# Other Metal Container Manufacturing

# 1997

Issued October 1999

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## **1997 Economic Census** *Manufacturing* Industry Series



Helping You Make Informed Decisions

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



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#### CONTENTS

	duction to the Economic Census	1 5
TAB	LES	
1. 2. 3. 4. 5. 6a. 6b. 7.	Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997 Industry Statistics for Selected States: 1997 Detailed Statistics by Industry: 1997 Industry Statistics by Employment Size: 1997 Industry Statistics by Industry and Primary Product Class Specialization: 1997 Products Statistics: 1997 and 1992 Product Class Shipments for Selected States: 1997 and 1992 . Materials Consumed by Kind: 1997 and 1992	7 7 8 9 10 11 11
APP	ENDIXES	
А. В. С. Е. F. G.	Explanation of Terms NAICS Codes, Titles, and Descriptions Coverage and Methodology Geographic Notes Metropolitan Areas Footnotes for Products Statistics and Materials Consumed by Kind Comparability of Product Classes and Product Codes: 1997 to 1992	A-1 B-1 C-1 F-1 G-1

-- 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

#### 1997 ECONOMIC CENSUS

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 longterm 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, semiindependent 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			All	All em	ployees	Pi	roduction work	ers				Total capital
or SIC code	Industry	Com- panies <sup>1</sup>	estab- lish- ments <sup>2</sup>	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)	Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	expendi- tures (\$1,000)
<b>332439</b> 341200 342910 344420 349920	Other metal container mfg Metal barrels, drums, & pails Hardware, n.e.c. (pt) Sheet metal work (pt) Fabricated metal products,	N N	<b>492</b> 151 115 126	<b>14 116</b> 6 098 3 952 2 074	<b>413 053</b> 185 145 111 308 60 030	<b>11 024</b> 4 814 3 028 1 572	<b>22 051</b> 10 366 5 840 2 840		464 319 198 419	<b>1 220 381</b> 790 225 182 344 138 396	<b>2 147 553</b> 1 261 414 383 412 275 440	<b>56 836</b> 30 307 13 276 7 162
349920 353710	n.e.c. (pt) Industrial trucks & tractors (pt) .	N N	96 4	1 928 64	55 078 1 492	1 557 53	2 899 106	34 826 953	115 181 3 078	105 604 3 812	220 512 6 775	5 955 136

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

<sup>1</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control. <sup>2</sup>Includes 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]

Allestablish			nents All employees		Production workers							
Industry and geographic area	E1	Total	With 20 em- ploy- ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)	Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi- tures (\$1,000)
332439, OTHER METAL CONTAINER MFG												
United States	2	492	173	14 116	413 053	11 024	22 051	269 870	929 430	1 220 381	2 147 553	56 836
Alabama California Florida Georgia Illinois	- 3 5 -	11 64 13 5 27	3 17 3 3 11	238 1 508 258 155 1 091	7 129 44 167 6 468 3 147 40 529	173 1 167 206 125 829	413 2 557 300 174 1 893	5 047 28 600 4 417 2 233 23 321	17 692 98 354 11 040 7 164 83 290	34 795 109 318 18 817 10 589 115 770	54 133 209 242 29 806 18 413 200 100	2 411 4 908 596 351 6 447
Indiana Michigan Missouri New Jersey New York	-	14 26 16 18 19	6 7 4 5 4	649 661 417 581 266	18 645 18 076 12 438 17 213 7 314	557 525 305 471 210	1 164 982 449 905 401	13 301 11 883 7 096 11 509 4 510	57 432 34 477 32 155 27 340 14 545	58 628 33 615 39 479 64 228 12 856	108 809 68 270 70 337 93 614 27 570	2 455 1 997 1 949 3 140 391
North Carolina Ohio Pennsylvania Tennessee Texas Washington Wisconsin	2	11 41 33 11 30 7 15	7 18 13 5 9 3 4	296 1 112 923 1 287 994 116 244	8 271 33 135 27 234 36 714 25 816 4 340 6 558	244 840 740 1 027 749 82 207	445 1 654 1 451 1 957 1 619 192 432	4 797 21 758 18 476 25 998 15 957 2 264 4 621	21 381 71 920 78 934 33 163 65 794 7 816 15 847	32 577 116 584 99 891 46 052 95 753 6 314 10 819	54 165 188 417 178 267 79 399 160 451 14 628 26 452	870 5 388 2 917 2 779 2 798 438 428

\* 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.

<sup>1</sup>Some 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 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
332439, OTHER METAL CONTAINER MFG		332439, OTHER METAL CONTAINER MFG-Con.	
Companies <sup>1</sup> number	454	Value added\$1,000	929 430
All establishments	492 319 148 25	Work-in-process inventories, beginning of year	299 601 59 421 67 435 172 745
All employees         number.           Total compensation <sup>2</sup> \$1,000.           Annual payroll         \$1,000.           Total finge benefits         \$1,000.	14 116 519 654 413 053 106 601	Total inventories, end of year       \$1,000.         Finished goods inventories, end of year       \$1,000.         Work-in-process inventories, end of year       \$1,000.         Materials and supplies inventories, end of year       \$1,000.	297 737 72 013 57 101 168 623
Production workers, average for year	11 024 11 125 11 063		712 610 56 836
Production workers on August 12	10 997	(new and used)\$1,000 Capital expenditures for machinery and equipment (new	10 889
Production workers on November 12	10 911 22 051 269 870	and used)\$1,000 Total retirements <sup>2</sup> \$1,000 Gross book value of total assets at end of year\$1,000.	45 947 24 639 744 807
Total cost of materials	1 220 381	Total depreciation during year <sup>2</sup> \$1,000	46 985
Cost of materials, parts, containers, etc., consumed.         \$1,000.           Cost of resales         \$1,000.           Cost of fuels         \$1,000.           Cost of purchased electricity         \$1,000.           Cost of ourtact work         \$1,000.		Cost of purchased services for the repair of buildings and other	29 255 11 932 17 323
Quantity of electricity generated less sold for heat and power	304 884	structures <sup>3</sup> \$1,000 Response coverage ratio <sup>4</sup>	3 318 78
Total value of shipments       \$1,000         Primary products value of shipments       \$1,000         Secondary products value of shipments       \$1,000	2 147 553 1 878 297 147 508	Cost of purchased communications services <sup>3</sup>	23 353 78 5 116 78
Total miscellaneous receipts         \$1,000.           Value of resales         \$1,000.           Contract receipts         \$1,000.	121 748 89 898	Cost of purchased legal services <sup>3</sup>	5 501 78 2 041
Other miscellaneous receipts\$1,000	19 538	Response coverage ratio <sup>4</sup> percent Cost of purchased advertising services <sup>3</sup>	78 3 318
Primary products specialization ratio percent Value of primary products shipments made in all industries \$1,000		Response coverage ratio <sup>4</sup> percent Cost of purchased software and other data processing	78
Value of primary products shipments made in this industry \$1,000 Value of primary products shipments made in other	1 878 297	Response coverage ratio <sup>4</sup> percent.	2 840 78
industries\$1,000		Cost of purchased refuse removal (including hazardous waste) services <sup>3</sup> \$1,000	5 355
Coverage ratio percent	85	Response coverage ratio <sup>4</sup> percent	78

<sup>1</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control. <sup>2</sup>These 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. <sup>3</sup>Based on ASM sample data. <sup>4</sup>A 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

			All shments	All emp	ployees	Pr	oduction work	ers				
Employment size class	E <sup>1</sup>	Total	With 20 em- ploy- ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)	Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	tures
332439, OTHER METAL CONTAINER MFG												
All establishments	2	492	173	14 116	413 053	11 024	22 051	269 870	929 430	1 220 381	2 147 553	56 836
Establishments with 1 to 4 employees Establishments with 5 to 9	9	142	-	318	8 181	252	417	5 380	17 835	18 542	36 503	1 616
employees Establishments with 10 to 19	8	99	-	649	16 173	503	802	10 779	36 352	35 489	72 153	2 161
employees Establishments with 20 to 49	4	78	-	1 093	29 462	801	1 405	18 515	61 147	67 450	129 120	3 458
employees Establishments with 50 to 99	2	88	88	2 891	86 562	2 235	4 635	55 304	187 973	225 581	414 152	12 524
employees Establishments with 100 to 249	1	60	60	4 367	129 137	3 392	6 812	84 550	311 771	457 766	771 177	18 971
employees Establishments with 250 to 499	-	23	23	D	D	D	D	D	D	D	D	D
employees Establishments with 500 to 999	9	1	1	D	D	D	D	D	D	D	D	D
employees Establishments with 1,000 to 2,499	-	-	-	-	-	-	-	-	-	-	-	-
employees Establishments with 2,500 employees	-	1	1	D	D	D	D	D	D	D	D	D
or more	-	-	-	-	-	-	-	-			-	-
Administrative records <sup>2</sup>	9	205	-	1 057	24 327	813	1 338	16 226	53 629	67 928	122 231	3 722

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

<sup>1</sup>Some 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 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. <sup>2</sup>Some 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		All estab-	All employees		Production workers			Value added			Total capital
industry or product class code	duct Industry or primary product class		Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)	by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	expendi- tures (\$1,000)
332439	Other metal container mfg	492	14 116	413 053	11 024	22 051	269 870	929 430	1 220 381	2 147 553	56 836
3324391 3324393	Steel pails (1 to 12 gallon capacity) and fabricated steel boxes Steel shipping barrels and drums, excluding beer barrels (more than	50	2 890	89 594	2 375	4 840	61 099	199 792	266 869	467 330	14 350
3324395 3324397	12 gallon capacity) Other metal container manufacturing . Air cargo containers, metal	61 50 1	3 815 D D	117 180 D D	2 964 D D	6 474 D D	77 670 D D	301 896 D D	529 152 D D	836 313 D D	16 906 D D

### Table 6a. Products Statistics: 1997 and 1992

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

			19	97			19	992	
NAICS		Number of		Product	shipments	Number of		Product	shipments
product code	Product	companies with shipments of \$100,000 or more	Quantity of production for all purposes	Quantity	Value (\$1,000)	companies with shipments of \$100,000 or more	Quantity of production for all purposes	Quantity	Value (\$1,000)
332439	Other metal containers	N	х	х	2 207 455	N	x	х	N
3324391	Steel pails, 1 to 12 gallon capacity @	N	х	х	527 886	N	x	х	Ν
33243911 3324391100	Steel pails, 1 to 12 gallon capacity Steel pails, 1 to 12 gallon capacity	N 21	x x	x x	295 363 295 363	N N	X X	X X	N N
33243913	Fabricated steel boxes	N	х	х	232 523	N	х	х	Ν
3324391306 3324391311	Fabricated steel boxes for packaging and shipping. Fabricated steel boxes other than for	30	х	х	86 705	19	х	х	26 311
	shipping (ammunition boxes, jewelry cases, etc.)	39	х	х	145 818	46	х	Х	167 607
3324391Y	Steel pails (1 to 12 gallon capacity) and fabricated steel boxes, nsk	N	х	х	-	N	x	х	N
3324391YWV	Steel pails (1 to 12 gallon capacity) and fabricated steel boxes, nsk	N	x	x	-	N	x	x	N
3324393	Steel shipping barrels and drums, excluding beer barrels (more than 12 gallon capacity)	N	x	x	790 947	N	x	х	753 768
33243931	Steel shipping barrels and drums, excluding beer barrels (more than 12								
3324393100	gallon capacity) Steel shipping barrels and drums, excluding beer barrels (more than 12 rolling capacity)	N 37	X	X	790 947	N	X	X	N 753 768
3324395	gallon capacity) Other metal container manufacturing	57 N	x x	x	790 947 D	42 N	x x	x x	755 768 N
33243951	Metal barrels, vacuum and insulated								
3324395101	bottles, grain bins and vats, other barrels	N	x	х	D	N	x	х	Ν
3324395106	drying floors, fans, and heaters (steel and aluminum)	35	x	x	187 015	N	x	x	Ν
3324395199	sheet metal bins and vats, incld feed storage bins and sheet metal vats (steel and aluminum) All other metal barrels (including beer	58	х	х	225 356	N	х	х	N
	barrels and parts for metal barrels and pails)	12	х	х	D	14	х	х	Ν
3324395Y	Other metal container manufacturing, nsk	N	х	х	161	N	x	х	N
3324395YWV	Other metal container manufacturing, nsk	N	x	x	161	N	x	x	N
3324397	Air cargo containers, metal	N	х	х	D	N	х	х	Ν
33243971 3324397100	Air cargo containers, metal Air cargo containers, metal thousands	N 2	X X	X D	D D	N N	X X	X X	N N
332439W	Other metal container manufacturing, nsk, total	N	х	х	428 658	N	x	х	N
332439WY	Other metal container manufacturing, nsk	N	х	х	428 658	N	x	х	N
332439WYWW	Other metal container manufacturing, nsk, for nonadministrative-record								
332439WYWY	establishments Other metal container manufacturing, nsk, for administrative-record	N	x	x	312 623	N	x	X	N
	establishments	N	Х	Х	116 035	N	Х	Х	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: <sup>p</sup> 10 to 19 percent estimated; <sup>q</sup> 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	Product class and geographic area	Value of product shipments (\$1,000)				
code		1997	1992			
3324391	STEEL PAILS, 1 TO 12 GALLON CAPACITY @					
	United States	527 886	N			
	California Illinois Massachusetts Michigan New York	63 930 39 822 32 976 20 831 10 096	N N N N N			
	Ohio . Pennsylvania Tennessee Texas.	63 055 44 594 4 784 39 878	N N N			
3324393	STEEL SHIPPING BARRELS AND DRUMS, EXCLUDING BEER BARRELS (MORE THAN 12 GALLON CAPACITY)					
	United States	790 947	753 768			
	California Illinois North Carolina Ohio Pennsylvania Texas.	52 219 116 452 41 346 99 053 89 504 98 105	75 655 106 785 25 146 112 864 72 224 91 803			
3324395	OTHER METAL CONTAINER MANUFACTURING					
	United States	D	N			
	California Indiana Iowa . Minnesota . New Jersey.	28 766 72 475 28 548 5 528 16 928	N N N N			
	Ohio . Pennsylvania . Texas . Wisconsin .	8 062 11 397 2 350 11 663	N N N			
3324397	AIR CARGO CONTAINERS, METAL					
	United States	D	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		19	97	1992		
material code	Material consumed	Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)	
332439	OTHER METAL CONTAINER MFG					
33243105 33200035 33210001 33120073 33120025	Lids, ends, and parts for metal cans	x x x x x	49 563 68 538 13 240 371 998 1 631	x x x x x	30 800 21 724 N N N	
33120099 33131501 33100049 33142109 33142125	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	x x x x	101 306 23 277 15 836 170	x x x x	32 770 N N N	
	forgings, and fabricated metal products)	х	298	х	Ν	
33100083 32551003 32552001	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products) Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products Adhesives and sealants	x x x	7 233 40 219 1 973	x x	N N 868	
32591003 32500049	Aufresives and see	x x	1 734 6 709	x	232 4 965	
32221001 00970099 00971000	Paperboard containers, boxes, and corrugated paperboard All other materials and components, parts, containers, and supplies Materials, ingredients, containers, and supplies, n.s.k.	X X X	23 714 127 338 234 255	X X X	N N 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: <sup>p</sup> 10 to 19 percent estimated; <sup>q</sup> 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-ofyear 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

#### 1997 ECONOMIC CENSUS

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 linesupervisor 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 companyoperated 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 sixdigit 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

#### 1997 ECONOMIC CENSUS

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
	NAICS COUE	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 repro- ducing
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 sixdigit 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 companyowned 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 beginningand 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

#### 332439 OTHER METAL CONTAINER MANUFACTUR-ING

This U.S. industry comprises establishments primarily engaged in manufacturing metal (light gauge) containers (except cans).

The data published with NAICS code 332439 include the following SIC industries:

3412 Metal barrels, drums, and pails

3429 Hardware, n.e.c. (pt)

3444 Sheet metal work (pt)

- 3499 Fabricated metal products, n.e.c. (pt)
- 3537 Industrial trucks and tractors (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 fourdigit 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 materialsconsumed 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 supplybased 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 SICbased 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.

#### MANUFACTURING

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, completecoverage 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 broaderbased annual survey of manufactures and the economic

#### MANUFACTURING

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
@3324391	For additional detail, see Current Industrial Report MA332K, Steel Shipping Drums and Pails.

## 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
3321111 3321111101		34625 3462511	3321165281 3321165291	3469989 3469997	3469989 3469997	3322127 pt 3322127101	37999 pt 3423611	37999 pt 3423611
3321111206	3462513	3462513	3321165361	3469971	3469971	3322127101	3423621	
3321111311	3462515	3462515	3321165YWV	3469900	3469900	3322127116	3423631	3423631
3321111416 3321111YWV	3462517	3462517				3322127121	3423641	3423641
3321111YWV	3462500	3462500	332116W	34690 pt	34690 pt	3322127131	3423681	3423681
3321113	34626	34626	332116WYWW 332116WYWY	3469000 pt 3469002 pt	3469000 pt 3469002 pt	3322127136	3423685	3423685
3321113101	3462611	3462611	332110001001	3403002 pt	5409002 pi	3322127141	3799906	3799923 pt
3321113106	3462613	3462613	3321170 pt	34990 pt	34990 pt	3322127199 3322127226	3423698 3524101	3423698 3524100 pt
3321113111	3462616	3462616	2221170 pt	24006	34996		3423600	3423600
3321113YWV	3462600	3462600	3321170 pt 3321170106	34996 3499633	3499633	3322127YWV pt	3524100 pt	3524100 pt
3321115	34627	34627	3321170211	3499655	3499655	3322127YWV pt	3799900 pt	3799900 pt
3321115101	3462712	3462712	3321170321	3499677	3499677	3322129 pt	35455	35455
3321115106	3462716	3462716	3321170401	3499611	3499611			
3321115YWV	3462700	3462700	3321170416 3321170426	3499666 3499688	3499666 3499688	3322129 pt 3322129101	36992 pt 3545511	36992 pt 3545511
3321117	34628	34628	3321170YWW pt	3499000 pt	3499000 pt	3322129106	3545513	3545513
3321117101	3462812	3462812	3321170YWW pt	3499600	3499600	3322129111	3545515	3545515
3321117106 3321117YWV	3462816 3462800	3462816 3462800	3321170YWY	3499002 pt	3499002 pt	3322129116	3545517	3545517
			3322111 pt	34211	34211	3322129121	3545521	3545521
332111W	34620	34620			34211	3322129126 3322129131	3545561 3545565	3545561 3545565
332111WYWW 332111WYWY	3462000	3462000	3322111 pt	39141 pt	39141 pt	3322129146	3545577	3545577
		3462002	3322111 pt	39142 pt	39142 pt	3322129161	3699255	3699200 pt
3321121	34635	34635	3322111101	3421111	3421111	3322129236	3545571	3545571
3321121101 3321121206	3463521 3463523	3463521 3463523	3322111103	3914245	3914270 pt	3322129341 3322129451	3545573 3545579	3545573 3545579
3321121200	3463525	3463525	3322111106	3914155	3914170 pt	3322129451	3545500	3545500
3321121316	3463529	3463529	3322111211	3421125	3421125	3322129YWV pt	3699200 pt	3699200 pt
3321121YWV	3463500	3463500	3322111222 3322111326	3421130 3421153	3421130 3421153		•	
3321122	34639	34639	3322111331	3421155	3421155	332212W pt	34230	
3321122101	3463915	3463915	3322111336	3421157	3421157	332212W pt	35230 pt	35230 pt
3321122106	3463925	3463925	3322111344	3421159	3421159	332212W pt	35240 pt	35240 pt
3321122111 3321122YWV	3463935 3463900	3463935 3463900	3322111455 3322111YWV pt	3421180 3421100	3421180 3421100			
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## G-2 APPENDIX G

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	3329113	34912					332919W pt	34940 pt	34940 pt
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Sector III.         Market average         Sector III.         Part of the sector IIII.         Part of the sector IIII.         Part of the sector IIIII.         Part of the sector IIIII.	3329113107	3491223	3491223		3492N00		332919WYWW pt		3499000 pt
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Schert S.         Mat 9         Mat 9         Mat 9         Schert S.         Schert S. <th< td=""><td>3329113215</td><td>3491243</td><td>3491243</td><td>332912WYWW pt</td><td>3492000</td><td>3492000</td><td>332919WYWY pt</td><td>3499002 pt</td><td></td></th<>	3329113215	3491243	3491243	332912WYWW pt	3492000	3492000	332919WYWY pt	3499002 pt	
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Signer (r)         Signer(	3329115YWV	3491300		3329131321 3329131326 pt	3432111 pt		3329917		
Signer Prof.         Signer Prof.<	3329117101	3491411	3491411	3329131326 pt	3432111 pt		3329919	35629	
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Sign Prov.         Sector Prov. <td>3329117113</td> <td>3491425</td> <td>3491425</td> <td>3329131456</td> <td>3432125</td> <td>3432125</td> <td>3329920</td> <td>34820</td> <td></td>	3329117113	3491425	3491425	3329131456	3432125	3432125	3329920	34820	
abs/s         Abs/s         Statistics	3329117217	3491461	3491461	3329131466	3432130	3432130	3329920206	3482035	3482035
3287 9901         348 510         348 510         348 520         348 500           3287 9901         348 550         348 500         348 500         348 500           3287 9901         348 550         348 500         348 500         348 500           3287 9901         348 550         348 500         348 500         348 500           3287 9901         348 500         348 500         348 500         348 500           3287 9901         348 500         348 500         348 500         348 500           3287 9901         348 500         348 500         348 500         348 500           3287 9910         348 500         348 500         348 500         348 500           3287 9910         348 500         348 500         348 500         348 500           3287 9910         348 500         348 500         348 500         348 500           3287 9910         348 500         348 500         348 500         348 500           3287 9910         348 500         348 500         348 500         348 500           3287 9910         348 500         348 500         348 500         348 500           3287 90         348 500         348 500         348 500         348 500				3329131468 pt	3432133 pt	3432134	3329920416	3482055	3482055
Sign 1005         Add 105         Add 105         Add 202	3329119101 3329119103	3491511 3491523	3491511 3491523	3329131YWV	3432100		3329920626	3482069	3482069
Sign Prop.         April Eq.         Seq Prop.         <	3329119105 3329119107	3491535 3491547	3491535	3329133131	3432224		3329920YWW	3482000	3482000
Baren         Sente         Sente <th< td=""><td>3329119209</td><td>3491561</td><td>3491561</td><td>3329133136</td><td>3432227</td><td>3432227 3432230</td><td>3329931</td><td>34831</td><td></td></th<>	3329119209	3491561	3491561	3329133136	3432227	3432227 3432230	3329931	34831	
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332912D100       3492G00       3329193319       3494521       3494521       332996WYWW pt       3353000 pt	332912D	3492G	3492G	3329193215 3329193217	3494518 3494519	3494518 3494519	332996W	33530 pt	33530 pt
332912F pt       3492F1       33291321       3494523       332996WYWY pt       3353002 pt       3353002 pt         332912F pt       37284 pt       3329133321       3494532       3494532       332996WYWY pt       3353002 pt       3498002         332912F pt       37284 pt       3329133325       3494532       3494534       332996WYWY pt       3498002       3498002         332912F 100 pt       3728400 pt       3329133327       3494534       3494537       3329970101       35430       35430         332912F 100 pt       3728403 pt       3728473 pt       3329193327       3494544       3494544       3329970101       3543011       3543011         332912F 100 pt       3728473 pt       3329193331       3494544       3494544       3329970206       3543098       3543008         332912F 100 pt       3728473 pt       3329193333       3494547       3494547       3329970206       3543000       3543000         332912F 100 pt       3728478 pt       3329193335       3494555       3494585       33299707WW       3543000       3543000         332912F 100 pt       3728478 pt       3329193337       3494585       33299707WW       3543000       3543002         332912F 100 pt       3728478 pt       3329193337	332912D100	3492G00	3492G00	3329193319	3494521	3494521	332996WYWW pt	3353000 pt 3498000 pt	3353000 pt 3498000 pt
332912F100 pt       3492H00       3492H00       3492H00       349434       339434         332912F100 pt       3728400 pt       3728400 pt       3728400 pt       3728400 pt       35430       35430         332912F100 pt       3728403 pt       3728473 pt       3329193327       3494547       3329970101       3543011       3543011         332912F100 pt       3728403 pt       3728475 pt       3329193331       3494544       3494544       3329970206       3543008       3543000         332912F100 pt       3728403 pt       3728475 pt       3329193331       3494544       3494547       332997070206       3543008       3543000         332912F100 pt       3728403 pt       3728485 pt       3329193335       3494545       3494585       33299707WW       3543000       3543000         332912F100 pt       3728403 pt       3728485 pt       3329193337       3494585       33299707WW       3543002       3543002         332912H       3492J       3492J       3229193337       3494589       3329980				3329193323	3494532	3494532	332996WYWY pt	3353002 pt	
332912F100 pt       3728403 pt       3728473 pt       3729193333       3494544       33299707WW       3543000       3543000         332912F100 pt       3728485 pt       3729193337       3494585       3429862       3429862       3429800       329980110       343101       343101         332912H100       3492J00       332919337W pt       3429800 pt       3429800 pt       322980110       343100       3431001         33291212H100       3492J00       33291937WV pt       3494500 pt       332998010 <td>332912F100 pt</td> <td>3492H00</td> <td>3492H00</td> <td>3329193327</td> <td>3494537</td> <td>3494537</td> <td>3329970</td> <td></td> <td></td>	332912F100 pt	3492H00	3492H00	3329193327	3494537	3494537	3329970		
332912F100 pt 3728403 pt 3728483 pt 3329193335 3494545	332912F100 pt	3728403 pt	3728473 pt	3329193331	3494544	3494544	3329970206	3543098	3543098
332912H         3492J         3492J         3492J         329193337         3494599         3429602         332980	332912F100 pt	3728403 pt	3728483 pt	3329193335	3494585	3494585	3329970YWW		
3329193YWV pt 3494500 pt 3494500 pt 3329980290 3431098 3431098 3431098	332912H	3492J	3492J	3329193337	3494599	3494599	3329980	34310	34310 3431010
332912J100 3492K00 3492K00 332919W pt 34290 pt 3329980YWY 3431002 3431002				3329193YWV pt	3494500 pt		3329980290	3431098	3431098
	332912J100	3492K00	3492K00	332919W pt	34290 pt	34290 pt			3431002

### G-4 APPENDIX G

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3329991 3329991101		34971 3497132	332999AYWV	3499500	3499500	332999GYWV pt	3999900 pt	3999900 pt
3329991101 3329991106			332999G pt	32918 pt	32918 pt	332999W pt	32910 pt	32910 pt
3329991111	3497137 3497100		332999G pt	34323 pt	34323 pt	332999W pt	34320 pt	34320 pt
3329993	34973	34973	332999G pt	34945 pt	34945 pt	332999W pt	34940 pt	34940 pt
3329993101		3497352	332999G pt	34998 pt	34998 pt	332999W pt	34970 pt	34970 pt
	3497358		332999G pt	35373 pt	35373 pt	332999W pt	34990 pt	34990 pt
	3497300		332999G pt	39999 pt	39999 pt	332999W pt	35370 pt	35370 pt
3329994 3329994101	3599411		332999G101 332999G106	3499811 3499819	3499811	332999W pt	35990 pt	35990 pt
	3599413		332999G189	3494571		332999W pt	39990 pt	39990 pt
	3599415		332999G301	3499829	3499829	332999WYWW pt	3291000 pt	3291000 pt
3329994121			332999G303 332999G305	3499839	3499839 3537331	332999WYWW pt	3432000 pt	3432000 pt
3329994YWV			332999G306 pt	3537331 3999991 pt		332999WYWW pt	3494000 pt 3497000 pt	3494000 pt 3497000 pt
		•	332999G306 pt	3999991 pt	3999942 pt	332999WYWW pt	3499000 pt	3499000 pt
	34992		332999G306 pt	3999991 pt		332999WYWW pt	3537000 pt	3537000 pt
	3499211		332999G306 pt	3999991 pt	3999999 pt	332999WYWW pt	3599000 pt	3599000 pt
3329997106					•	332999WYWW pt	3999000 pt	3999000 pt
3329997YWV	3499200	3499200	332999G313	3291831	3291831	332999WYWY pt	3291002 pt	3291002 pt
3329999	34993	34993	332999G316	3291835		332999WYWY pt	3432002 pt	3432002 pt
	3499300		332999G399 pt	3432329	3432332 pt			
0000001	0.4005	0.4005	332999G399 pt	3499898	3499899 pt	332999WYWY pt	3494002 pt	3494002 pt
332999A		34995 3499511	332999GYWV pt	3291800 pt	3291800 pt	332999WYWY pt 332999WYWY pt	3497002 pt	3497002 pt
332999A101			332999GYWV pt	3432300 pt			3499002 pt	3499002 pt
	3499521		332999GYWV pt	3494500 pt 3499800 pt		332999WYWY pt 332999WYWY pt	3537002 pt 3599002 pt	3537002 pt 3599002 pt
	3499539		332999GYWV pt	3537300 pt		332999WYWY pt	3999002 pt	3999002 pt
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