 | 884 924 | 17 683 |
| Establishments with 50 to 99 employees | 2 | 133 | 133 | 9 386 | 311 723 | 5 835 | 11 061 | 127 198 | 741 326 | 622 505 | 1 367 521 | 34 502 |
| Establishments with 100 to 249 employees | 1 | 80 | 80 | 12 111 | 371 492 | 7 808 | 15 062 | 175 337 | 957 971 | 977 032 | 1 915 803 | 66 303 |
| Establishments with 250 to 499 employees | — | 23 | 23 | 8 492 | 357 074 | 5 089 | 10 402 | 157 244 | 864 243 | 806 151 | 1 641 785 | 79 454 |
| Establishments with 500 to 999 employees | 3 | 5 | 5 | D | D | D | D | D | D | D | D | D |
| Establishments with 1,000 to 2,499 employees | — | 1 | 1 | D | D | D | D | D | D | D | D | D |
| Establishments with 2,500 employees or more | — | — | — | — | — | — | — | — | — | — | — | — |
| Administrative records ² | 9 | 314 | — | 1 599 | 41 328 | 1 076 | 1 637 | 19 744 | 92 918 | 79 878 | 178 547 | 4 452 |

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) | | | | |
| 335999 | All other miscellaneous electrical equipment & component mfg | 976 | 45 212 | 1 521 413 | 28 355 | 53 948 | 662 836 | 3 773 871 | 3 290 547 | 7 035 631 | 227 211 |
| 3359991 | Capacitors for industrial use (except for electronic circuitry) | 13 | 2 056 | 62 290 | 1 502 | 3 023 | 36 469 | 168 911 | 158 701 | 330 867 | 8 324 |
| 3359993 | Rectifying apparatus | 89 | 9 921 | 301 427 | 6 737 | 13 398 | 149 697 | 801 096 | 829 691 | 1 599 107 | 46 500 |
| 3359995 | Other electrical equipment for industrial use, except for electronic circuitry | 105 | 6 076 | 179 644 | 4 012 | 7 777 | 80 637 | 486 246 | 426 077 | 910 152 | 24 961 |
| 3359997 | Laser generator power supplies | 36 | 4 073 | 220 523 | 2 153 | 4 412 | 91 621 | 566 278 | 416 465 | 966 473 | 67 017 |
| 3359999 | All other laser systems and equipment | 17 | 589 | 28 955 | 218 | 486 | 6 920 | 63 738 | 68 052 | 130 156 | 3 253 |
| 335999A | Ultrasonic equipment (except medical and dental) | 22 | 1 783 | 66 712 | 792 | 1 704 | 22 987 | 166 987 | 111 603 | 281 131 | 3 918 |
| 335999B | All other apparatus wire and cordage manufactured from purchased insulated wire | 46 | 3 141 | 70 906 | 2 400 | 4 259 | 39 624 | 139 404 | 156 033 | 301 268 | 4 412 |
| 335999C | Electronic systems and equipment, nec (including automatic garage door openers, and amplifiers) | 93 | 8 845 | 335 041 | 5 198 | 9 438 | 122 710 | 823 111 | 678 611 | 1 493 165 | 42 466 |
| 335999D | All other miscellaneous electrical equipment and components (except for industrial use), nec, nsk | 12 | 556 | 17 233 | 347 | 724 | 7 102 | 45 575 | 55 639 | 99 139 | 1 526 |

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) |
| 335999 | Electrical equipment and components, nec | N | X | X | 6 835 989 | N | X | X | N |
| 3359991 | Capacitors for industrial use (except for electronic circuitry) | N | X | X | 299 541 | N | X | X | 231 049 |
| 33599911 | Capacitors for industrial use (except for electronic circuitry) | N | X | X | 299 541 | N | X | X | N |
| 3359991101 | Shunt and series power capacitors, units, and equipment, one-half kVA or more, and accessories for industrial use (except for electronic circuitry) | 13 | X | X | 224 018 | 15 | X | X | 132 141 |
| 3359991103 | Other capacitors (except electrolytic) including ac, general-purpose for motors, controls, high intensity discharge lighting for industrial use (except for electronic circuitry) | 9 | X | X | 75 523 | 13 | X | X | 91 884 |
| 3359991Y | Capacitors for industrial use (except for electronic circuitry), nsk | N | X | X | - | N | X | X | N |
| 3359991YVV | Capacitors for industrial use (except for electronic circuitry), nsk | N | X | X | - | N | X | X | 7 024 |
| 3359993 | Rectifying apparatus | N | X | X | 1 472 848 | N | X | X | 1 047 898 |
| 33599931 | Semiconductor power conversion apparatus, except for electronic circuitry | N | X | X | 601 918 | N | X | X | N |
| 3359993101 | Semiconductor battery chargers, automotive | 5 | X | X | D | 6 | X | X | 78 361 |
| 3359993104 | Semiconductor battery chargers, industrial and railroad | 11 | X | X | 159 341 | 17 | X | X | 81 266 |
| 3359993107 | Semiconductor high-voltage power supplies in excess of 2 kV, 100 kW or less | 18 | X | X | 212 604 | 19 | X | X | 140 112 |
| 3359993111 | Semiconductor high-voltage power supplies in excess of 2 kV, more than 100 kW | 6 | X | X | D | 9 | X | X | 50 916 |
| 33599932 | All other ac to dc semiconductor power conversion and rectifying apparatus, except for electronic circuitry | N | X | X | 845 568 | N | X | X | N |
| 3359993213 | All other ac to dc semiconductor power conversion apparatus, including computer supplies | 40 | X | X | 323 435 | 47 | X | X | 201 542 |
| 3359993216 | Uninterruptible power supply (UPS) systems | 17 | X | X | 95 274 | N | X | X | N |
| 3359993219 | Other rectifying (power conversion) apparatus, except for electronic circuitry | 48 | X | X | 426 859 | N | X | X | N |
| 3359993Y | Rectifying apparatus, nsk | N | X | X | 25 362 | N | X | X | N |
| 3359993YVV | Rectifying apparatus, nsk | N | X | X | 25 362 | N | X | X | 32 057 |
| 3359995 | Other electrical equipment for industrial use, except for electronic circuitry | N | X | X | 905 176 | N | X | X | N |
| 33599951 | Other electrical equipment for industrial use, except for electronic circuitry | N | X | X | 899 347 | N | X | X | N |
| 3359995101 | Electrical coil windings for industrial use | 9 | X | X | 38 998 | 15 | X | X | 31 508 |
| 3359995104 | Solenoids for industrial use (except solenoid-actuated regulating valves) | 15 | X | X | 56 944 | 16 | X | X | 49 567 |
| 3359995107 | Surge suppressors for industrial use | 11 | X | X | 80 943 | 5 | X | X | 39 665 |
| 3359995111 | Cathodic protection equipment for industrial use | 5 | X | X | 50 101 | 3 | X | X | 7 323 |
| 3359995137 | Other miscellaneous electrical equipment for industrial use, nec, including electrical discharge equipment | 111 | X | X | 672 361 | N | X | X | N |
| 3359995Y | Other electrical equipment for industrial use, except for electronic circuitry, nsk | N | X | X | 5 829 | N | X | X | N |
| 3359995YVV | Other electrical equipment for industrial use, except for electronic circuitry, nsk | N | X | X | 5 829 | N | X | X | N |
| 3359997 | Laser generator power supplies and components @ | N | X | X | 1 047 162 | N | X | X | N |
| 33599970 | Laser generator power supplies and components | N | X | X | 1 047 162 | N | X | X | N |
| 3359997000 | Laser generator power supplies and components | 42 | X | X | 1 047 162 | N | X | X | N |
| 3359999 | All other laser systems and equipment | N | X | X | 144 208 | N | X | X | N |
| 33599991 | All other laser systems and equipment | N | X | X | 144 208 | N | X | X | N |
| 3359999100 | All other laser systems and equipment | 27 | X | X | 144 208 | N | X | X | N |
| 335999A | Ultrasonic equipment (except medical and dental) @ | N | X | X | 220 813 | N | X | X | 131 585 |
| 335999A0 | Ultrasonic equipment (except medical and dental) | N | X | X | 220 813 | N | X | X | N |
| 335999A000 | Ultrasonic equipment (except medical and dental) | 22 | X | X | 220 813 | 21 | X | X | 131 585 |

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) |
| 335999 | Electrical equipment and components, nec—Con. | | | | | | | | |
| 335999B | All other apparatus wire and cordage manufactured from purchased insulated wire | N | X | X | 329 194 | N | X | X | N |
| 335999B1 | All other apparatus wire and cordage manufactured from purchased insulated wire | N | X | X | 329 194 | N | X | X | N |
| 335999B100 | All other apparatus wire and cordage manufactured from purchased insulated wire \$ | 45 | X | X | 329 194 | N | X | X | N |
| 335999C | Electronic systems and equipment, nec, including automatic garage door openers and amplifiers @ | N | X | X | 1 486 319 | N | X | X | 1 146 184 |
| 335999C0 | Electronic systems and equipment, nec, including automatic garage door openers and amplifiers | N | X | X | 1 486 319 | N | X | X | N |
| 335999C000 | Electronic systems and equipment, nec, including automatic garage door openers and amplifiers | 130 | X | X | 1 486 319 | 148 | X | X | 1 146 184 |
| 335999D | All other miscellaneous electrical equipment and components (except for industrial use), nec | N | X | X | 109 854 | N | X | X | N |
| 335999D1 | Electric gongs, chimes, bells, etc. | N | X | X | 33 729 | N | X | X | N |
| 335999D101 | Electric gongs, chimes, bells, etc. | 4 | X | X | 33 729 | 8 | X | X | 47 511 |
| 335999D2 | Electrical insect killers | N | X | X | D | N | X | X | N |
| 335999D203 | Electrical insect killers | 7 | X | X | D | 5 | X | X | 16 662 |
| 335999D3 | Electrical door openers, except garage door openers | N | X | X | 53 569 | N | X | X | N |
| 335999D305 | Electrical door openers, except garage door openers | 6 | X | X | 53 569 | 15 | X | X | 66 508 |
| 335999D4 | Electric insect repellent lamps | N | X | X | D | N | X | X | N |
| 335999D407 | Electric insect repellent lamps | 1 | X | X | D | N | X | X | N |
| 335999DY | Electrical products, nec (excluding garage door openers), nsk | N | X | X | 1 002 | N | X | X | N |
| 335999DYWV | Electrical products, nec (excluding garage door openers), nsk | N | X | X | 1 002 | N | X | X | N |
| 335999W | Other electrical equipment and components, nsk, total | N | X | X | 820 874 | N | X | X | N |
| 335999WY | Other electrical equipment and component manufacturing, nsk, total | N | X | X | 820 874 | N | X | X | N |
| 335999WYWW | Other electrical equipment and component manufacturing, nsk, for nonadministrative-record establishments | N | X | X | 660 034 | N | X | X | N |
| 335999WYWY | Other electrical equipment and component manufacturing, nsk, for administrative-record establishments | N | X | X | 160 840 | 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 |
| 3359991 | CAPACITORS FOR INDUSTRIAL USE (EXCEPT FOR ELECTRONIC CIRCUITRY) | | |
| | United States | 299 541 | 231 049 |
| 3359993 | RECTIFYING APPARATUS | | |
| | United States | 1 472 848 | 1 047 898 |
| | California | 355 355 | 188 656 |
| | Connecticut | 43 514 | N |
| | Illinois | 224 342 | 90 994 |
| | Massachusetts | 63 038 | 23 430 |
| | Minnesota | 64 535 | 29 186 |
| | New Jersey | 55 051 | 57 379 |
| | New York | 31 866 | 25 491 |
| | Ohio | 170 122 | 120 747 |
| | Texas | 65 394 | 57 029 |
| | Wisconsin | 19 616 | N |
| 3359995 | OTHER ELECTRICAL EQUIPMENT FOR INDUSTRIAL USE, EXCEPT FOR ELECTRONIC CIRCUITRY | | |
| | United States | 905 176 | N |
| | Alabama | 6 005 | N |
| | Arizona | 4 978 | N |
| | California | 40 068 | N |
| | Connecticut | 20 500 | N |
| | Florida | 13 806 | N |
| | Illinois | 67 551 | N |
| | Indiana | 102 694 | N |
| | Louisiana | 22 876 | N |
| | Michigan | 28 706 | N |
| | Minnesota | 25 980 | N |
| | New Hampshire | 14 002 | N |
| | New Jersey | 23 150 | N |
| | New York | 27 356 | N |
| | North Carolina | 2 685 | N |
| | Ohio | 33 839 | N |
| | Pennsylvania | 50 660 | N |
| | Washington | 3 042 | N |
| | Wisconsin | 17 159 | N |
| 3359997 | LASER GENERATOR POWER SUPPLIES AND COMPONENTS @ | | |
| | United States | 1 047 162 | N |
| | California | 815 327 | N |
| | Michigan | 40 530 | N |
| 3359999 | ALL OTHER LASER SYSTEMS AND EQUIPMENT | | |
| | United States | 144 208 | N |
| | California | 67 943 | N |
| | Connecticut | 7 319 | N |
| 335999A | ULTRASONIC EQUIPMENT (EXCEPT MEDICAL AND DENTAL) @ | | |
| | United States | 220 813 | 131 585 |
| | Pennsylvania | 4 932 | 4 667 |
| 335999B | ALL OTHER APPARATUS WIRE AND CORDAGE MANUFACTURED FROM PURCHASED INSULATED WIRE | | |
| | United States | 329 194 | N |
| | California | 56 762 | N |
| | Illinois | 47 925 | N |
| | Indiana | 103 221 | N |
| | Minnesota | 21 058 | N |
| | Missouri | 9 143 | N |
| | New York | 6 932 | N |
| 335999C | ELECTRONIC SYSTEMS AND EQUIPMENT, NEC, INCLUDING AUTOMATIC GARAGE DOOR OPENERS AND AMPLIFIERS @ | | |
| | United States | 1 486 319 | 1 146 184 |
| | California | 409 061 | 331 726 |
| | Connecticut | 25 959 | 24 301 |
| | Florida | 65 616 | 49 494 |
| | Illinois | 56 573 | 72 266 |
| | Maryland | 67 438 | N |
| | Massachusetts | 127 543 | N |
| | Minnesota | 13 149 | N |
| | New Jersey | 15 528 | 27 123 |
| | New York | 86 582 | 90 247 |
| | North Carolina | 19 307 | N |
| | Texas | 77 994 | 48 911 |
| | Wisconsin | 25 742 | N |
| 335999D | ALL OTHER MISCELLANEOUS ELECTRICAL EQUIPMENT AND COMPONENTS (EXCEPT FOR INDUSTRIAL USE), NEC | | |
| | United States | 109 854 | N |
| | Ohio | 16 258 | 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) |
| 335999 | ALL OTHER MISCELLANEOUS ELECTRICAL EQUIPMENT & COMPONENT MFG | | | | |
| 33272203 | Metal bolts, nuts, screws, washers, rivets, and other screw machine products | X | 33 867 | X | N |
| 33210001 | Forgings | X | D | X | N |
| 33100035 | Castings (rough and semifinished) | X | 9 120 | X | N |
| 33120001 | Steel shapes and forms (except castings, forgings, and fabricated metal products) | X | 36 204 | X | N |
| 33142111 | Copper and copper-base alloy shapes and forms (except castings, forgings, and fabricated metal products) | X | 4 917 | X | N |
| 33100083 | Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products) | X | 12 335 | X | N |
| 33531211 | Fractional horsepower electric motors (less than 1 hp) | X | 44 324 | X | N |
| 33422001 | Electronic communication equipment | X | 4 795 | X | N |
| 33599900 | Automatic garage door controllers | X | D | X | N |
| 00970099 | All other materials and components, parts, containers, and supplies | X | 1 632 813 | X | N |
| 00971000 | Materials, ingredients, containers, and supplies, n.s.k. | X | 1 098 106 | 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

335999 ALL OTHER MISCELLANEOUS ELECTRICAL EQUIPMENT AND COMPONENT MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing industrial and commercial electric apparatus and other equipment (except lighting equipment, household appliances, transformers, motors, generators, switchgear, relays, industrial controls, batteries, communication and energy wire and cable, wiring devices,

and carbon and graphite products). This industry includes power converters (i.e., AC to DC and DC to AC), power supplies, surge suppressors, and similar equipment for industrial-type and consumer-type equipment.

The data published with NAICS code 335999 include the following SIC industries:

3629 Electrical industrial apparatus, n.e.c.

3699 Electrical equipment and supplies, n.e.c. (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

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

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

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

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

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

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

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

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

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

2. Establishments sent a report form.

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

- a. ASM sample establishments.

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

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

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

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

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

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

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

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

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

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

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

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

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

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

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

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

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

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

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

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

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

ESTABLISHMENT BASIS OF REPORTING

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

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

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

DESCRIPTION OF THE ASM SURVEY SAMPLE

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

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

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

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

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

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

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

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

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

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

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

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

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

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

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

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

QUALIFICATIONS OF THE ASM DATA

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

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

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

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

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

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

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

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

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

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

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

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

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

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

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

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

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

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

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

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

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F.

Footnotes for Products Statistics and Materials Consumed by Kind

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

| NAICS product code | Footnote |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| @3359997 | For additional detail, see Current Industrial Report MA334P, Communication and Other Electronic Equipment. |
| @335999A | For additional detail, see Current Industrial Report MA334P, Communication and Other Electronic Equipment. |
| \$ 335999B100 | This product code is primary to more than one industry. For a list of product codes that are primary to more than one industry, see "1997 Economic Census, Numerical List of Manufactured and Mineral Products," Appendix D. |
| @335999C | For additional detail, see Current Industrial Report MA334P, Communication and Other Electronic Equipment. |

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 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 3351101 | 36411 | 36411 | 3352121 | 36350 pt | 36350 pt | 3353113 pt | 36123 | 36123 |
| 335110100 | 3641100 | 3641100 | 3352121101 | 3635041 | 3635041 | 3353113101 | 3612301 | 3612301 |
| 3351103 | 36412 | 36412 | 3352121103 | 3635011 | 3635011 | 3353113104 | 3612302 | 3612302 |
| 3351103100 | 3641200 | 3641200 | 3352121105 | 3635033 | 3635033 | 3353113107 | 3548105 | 3548104 pt |
| 335110W | 36410 | 36410 | 3352121107 pt | 3635044 pt | 3635031 | 3353113109 | 3612306 | 3612306 |
| 335110WYWW | 3641000 | 3641000 | 3352121107 pt | 3635044 pt | 3635036 | 3353113113 | 3612307 | 3612307 |
| 335110WYWY | 3641002 | 3641002 | 3352121111 | 3635051 | 3635051 | 3353113115 | 3612308 | 3612308 |
| 3351211 | 36451 | 36451 | 3352121113 | 3635071 | 3635071 | 3353113116 | 3612311 | 3612311 |
| 3351211000 | 3645100 | 3645100 | 3352121YWW | 3635000 pt | 3635000 pt | 3353113YWW pt | 3548100 pt | 3548100 pt |
| 3351213 pt | 30897 pt | 30897 pt | 3352122 | 36395 pt | 36395 pt | 3353113YWW pt | 3612300 | 3612300 |
| 3351213 pt | 30897 pt | 30897 pt | 335212211 | 3639525 | 3639520 pt | 3353115 | 36124 | 36124 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122219 | 3639513 | 3639510 pt | 3353115000 | 3612400 | 3612400 |
| 3351213 pt | 30897 pt | 30897 pt | 3352122YWW | 3639500 pt | 3639500 pt | 3353117 | 36126 | 36126 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36350 pt | 36350 pt | 335311701 | 3612601 | 3612601 |
| 3351213 pt | 30897 pt | 30897 pt | 335212W pt | 36350 pt | 36350 pt | 3353117104 | 3612602 | 3612602 |
| 335121311 | 39999 pt | 39999 pt | 335212W pt | 36350 pt | 36350 pt | 3353117107 | 3612603 | 3612603 |
| 3351213111 | 3645721 | 3645721 | 335212WYWW pt | 3635000 pt | 3635000 pt | 3353117111 | 3612604 | 3612604 |
| 3351213121 | 3645722 | 3645722 | 335212WYWW pt | 3639000 pt | 3639000 pt | 3353117113 pt | 3612608 pt | 3612605 |
| 3351213131 | 3645723 | 3645723 | 335212WYWW pt | 3635002 | 3635002 | 3353117113 pt | 3612608 pt | 3612609 |
| 3351213131 | 3645723 | 3645723 | 335212WYWW pt | 3639002 pt | 3639002 pt | 3353117YWW | 3612600 | 3612600 |
| 3351213141 | 3645729 | 3645729 | 3352211 | 36311 | 36311 | 3353119 | 36127 | 36127 |
| 3351213151 | 3645732 | 3645732 | 3352211110 | 3631110 | 3631110 | 3353119101 | 3612701 | 3612701 |
| 3351213161 | 3645761 | 3645761 | 3352211290 | 3631120 | 3631120 | 3353119104 | 3612778 | 3612778 |
| 3351213165 | 3999961 | 3999961 | 3352211YWW | 3631100 | 3631100 | 3353119YWW | 3612700 | 3612700 |
| 3351213169 | 3089705 | 3089709 pt | 3352213 | 36313 | 36313 | 335311W pt | 35480 pt | 35480 pt |
| 3351213171 | 3645773 | 3645773 | 3352213110 | 3631310 | 3631310 | 335311W pt | 36120 | 36120 |
| 3351213YVW pt | 3089700 pt | 3089700 pt | 3352213110 | 3631310 | 3631310 | 335311WYWW pt | 3548000 pt | 3548000 pt |
| 3351213YVW pt | 3645700 | 3645700 | 3352213190 | 3631320 | 3631320 | 335311WYWW pt | 3612000 | 3612000 |
| 3351213YVW pt | 3999900 pt | 3999900 pt | 3352213YVW | 3631300 | 3631300 | 335311WYWW pt | 3548002 pt | 3548002 pt |
| 335121W pt | 30890 pt | 30890 pt | 3352215 | 36314 | 36314 | 335311WYWW pt | 3612002 | 3612002 |
| 335121W pt | 30890 pt | 30890 pt | 3352215110 | 3631410 | 3631410 | 3353121 | 36211 | 36211 |
| 335121W pt | 30890 pt | 30890 pt | 3352215190 | 3631420 | 3631420 | 3353121000 | 3621100 | 3621100 |
| 335121W pt | 30890 pt | 30890 pt | 3352215YVW | 3631400 | 3631400 | 3353123 | 36212 | 36212 |
| 335121W pt | 30890 pt | 30890 pt | 335221W | 36310 | 36310 | 3353123000 | 3621200 | 3621200 |
| 335121WYWW pt | 3089000 pt | 3089000 pt | 335221WYWW | 3631000 | 3631000 | 3353125 | 36213 | 36213 |
| 335121WYWW pt | 3089000 pt | 3089000 pt | 335221WYWW | 3631002 | 3631002 | 3353125000 | 3621300 | 3621300 |
| 335121WYWW pt | 3645002 | 3645002 | 3352221 | 36321 | 36321 | 3353127 | 36214 | 36214 |
| 335121WYWW pt | 3999002 pt | 3999002 pt | 3352221000 | 3632100 | 3632100 | 3353127000 | 3621400 | 3621400 |
| 3351221 | 36462 | 36462 | 3352222 | 36322 | 36322 | 3353129 | 36217 | 36217 |
| 3351221000 | 3646200 | 3646200 | 3352222000 | 3632200 | 3632200 | 3353129000 | 3621700 | 3621700 |
| 3351222 | 36463 | 36463 | 3352223 | 36323 | 36323 | 335312A | 36218 | 36218 |
| 3351222000 | 3646300 | 3646300 | 3352223000 | 3632300 | 3632300 | 335312A000 | 3621800 | 3621800 |
| 335122W | 36460 | 36460 | 335222W | 36320 | 36320 | 335312C | 36219 | 36219 |
| 335122WYWW | 3646000 | 3646000 | 335222WYWW | 3632000 | 3632000 | 335312C000 | 3621900 | 3621900 |
| 335122WYWY | 3646002 | 3646002 | 335222WYWY | 3632002 | 3632002 | 335312E | 76940 pt | 76940 pt |
| 3351291 | 36485 | 36485 | 3352240 | 36330 | 36330 | 335312E100 pt | 7694020 | 7694000 pt |
| 3351291000 | 3648500 | 3648500 | 335224010 | 3633010 | 3633010 | 335312E100 pt | 7694000 pt | 7694000 pt |
| 3351293 pt | 36489 | 36489 | 3352240190 | 3633020 | 3633020 | 335312W pt | 36210 | 36210 |
| 3351293 pt | 36489 | 36489 | 3352240YWW | 3633000 | 3633000 | 335312W pt | 36210 | 36210 |
| 3351293 pt | 36489 | 36489 | 3352240YWY | 3633002 | 3633002 | 335312W pt | 36210 | 36210 |
| 3351293 pt | 36996 pt | 36996 pt | 3352281 | 36391 | 36391 | 335312W pt | 76940 pt | 76940 pt |
| 3351293109 | 3648912 | 3648912 | 3352281000 | 3639100 | 3639100 | 335312WYWW pt | 3621000 | 3621000 |
| 3351293112 | 3648916 | 3648916 | 3352283 | 36392 | 36392 | 335312WYWW pt | 7694000 pt | 7694000 pt |
| 3351293114 | 3648917 | 3648917 | 3352283000 | 3639200 | 3639200 | 335312WYWY pt | 3621002 | 3621002 |
| 3351293116 | 3648931 | 3648931 | 3352285 | 36395 | 36395 | 335312WYWY pt | 7694002 | 7694000 pt |
| 3351293118 | 3648975 | 3648975 | 3352285110 | 3639511 | 3639510 pt | 3353131 | 36132 | 36132 |
| 3351293122 pt | 3648979 pt | 3648921 | 3352285190 | 3639521 | 3639520 pt | 3353131000 | 3613200 | 3613200 |
| 3351293122 pt | 3648979 pt | 3648991 | 3352285YVW | 3639500 pt | 3639500 pt | 3353133 | 36133 | 36133 |
| 3351293122 pt | 3648979 pt | 3648991 | 335228W | 36390 pt | 36390 pt | 3353133000 | 3613300 | 3613300 |
| 3351293124 | 3648970 | 3648970 | 335228WYWW | 3639000 pt | 3639000 pt | 3353135 | 36134 | 36134 |
| 3351293126 pt | 3648984 pt | 3648983 | 335228WYWY | 3639002 pt | 3639002 pt | 3353135000 | 3613400 | 3613400 |
| 3351293126 pt | 3648984 pt | 3648987 | 3353111 | 36122 | 36122 | 3353137 | 36135 | 36135 |
| 3351293131 | 3648985 | 3648985 | 335311101 | 3612202 | 3612202 | 3353137000 | 3613500 | 3613500 |
| 3351293YVW pt | 3648900 | 3648900 | 3353111204 | 3612204 | 3612204 | 3353139 | 36136 | 36136 |
| 3351293YVW pt | 3648900 pt | 3648900 pt | 3353111307 | 3612206 | 3612206 | 3353139000 | 3613600 | 3613600 |
| 3351293YVW pt | 3699002 pt | 3699002 pt | 3353111311 | 3612214 | 3612214 | 335313A | 36139 | 36139 |
| 3351293YVW pt | 3699002 pt | 3699002 pt | 3353111313 | 3612216 | 3612216 | 335313A000 | 3613900 | 3613900 |
| 3352111 | 36341 | 36341 | 3353111316 | 3612219 | 3612219 | 335313W | 36130 | 36130 |
| 3352111000 | 3634100 | 3634100 | 3353111419 | 3612221 | 3612221 | 335313WYWW | 3613000 | 3613000 |
| 3352113 | 36345 | 36345 | 3353111422 | 3612223 | 3612223 | 335313WYWY | 3613002 | 3613002 |
| 3352113000 | 3634510 | 3634500 pt | 3353111425 | 3612228 | 3612228 | 3353141 | 36251 | 36251 |
| 3352115 | 36349 pt | 36349 pt | 3353111428 | 3612229 | 3612229 | 3353141000 | 3625100 | 3625100 |
| 3352115010 | 3634911 | 3634911 | 3353111431 | 3612232 | 3612232 | 3353143 | 36252 | 36252 |
| 3352115090 | 3634920 | 3634920 pt | 3353111434 | 3612233 | 3612233 | 3353143000 | 3625200 | 3625200 |
| 3352115YVW | 3634900 pt | 3634900 pt | 3353111537 | 3612237 | 3612237 | 3353145 | 36253 | 36253 |
| 335211W | 36340 pt | 36340 pt | 3353111541 | 3612239 | 3612239 | 3353145000 | 3625300 | 3625300 |
| 335211WYWW | 3634000 pt | 3634000 pt | 3353111543 | 3612241 | 3612241 | 3353147 | 36254 | 36254 |
| 335211WYWY | 3634002 pt | 3634002 pt | 3353111546 | 3612242 | 3612242 | 3353147000 | 3625400 | 3625400 |
| | | | 3353111549 | 3612243 | 3612243 | | | |
| | | | 3353111552 | 3612244 | 3612244 | | | |
| | | | 3353111YVW | 3612200 | 3612200 | | | |
| | | | 3353113 pt | 35481 pt | 35481 pt | | | |

| 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published | 1997 published | 1997 collected | 1992 published |
|---------------------|------------------|----------------|---------------------|------------------|----------------|----------------------|------------------|----------------|
| 335314W | 36250 | 36250 | 335929A | 3357A | 3357A | 3359913322 | 3624996 | 3624996 |
| 335314WYWW | 3625000 | 3625000 | 335929A100 | 3357A00 | 3357A00 | 3359913YVW | 3624900 | 3624900 |
| 335314WYVW | 3625002 | 3625002 | | | | | | |
| 3359111 | 36913 | 36913 | 335929B | 3357B | 3357B | 335991W | 36240 | 36240 |
| 3359111101 | 3691311 | 3691311 | 335929B100 | 3357B00 | 3357B00 | 335991WYVW | 3624000 | 3624000 |
| 3359111204 | 3691312 | 3691312 | 335929C | 3357C | 3357C | 335991WYVWY | 3624002 | 3624002 |
| 3359111307 | 3691317 | 3691317 | 335929C100 | 3357C00 | 3357C00 | | | |
| 3359111YVW | 3691300 | 3691300 | | | | | | |
| 3359114 | 36914 | 36914 | 335929D | 3357D | 3357D | 3359991 | 36291 | 36291 |
| 3359114101 | 3691411 | 3691411 | 335929D100 | 3357D00 | 3357D00 | 3359991101 | 3629101 | 3629101 |
| 3359114104 | 3691419 | 3691419 | | | | 3359991103 | 3629104 | 3629104 |
| 3359114201 | 3691421 | 3691421 | 335929E | 3357E | 3357E | 3359991YVW | 3629100 | 3629100 |
| 3359114204 | 3691422 | 3691422 | 335929E100 | 3357E00 | 3357E00 | | | |
| 3359114207 | 3691479 | 3691479 | | | | | | |
| 3359114YVW | 3691400 | 3691400 | 335929W | 33570 pt | 33570 pt | 3359993 | 36292 | 36292 |
| | | | 335929WYVW | 3357000 pt | 3357000 pt | 3359993101 | 3629221 | 3629221 |
| | | | 335929WYVWY | 3357002 pt | 3357002 pt | 3359993104 | 3629225 | 3629225 |
| 3359117 | 36915 | 36915 | | | | 3359993107 | 3629241 | 3629241 |
| 3359117101 | 3691501 | 3691501 | 3359311 | 36431 | 36431 | 3359993111 | 3629245 | 3629245 |
| 3359117104 | 3691502 | 3691502 | 3359311000 | 3643100 | 3643100 | 3359993213 | 3629251 | 3629251 |
| 3359117201 | 3691591 | 3691591 | | | | 3359993216 | 3629253 | 3629253 |
| 3359117YVW | 3691500 | 3691500 | 3359313 | 36432 | 36432 | 3359993219 | 3629255 | 3629255 |
| | | | 3359313000 | 3643200 | 3643200 | 3359993YVW | 3629200 | 3629200 |
| 335911W | 36910 | 36910 | | | | | | |
| 335911WYVW | 3691000 | 3691000 | 3359315 | 36433 | 36433 | 3359995 pt | 3699A pt | 3699A pt |
| 335911WYVWY | 3691002 | 3691002 | 3359315000 | 3643300 | 3643300 | 3359995101 | 3629301 | 3629301 |
| | | | | | | 3359995104 | 3629302 | 3629302 |
| 3359120 | 36920 | 36920 | 3359317 | 36434 | 36434 | 3359995107 | 3629303 | 3629303 |
| 3359120101 | 3692001 pt | 3692001 pt | 3359317000 | 3643400 | 3643400 | 3359995111 | 3629304 | 3629304 |
| 3359120101 pt | 3692011 pt | 3692011 pt | | | | 3359995137 pt | 3629311 | 3629311 |
| 3359120104 | 3692013 pt | 3692013 pt | 3359319 | 36435 | 36435 | 3359995137 pt | 3699A21 | 3699A21 |
| 3359120104 pt | 3692013 pt | 3692013 pt | 3359319000 | 3643500 | 3643500 | 3359995YVW pt | 3629300 | 3629300 |
| 3359120104 pt | 3692013 pt | 3692013 pt | | | | 3359995YVW pt | 3699A00 pt | 3699A00 pt |
| 3359120107 | 3692015 pt | 3692015 pt | 335931A | 36436 | 36436 | | | |
| 3359120107 pt | 3692015 pt | 3692015 pt | 335931A000 | 3643600 | 3643600 | 3359997 | 36992 pt | 36992 pt |
| 3359120107 pt | 3692015 pt | 3692015 pt | | | | 3359997000 pt | 3699271 | 3699271 |
| 3359120111 | 3692017 pt | 3692017 pt | 335931W | 36430 | 36430 | 3359997000 pt | 3699273 | 3699273 |
| 3359120111 pt | 3692017 pt | 3692017 pt | 335931WYVW | 3643000 | 3643000 | 3359997000 pt | 3699200 pt | 3699200 pt |
| 3359120114 | 3692019 pt | 3692019 pt | 335931WYVWY | 3643002 | 3643002 | | | |
| 3359120114 pt | 3692019 pt | 3692019 pt | | | | 3359999 | 36992 pt | 36992 pt |
| | | | 3359321 | 36441 | 36441 | 3359999100 pt | 3699297 | 3699297 |
| 3359120114 pt | 3692019 pt | 3692019 pt | 3359321000 | 3644100 | 3644100 | 3359999100 pt | 3699200 pt | 3699200 pt |
| 3359120201 | 3692021 | 3692021 | | | | | | |
| 3359120201 | 3692021 | 3692021 | 3359323 | 36442 | 36442 | | | |
| 3359120204 | 3692023 | 3692023 | 3359323000 | 3644200 | 3644200 | 335999A | 36995 | 36995 |
| 3359120207 | 3692025 | 3692025 | | | | 335999A000 | 3699500 | 3699500 |
| 3359120211 | 3692027 | 3692027 | 3359325 | 36443 | 36443 | | | |
| 3359120214 | 3692029 pt | 3692029 pt | 3359325000 | 3644300 | 3644300 | 335999B | 36996 pt | 36996 pt |
| 3359120214 pt | 3692029 pt | 3692029 pt | | | | 335999B100 pt | 3699600 pt | 3699600 pt |
| 3359120301 | 3692009 | 3692009 | 335932W | 36440 | 36440 | 335999B100 pt | 3699605 | 3699605 |
| 3359120301 | 3692009 | 3692009 | 335932WYVW | 3644000 | 3644000 | | | |
| 3359120YVW | 3692000 | 3692000 | 335932WYVWY | 3644002 | 3644002 | 335999C | 36999 | 36999 |
| 3359120YVWY | 3692002 | 3692002 | | | | 335999C000 | 3699900 | 3699900 |
| 3359210 pt | 33570 pt | 33570 pt | 3359911 | 36241 | 36241 | 335999D | 3699A pt | 3699A pt |
| | | | 3359911001 | 3624152 | 3624152 | 335999D101 | 3699A01 | 3699A01 |
| 3359210 pt | 33579 | 33579 | 3359911204 | 3624156 | 3624156 | 335999D203 | 3699A03 | 3699A03 |
| 3359210101 | 3357931 | 3357931 | 3359911YVW | 3624100 | 3624100 | 335999D305 | 3699A05 | 3699A05 |
| 3359210106 | 3357941 | 3357941 | | | | 335999D407 | 3699A02 | 3699A02 |
| 3359210111 | 3357951 | 3357951 | 3359913 | 36249 | 36249 | 335999DYVW | 3699A00 pt | 3699A00 pt |
| 3359210421 | 3357932 | 3357932 | 3359913101 pt | 3624916 pt | 3624916 | | | |
| 3359210426 | 3357942 | 3357942 | 3359913101 pt | 3624916 pt | 3624916 | 335999W pt | 36290 | 36290 |
| 3359210431 | 3357952 | 3357952 | 3359913104 | 3624917 | 3624917 | | | |
| 3359210YVW pt | 3357000 pt | 3357000 pt | 3359913207 | 3624988 | 3624988 | 335999W pt | 36990 pt | 36990 pt |
| 3359210YVW pt | 3357900 | 3357900 | 3359913311 | 3624981 | 3624981 | 335999WYVW pt | 3629000 | 3629000 |
| 3359210YVWY | 3357002 pt | 3357002 pt | 3359913313 | 3624983 | 3624983 | 335999WYVWY pt | 3699000 pt | 3699000 pt |
| | | | 3359913316 | 3624986 | 3624986 | 335999WYVWY pt | 3629002 | 3629002 |
| 3359291 | 33578 | 33578 | 3359913319 | 3624994 | 3624994 | 335999WYVWY pt | 3699002 pt | 3699002 pt |
| 3359291800 | 3357800 | 3357800 | | | | | | |

