

# Paper (Except Newsprint) Mills: 2002

Issued January 2005

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## 2002 Economic Census

*Manufacturing*

Industry Series



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

*Helping You Make Informed Decisions*

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



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-- Not applicable for this report.

# Introduction to the Economic Census

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## **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 to 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.

## **INDUSTRY CLASSIFICATIONS**

Data from the 2002 Economic Census are published primarily according to the 2002 North American Industry Classification System (NAICS). NAICS was first adopted in the United States, Canada, and Mexico in 1997. The 2002 Economic Census covers 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 Food Services
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), largely covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 100 subsectors (three-digit codes), 317 industry groups (four-digit codes), and, as implemented in the United States, 1,179 industries (six-digit codes).



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## **RELATIONSHIP TO HISTORICAL INDUSTRY CLASSIFICATIONS**

Prior to the 1997 Economic Census, data were published according to the Standard Industrial Classification (SIC) system. 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 1997 Economic Census *Bridge Between NAICS and SIC* demonstrates the relationships between NAICS and SIC industries. Where changes are significant, it may not be possible to construct time series that include data for points both before and after 1997.

Most industry classifications remained unchanged between 1997 and 2002, but NAICS 2002 includes substantial revisions within the construction and wholesale trade sectors, and a number of revisions for the retail trade and information sectors. These changes are noted in industry definitions and will be demonstrated in the *Bridge Between NAICS 2002 and NAICS 1997*.

For 2002, data for enterprise support establishments (those functioning primarily to support the activities of their company's operating establishments, such as a warehouse or a research and development laboratory) are included in the industry that reflects their activities (such as warehousing). For 1997, such establishments were termed auxiliaries and were excluded from industry totals.

## **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. (For selected industries, only payroll, employment, and classification are collected for individual establishments, while other data are collected on a consolidated basis.)

## **GEOGRAPHIC AREA CODING**

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for states, metropolitan and micropolitan statistical areas, counties, and corporate municipalities (places) including cities, towns, townships, villages, and boroughs. Respondents were required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from administrative sources is used as a basis for coding.

## **AVAILABILITY OF ADDITIONAL DATA**

All results of the 2002 Economic Census are available on the Census Bureau Internet site ([www.census.gov](http://www.census.gov)) and on digital versatile discs (DVD-ROMs) for sale by the Census Bureau. The American FactFinder system at the Internet site allows selective retrieval and downloading of the data. For more information, including a description of reports being issued, see the Internet site, write to the U.S. Census Bureau, Washington, DC 20233-6100, or call Customer Services at 301-763-4100.

## **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

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from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some service trades in 1933. Censuses of construction, manufacturing, and the other business 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 and 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 report forms.

The range of industries covered in the economic census expanded between 1967 and 2002. 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. New for 2002 is coverage of four industries classified in the agriculture, forestry, and fishing sector under the SIC system: landscape architectural services, landscaping services, veterinary services, and pet care services.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. Reports for 1997 were published primarily on the Internet and copies of 1992 reports are also available there. CD-ROMs issued from the 1987, 1992, and 1997 Economic Censuses contain databases that include all or 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 the 2002 Economic Census and related surveys is published in the *Guide to the 2002 Economic Census* at [www.census.gov/econ/census02/guide](http://www.census.gov/econ/census02/guide). More information on the methodology, procedures, and history of the census will be published in the *History of the 2002 Economic Census* at [www.census.gov/econ/www/history.html](http://www.census.gov/econ/www/history.html).



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# Manufacturing

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## SCOPE

The Manufacturing sector (sector 31-33) comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. The assembling of component parts of manufactured products is considered manufacturing, except in cases where the activity is appropriately classified in Sector 23, Construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and characteristically use power-driven machines and materials-handling equipment. However, establishments that transform materials or substances into new products by hand or in the worker's home and those engaged in selling to the general public products made on the same premises from which they are sold, such as bakeries, candy stores, and custom tailors, may also be included in this sector. Manufacturing establishments may process materials or may contract with other establishments to process their materials for them. Both types of establishments are included in manufacturing.

The materials, substances, or components transformed by manufacturing establishments are raw materials that are products of agriculture, forestry, fishing, mining, or quarrying, as well as products of other manufacturing establishments. The materials used may be purchased directly from producers, obtained through customary trade channels, or secured without recourse to the market by transferring the product from one establishment to another, under the same ownership. The new product of a manufacturing establishment may be finished in the sense that it is ready for utilization or consumption, or it may be semifinished to become an input for an establishment engaged in further manufacturing. For example, the product of the alumina refinery is the input used in the primary production of aluminum; primary aluminum is the input to an aluminum wire drawing plant; and aluminum wire is the input for a fabricated wire product manufacturing establishment.

The subsectors in the manufacturing sector generally reflect distinct production processes related to material inputs, production equipment, and employee skills. In the machinery area, where assembling is a key activity, parts and accessories for manufactured products are classified in the industry of the finished manufactured item when they are made for separate sale. For example, a replacement refrigerator door would be classified with refrigerators and an attachment for a piece of metal working machinery would be classified with metal working machinery. However, components, input from other manufacturing establishments, are classified based on the production function of the component manufacturer. For example, electronic components are classified in Subsector 334, Computer and Electronic Product Manufacturing; and stampings are classified in Subsector 332, Fabricated Metal Product Manufacturing.

Manufacturing establishments often perform one or more activities that are classified outside the manufacturing sector of NAICS. For instance, almost all manufacturing has some captive research and development or administrative operations, such as accounting, payroll, or management. These captive services are treated the same as captive manufacturing activities. When the services are provided by separate establishments, they are classified to the NAICS sector where such services are primary, not in manufacturing.

The boundaries of manufacturing and the other sectors of the classification system can be somewhat blurry. The establishments in the manufacturing sector are engaged in the transformation of materials into new products. Their output is a new product. However, the definition of what constitutes a new product can be somewhat subjective. As clarification, the following activities are

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considered manufacturing in NAICS: milk bottling and pasteurizing; water bottling and processing; fresh fish packaging (oyster shucking, fish filleting); apparel jobbing (assigning of materials to contract factories or shops for fabrication or other contract operations); as well as contracting on materials owned by others; printing and related activities; ready-mixed concrete production; leather converting; grinding of lenses to prescription; wood preserving; electroplating, plating, metal heat treating, and polishing for the trade; lapidary work for the trade; fabricating signs and advertising displays; rebuilding or remanufacturing machinery (i.e., automotive parts); ship repair and renovation; machine shops; and tire retreading.

**Exclusions.** There are activities that are sometimes considered manufacturing, but for NAICS are classified in another sector. These activities include logging, classified in Sector 11, Agriculture, Forestry, Fishing and Hunting is considered a harvesting operation; the beneficiating of ores and other minerals, classified in Sector 21, Mining, is considered part of the activity of mining; the construction of structures and fabricating operations performed at the site of construction by contractors, is classified in Sector 23, Construction; establishments engaged in breaking of bulk and redistribution in smaller lots, including packaging, repackaging, or bottling products, such as liquors or chemicals; the customized assembly of computers; sorting of scrap; mixing paints to customer order; and cutting metals to customer order, classified in Sector 42, Wholesale Trade or Sector 44-45, Retail Trade, produce a modified version of the same product, not a new product; and publishing and the combined activity of publishing and printing, classified in Sector 51, Information, perform the transformation of information into a product where as the value of the product to the consumer lies in the information content, not in the format in which it is distributed (i.e., the book or software diskette).

The tabulations for this sector do not include central administrative offices, warehouses, or other establishments that serve manufacturing establishments within the same organization. Data for such establishments are classified according to the nature of the service they provide. For example, separate headquarters establishments are reported in NAICS Sector 55, Management of Companies and Enterprises.

The reports described below exclude establishments of firms with no paid employees. These “nonemployers,” typically self-employed individuals or partnerships operating businesses that they have not chosen to incorporate, are reported separately in Nonemployer Statistics. The contribution of nonemployers, relatively small for this sector, may be examined at [www.census.gov/nonemployerimpact](http://www.census.gov/nonemployerimpact).

The reports described below cover all manufacturing establishments with one or more paid employees.

**Definitions.** Industry categories are defined in Appendix B, NAICS Codes, Titles, and Descriptions. Other terms are defined in Appendix A, Explanation of Terms.

## REPORTS

The following reports provide statistics on this sector:

**Industry Series.** There are 473 reports, each covering a single NAICS industry (six-digit code). 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. The industry reports also include data for states with 100 employees or more in the industry. The data in industry reports are preliminary and subject to change in the following reports.

**Geographic Area Series.** There are 51 separate reports, one for each state and the District of Columbia. Each state report presents similar statistics at the “all manufacturing” level for each state and its metropolitan and micropolitan areas 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.

### Subject Series:

x Manufacturing

2002 Economic Census

- **Industry-Product Analysis Summary.** This report presents value of shipments, value of product shipments, percentage of product shipments of the total value of shipments, and percentage of distribution of value of product shipments on the NAICS six-digit industry level and by the six- and seven-digit product code levels. It also includes miscellaneous receipts at the six- and seven-digit product code levels by NAICS six-digit industry levels.
- **General Summary.** This 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.
- **Product Summary.** This report summarizes the products data published in the industry reports. This report also includes a table with data for products that are primary to more than one industry, which are not in the industry reports.
- **Materials Summary.** This report summarizes the materials data published in the industry reports.
- **Concentration Ratio Summary.** This report publishes data on the percentage of value of shipments and value added accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Herfindahl-Herschmann indexes for each industry.
- **Location of Manufacturing Plants Summary.** This report contains 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.

**ZIP Code Statistics.** This report contains statistics on the number of establishments for the three- and six-digit NAICS industry by employment-size of the establishment by ZIP Code.

**Other reports.** Data for this sector are also included in reports with multisector coverage, including Nonemployer Statistics, Comparative Statistics, Bridge Between 2002 NAICS and 1997 NAICS, Business Expenses, and the Survey of Business Owners reports.

## **GEOGRAPHIC AREAS COVERED**

The level of geographic detail varies by report. Maps are available at [www.census.gov/econ2002maps](http://www.census.gov/econ2002maps). Notes specific to areas in the state are included in Appendix D, Geographic Notes.

1. The United States as a whole.
2. States and the District of Columbia.
3. Metropolitan and micropolitan statistical areas with 250 employees or more. A core based statistical areas (CBSA) contains a core area with a substantial population nucleus, together with adjacent communities having a high degree of social and economic integration with that core. CBSAs are differentiated into metropolitan and micropolitan statistical areas based on size criteria. Both metropolitan and micropolitan areas are defined in terms of entire counties, and are listed in Appendix E, Metropolitan and Micropolitan Statistical Areas.
  - a. Metropolitan Statistical Areas (metro areas). Metro areas have at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties.
  - b. Micropolitan Statistical Areas (micro areas). Micro areas have at least one urban cluster of at least 10,000 but less than 50,000 population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties.
  - c. Metropolitan Divisions (metro divisions). If specified criteria are met, a metro area containing a single core with a population of 2.5 million or more may be subdivided to form smaller groupings of counties referred to as Metropolitan Divisions.

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- d. Combined Statistical Areas (combined areas). If specified criteria are met, adjacent metro and micro areas, in various combinations, may become the components of a new set of areas called Combined Statistical Areas. The areas that combine retain their own designations as metro or micro areas within the larger combined area.
4. Counties and county equivalents defined as of January 1, 2002, with 500 employees or more. Counties are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs, census areas, and city and boroughs. Maryland, Missouri, Nevada, and Virginia have one place or more that is independent of any county organization and constitutes primary divisions of their states. These places are treated as counties and as places.
  5. Economic places with 500 employees or more.
    - a. Municipalities of 2,500 inhabitants or more defined as of January 1, 2002. These are areas of significant population incorporated as cities, boroughs, villages, or towns according to the 2000 Census of Population. For the economic census, boroughs and census areas in Alaska and boroughs in New York are not included in this category.
    - b. Consolidated cities defined as of January 1, 2002. Consolidated cities are consolidated governments that consist of separately incorporated municipalities.
    - c. Townships in Michigan, New Jersey, and Pennsylvania, and towns in New York, Wisconsin, and the six New England states with 10,000 inhabitants or more (according to the 2000 Census of Population).
    - d. Balance of county. Areas outside the entities listed above, including incorporated municipalities with populations of fewer than 2,500, town and townships not qualifying as noted above, and the remainders of counties outside places are categorized as "Balance of county."

## **DOLLAR VALUES**

All dollar values presented are expressed in current dollars; i.e., 2002 data are expressed in 2002 dollars, and 1997 data, in 1997 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.

## **COMPARABILITY OF THE 1997 AND 2002 ECONOMIC CENSUSES**

Both the 2002 Economic Census and the 1997 Economic Census present data based on the North American Industry Classification System (NAICS). While there were revisions to selected industries for 2002, this sector is not affected by those revisions.

For 2002, there have been several additional data tables added, which did not exist in 1997. These tables for 2002 include products primary to more than one industry, industry-product analysis, e-commerce value of shipments, and leased and nonleased detail employment statistics by subsectors.

## **RELIABILITY OF DATA**

All data compiled for this sector are subject to nonsampling errors. Nonsampling errors can be attributed to many sources: inability to identify all cases in the actual universe; definition and classification difficulties; differences in the interpretation of questions; errors in recording or coding the data obtained; and other errors of collection, response, coverage, processing, and estimation for missing or misreported data. Selected data in tables titled "Detailed Statistics" are based on the Annual Survey of Manufactures and are subject to sampling errors as well as nonsampling errors.

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No direct measurement of these effects has been obtained except for estimation for missing or misreported data, as by the percentages shown in the tables. Precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize the effects of nonsampling errors. More information on the reliability of the data is included in Appendix C, Methodology.

## **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 in a specific industry or geographic area is not considered a disclosure; therefore, this information may be released even though other information is withheld. Techniques employed to limit disclosure are discussed at [www.census.gov/epcd/ec02/disclosure.htm](http://www.census.gov/epcd/ec02/disclosure.htm).

The disclosure analysis for "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. Nonetheless, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures, which 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 55,000 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 the Current Industrial Reports (CIR) program. The CIR program publishes selected detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. 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.

In addition, the County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county, and Statistics of U.S. Businesses provides annual statistics classified by the employment size of the enterprise, further classified by industry for the United States, and by broader categories for states and metropolitan areas.

## **CONTACTS FOR DATA USERS**

Questions about these data may be directed to the U.S. Census Bureau, Manufacturing & Construction Division, Information Services Center, 301-763-4673 or [ask.census.gov](mailto:ask.census.gov).

## **ABBREVIATIONS AND SYMBOLS**

The following abbreviations and symbols are used with these 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
S	Withheld because estimates did not meet publication standards
X	Not applicable
Z	Less than half the unit shown
a	0 to 19 employees
b	20 to 99 employees
c	100 to 249 employees



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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
nsk	Not specified by kind
-	Represents zero (page image/print only)
(CC)	Consolidated city
(IC)	Independent city

**Table 1. Historical Statistics for the Industry: 2002 and Earlier Years**

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry and year <sup>1</sup>	Com-panies <sup>2</sup>	All estab-lish-ments <sup>3</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number <sup>4</sup>	Payroll (\$1,000)	Number <sup>4</sup>	Hours (1,000)	Wages (\$1,000)				
322121, Paper (except newsprint) mills . . . . 2002..	193	307	96 522	5 313 691	76 047	159 908	3 955 193	24 437 436	18 239 410	42 501 737	2 676 825
2001..	N	N	104 964	5 586 938	83 154	173 453	4 171 388	22 676 592	20 003 845	42 602 115	2 672 982
2000..	N	N	110 708	5 738 720	87 640	184 739	4 255 710	24 777 987	21 420 481	46 119 069	2 883 053
1999..	N	N	117 721	6 062 652	92 819	199 148	4 526 150	23 400 146	21 231 531	44 728 354	2 745 654
1998..	N	N	121 298	5 973 936	95 227	203 926	4 374 292	21 859 582	20 609 399	42 254 842	3 357 152
1997..	121	267	125 935	6 197 015	98 577	214 510	4 483 213	22 128 898	20 914 676	42 966 163	3 404 261

<sup>1</sup>Statistics presented for years ending in 2 and 7 are census data. Interim census years are derived in a representative sample of manufacturing establishments canvassed in the Annual Survey of Manufactures (ASM).

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

<sup>3</sup>Includes establishments with payroll at any time during the year.

<sup>4</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 2. Industry Statistics for Selected States: 2002**

[States that are a disclosure or with less than 100 employees are not shown. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographical definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments <sup>2</sup>		All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)	
	E <sup>1</sup>	Total	With 20 employees or more	Number <sup>3</sup>	Payroll (\$1,000)	Number <sup>3</sup>	Hours (1,000)					Wages (\$1,000)
322121, Paper (except newsprint) mills												
United States.....	—	307	252	96 522	5 313 691	76 047	159 908	3 955 193	24 437 436	18 239 410	42 501 737	<sup>†</sup> 2 676 825
Connecticut .....	—	6	4	1 456	84 498	1 073	2 193	58 652	404 697	386 126	786 075	<sup>†</sup> 31 035
Florida .....	—	9	3	2 351	130 461	1 865	3 909	97 229	516 234	400 675	899 504	<sup>†</sup> 37 468
Illinois .....	—	8	6	676	39 981	503	1 083	28 619	116 704	125 906	244 577	<sup>†</sup> 50 143
Louisiana .....	—	6	6	2 981	164 209	2 366	5 120	120 218	662 092	577 082	1 242 953	249 552
Massachusetts .....	—	20	19	2 852	132 934	1 887	4 097	77 920	361 421	363 910	720 331	<sup>†</sup> 24 533
New Jersey .....	1	6	6	1 940	109 846	1 589	3 597	85 647	293 316	405 110	699 159	<sup>†</sup> 19 000
New York .....	2	33	27	4 784	238 501	3 538	7 352	159 592	865 138	794 317	1 635 712	<sup>†</sup> 61 314
Pennsylvania .....	—	17	14	6 542	375 222	5 055	10 601	280 381	2 400 715	1 314 561	3 776 865	<sup>†</sup> 141 739
South Carolina .....	—	5	5	4 097	259 935	3 110	6 352	186 124	1 324 342	996 232	2 320 846	94 817
Vermont .....	4	4	4	785	36 840	619	1 302	25 579	98 627	62 411	160 980	<sup>†</sup> 5 071
Washington .....	—	10	8	3 699	216 973	3 017	6 117	173 683	783 229	874 000	1 658 016	<sup>†</sup> 126 543
Wisconsin .....	—	36	35	17 907	923 501	14 647	29 670	717 343	4 386 295	3 042 033	7 342 749	270 576

<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 small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

**Table 3. Detailed Statistics by Industry: 2002**

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Item	Value
<b>322121, Paper (except newsprint) mills</b>	
Companies <sup>1</sup> .....	number.. 193
All establishments <sup>2</sup> .....	number.. 307
Establishments with 1 to 19 employees .....	number.. 55
Establishments with 20 to 99 employees .....	number.. 78
Establishments with 100 employees or more .....	number.. 174
All employees <sup>3</sup> .....	number.. 96 522
Total compensation .....	\$1,000.. 7 038 357
Annual payroll .....	\$1,000.. 5 313 691
Total fringe benefits .....	\$1,000.. 1 724 666
Production workers, average for year .....	number.. 76 047
Production workers on March 12 .....	number.. 76 618
Production workers on May 12 .....	number.. 76 168
Production workers on August 12 .....	number.. 76 021
Production workers on November 12 .....	number.. 75 310
Production worker hours .....	1,000.. 159 908
Production worker wages .....	\$1,000.. 3 955 193
Total cost of materials .....	\$1,000.. 18 239 410
Materials, parts, containers, packaging, etc., used .....	\$1,000.. 15 138 445
Resales .....	\$1,000.. 241 574
Purchased fuels .....	\$1,000.. 1 492 526
Purchased electricity .....	\$1,000.. 1 021 131
Contract work .....	\$1,000.. 345 734
Quantity of electricity purchased for heat and power .....	1,000 kWh.. 25 064 796
Quantity of electricity generated less sold for heat and power .....	1,000 kWh.. 15 672 465
Total value of shipments .....	\$1,000.. 42 501 737
Primary products value of shipments .....	\$1,000.. 39 859 197
Secondary products value of shipments .....	\$1,000.. 2 287 408
Total miscellaneous receipts .....	\$1,000.. 355 132
Value of resales .....	\$1,000.. 252 112
Contract receipts .....	\$1,000.. D
Other miscellaneous receipts .....	\$1,000.. D
Primary products specialization ratio .....	percent.. 95
Value of primary products shipments made in all industries .....	\$1,000.. 41 245 143
Value of primary products shipments made in this industry .....	\$1,000.. 39 859 197
Value of primary products shipments made in other industries .....	\$1,000.. 1 385 946
Coverage ratio .....	percent.. 97
Value added .....	\$1,000.. 24 437 436
Total inventories, beginning of year .....	\$1,000.. 3 838 876
Finished goods inventories .....	\$1,000.. 1 943 462
Work-in-process inventories .....	\$1,000.. 368 472
Materials and supplies inventories .....	\$1,000.. 1 526 976
Total inventories, end of year .....	\$1,000.. 4 343 363
Finished goods inventories .....	\$1,000.. 2 084 666
Work-in-process inventories .....	\$1,000.. 402 377
Materials and supplies inventories .....	\$1,000.. 1 856 354
Gross value of depreciable assets (acquisition costs) at beginning of year .....	\$1,000.. <sup>5</sup> 3 517 561
Total capital expenditures (new and used) .....	\$1,000.. <sup>2</sup> 676 825
Buildings and other structures (new and used) .....	\$1,000.. 386 001
Machinery and equipment (new and used) .....	\$1,000.. <sup>2</sup> 290 824
Automobiles, trucks, etc., for highway use .....	\$1,000.. <sup>7</sup> 711
Computers and peripheral data processing equipment .....	\$1,000.. <sup>7</sup> 9 470
All other expenditures for machinery and equipment .....	\$1,000.. <sup>2</sup> 203 643
Total retirements .....	\$1,000.. <sup>1</sup> 448 140
Gross value of depreciable assets at end of year .....	\$1,000.. <sup>5</sup> 474 246
Depreciation charges during year .....	\$1,000.. <sup>2</sup> 756 117
Total rental payments .....	\$1,000.. 196 970
Buildings and other structures .....	\$1,000.. 76 064
Machinery and equipment .....	\$1,000.. 120 906
Total other expenses <sup>4</sup> .....	\$1,000.. 3 187 312
Response coverage ratio <sup>5</sup> .....	percent.. 91
Repair and maintenance services of buildings and/or machinery <sup>4</sup> .....	\$1,000.. 721 638
Communications services <sup>4</sup> .....	\$1,000.. 35 694
Legal services <sup>4</sup> .....	\$1,000.. 13 264
Accounting, auditing, and bookkeeping services <sup>4</sup> .....	\$1,000.. 4 233
Advertising and promotional services <sup>4</sup> .....	\$1,000.. 164 378
Expensed computer hardware and supplies and purchased computer services <sup>4</sup> .....	\$1,000.. 36 700
Refuse removal (including hazardous waste) services <sup>4</sup> .....	\$1,000.. 131 538
Management consulting and administrative services <sup>4</sup> .....	\$1,000.. 104 776
Taxes and license fees <sup>4</sup> .....	\$1,000.. 228 917
All other expenses <sup>4</sup> .....	\$1,000.. 1 746 175

See footnotes at end of table.

**Table 3. Detailed Statistics by Industry: 2002—Con.**

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Item	Value
<b>3221211, Paper (except newsprint) mills - integrated producer</b>	
Companies <sup>1</sup> .....	34
All establishments <sup>2</sup> .....	75
Establishments with 1 to 19 employees .....	3
Establishments with 20 to 99 employees .....	72
Establishments with 100 employees or more .....	72
All employees <sup>3</sup> .....	55 557
Total compensation .....	\$1,000.. 4 198 114
Annual payroll .....	\$1,000.. 3 168 962
Total fringe benefits .....	\$1,000.. 1 029 152
Production workers, average for year .....	43 860
Production workers on March 12 .....	44 127
Production workers on May 12 .....	44 005
Production workers on August 12 .....	43 693
Production workers on November 12 .....	43 594
Production worker hours .....	1,000.. 93 181
Production worker wages .....	\$1,000.. 2 371 889
Total cost of materials .....	\$1,000.. 10 490 314
Materials, parts, containers, packaging, etc., used .....	\$1,000.. 8 534 040
Resales .....	\$1,000.. 68 698
Purchased fuels .....	\$1,000.. 1 026 072
Purchased electricity .....	\$1,000.. 629 316
Contract work .....	\$1,000.. 232 188
Quantity of electricity purchased for heat and power .....	1,000 kWh.. 16 256 167
Quantity of electricity generated less sold for heat and power .....	1,000 kWh.. 11 938 941
Total value of shipments .....	\$1,000.. 25 107 599
Primary products value of shipments .....	\$1,000.. X
Secondary products value of shipments .....	\$1,000.. X
Total miscellaneous receipts .....	\$1,000.. X
Value of resales .....	\$1,000.. X
Contract receipts .....	\$1,000.. D
Other miscellaneous receipts .....	\$1,000.. X
Primary products specialization ratio .....	percent.. X
Value of primary products shipments made in all industries .....	\$1,000.. X
Value of primary products shipments made in this industry .....	\$1,000.. X
Value of primary products shipments made in other industries .....	\$1,000.. X
Coverage ratio .....	percent.. X
Value added .....	\$1,000.. 14 781 489
Total inventories, beginning of year .....	\$1,000.. 2 187 927
Finished goods inventories .....	\$1,000.. 1 058 439
Work-in-process inventories .....	\$1,000.. 166 498
Materials and supplies inventories .....	\$1,000.. 962 990
Total inventories, end of year .....	\$1,000.. 2 582 330
Finished goods inventories .....	\$1,000.. 1 193 604
Work-in-process inventories .....	\$1,000.. 195 537
Materials and supplies inventories .....	\$1,000.. 1 193 189
Gross value of depreciable assets (acquisition costs) at beginning of year .....	\$1,000.. X
Total capital expenditures (new and used) .....	\$1,000.. X
Buildings and other structures (new and used) .....	\$1,000.. X
Machinery and equipment (new and used) .....	\$1,000.. X
Automobiles, trucks, etc., for highway use .....	\$1,000.. X
Computers and peripheral data processing equipment .....	\$1,000.. X
All other expenditures for machinery and equipment .....	\$1,000.. X
Total retirements .....	\$1,000.. X
Gross value of depreciable assets at end of year .....	\$1,000.. X
Depreciation charges during year .....	\$1,000.. X
Total rental payments .....	\$1,000.. X
Buildings and other structures .....	\$1,000.. X
Machinery and equipment .....	\$1,000.. X
Total other expenses <sup>4</sup> .....	\$1,000.. X
Response coverage ratio <sup>5</sup> .....	percent.. X
Repair and maintenance services of buildings and/or machinery <sup>4</sup> .....	\$1,000.. X
Communications services <sup>4</sup> .....	\$1,000.. X
Legal services <sup>4</sup> .....	\$1,000.. X
Accounting, auditing, and bookkeeping services <sup>4</sup> .....	\$1,000.. X
Advertising and promotional services <sup>4</sup> .....	\$1,000.. X
Expensed computer hardware and supplies and purchased computer services <sup>4</sup> .....	\$1,000.. X
Refuse removal (including hazardous waste) services <sup>4</sup> .....	\$1,000.. X
Management consulting and administrative services <sup>4</sup> .....	\$1,000.. X
Taxes and license fees <sup>4</sup> .....	\$1,000.. X
All other expenses <sup>4</sup> .....	\$1,000.. X

See footnotes at end of table.

**Table 3. Detailed Statistics by Industry: 2002—Con.**

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Item	Value
<b>3221212, Paper (except newsprint) mills - nonintegrated producer</b>	
Companies <sup>1</sup> .....	number.. 159
All establishments <sup>2</sup> .....	number.. 232
Establishments with 1 to 19 employees.....	number.. 55
Establishments with 20 to 99 employees.....	number.. 75
Establishments with 100 employees or more.....	number.. 102
All employees <sup>3</sup> .....	number.. 40 965
Total compensation.....	\$1,000.. 2 840 243
Annual payroll.....	\$1,000.. 2 144 729
Total fringe benefits.....	\$1,000.. 695 514
Production workers, average for year.....	number.. 32 187
Production workers on March 12.....	number.. 32 491
Production workers on May 12.....	number.. 32 163
Production workers on August 12.....	number.. 32 328
Production workers on November 12.....	number.. 31 716
Production worker hours.....	1,000.. 66 727
Production worker wages.....	\$1,000.. 1 583 304
Total cost of materials.....	\$1,000.. 7 749 096
Materials, parts, containers, packaging, etc., used.....	\$1,000.. 6 604 405
Resales.....	\$1,000.. 172 876
Purchased fuels.....	\$1,000.. 466 454
Purchased electricity.....	\$1,000.. 391 815
Contract work.....	\$1,000.. 113 546
Quantity of electricity purchased for heat and power.....	1,000 kWh.. 8 808 629
Quantity of electricity generated less sold for heat and power.....	1,000 kWh.. 3 733 524
Total value of shipments.....	\$1,000.. 17 394 138
Primary products value of shipments.....	\$1,000.. X
Secondary products value of shipments.....	\$1,000.. X
Total miscellaneous receipts.....	\$1,000.. X
Value of resales.....	\$1,000.. X
Contract receipts.....	\$1,000.. X
Other miscellaneous receipts.....	\$1,000.. X
Primary products specialization ratio.....	percent.. X
Value of primary products shipments made in all industries.....	\$1,000.. X
Value of primary products shipments made in this industry.....	\$1,000.. X
Value of primary products shipments made in other industries.....	\$1,000.. X
Coverage ratio.....	percent.. X
Value added.....	\$1,000.. 9 655 947
Total inventories, beginning of year.....	\$1,000.. 1 650 949
Finished goods inventories.....	\$1,000.. 885 023
Work-in-process inventories.....	\$1,000.. 201 974
Materials and supplies inventories.....	\$1,000.. 563 986
Total inventories, end of year.....	\$1,000.. 1 761 033
Finished goods inventories.....	\$1,000.. 891 062
Work-in-process inventories.....	\$1,000.. 206 840
Materials and supplies inventories.....	\$1,000.. 663 165
Gross value of depreciable assets (acquisition costs) at beginning of year.....	\$1,000.. X
Total capital expenditures (new and used).....	\$1,000.. X
Buildings and other structures (new and used).....	\$1,000.. X
Machinery and equipment (new and used).....	\$1,000.. X
Automobiles, trucks, etc., for highway use.....	\$1,000.. X
Computers and peripheral data processing equipment.....	\$1,000.. X
All other expenditures for machinery and equipment.....	\$1,000.. X
Total retirements.....	\$1,000.. X
Gross value of depreciable assets at end of year.....	\$1,000.. X
Depreciation charges during year.....	\$1,000.. X
Total rental payments.....	\$1,000.. X
Buildings and other structures.....	\$1,000.. X
Machinery and equipment.....	\$1,000.. X
Total other expenses <sup>4</sup> .....	\$1,000.. X
Response coverage ratio <sup>5</sup> .....	percent.. X
Repair and maintenance services of buildings and/or machinery <sup>4</sup> .....	\$1,000.. X
Communications services <sup>4</sup> .....	\$1,000.. X
Legal services <sup>4</sup> .....	\$1,000.. X
Accounting, auditing, and bookkeeping services <sup>4</sup> .....	\$1,000.. X
Advertising and promotional services <sup>4</sup> .....	\$1,000.. X
Expensed computer hardware and supplies and purchased computer services <sup>4</sup> .....	\$1,000.. X
Refuse removal (including hazardous waste) services <sup>4</sup> .....	\$1,000.. X
Management consulting and administrative services <sup>4</sup> .....	\$1,000.. X
Taxes and license fees <sup>4</sup> .....	\$1,000.. X
All other expenses <sup>4</sup> .....	\$1,000.. X

<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.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

<sup>4</sup>Based on 2002 Annual Survey of Manufactures (ASM) sample data.

<sup>5</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 Annual Survey of Manufactures (ASM) establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note 1: The amounts shown for other expenses reflect only those services that establishments purchase from other companies.

Note 2: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.



**Table 4. Industry Statistics by Employment Size: 2002**

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Employment size class	E <sup>1</sup>	All establishments <sup>2</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number <sup>3</sup>	Payroll (\$1,000)	Number <sup>3</sup>	Hours (1,000)	Wages (\$1,000)				
322121, Paper (except newsprint) mills											
All establishments .....	—	307	96 522	5 313 691	76 047	159 908	3 955 193	24 437 436	18 239 410	42 501 737	'2 676 825
Establishments with—											
1 to 4 employees .....	7	24	59	2 667	40	82	1 375	7 399	7 175	14 605	'1 596
5 to 9 employees .....	4	16	116	5 639	92	182	4 140	4 062	16 937	34 998	'968
10 to 19 employees .....	2	15	213	9 115	148	291	5 551	24 891	16 998	40 886	'1 022
20 to 49 employees .....	2	33	1 088	48 365	862	1 646	32 327	133 836	165 178	301 694	'8 548
50 to 99 employees .....	2	45	3 346	152 480	2 519	5 205	103 491	396 028	521 562	919 664	'38 317
100 to 249 employees .....	1	61	10 018	504 813	7 393	16 024	345 812	2 047 919	1 816 202	3 924 073	'151 486
250 to 499 employees .....	1	46	16 622	860 388	13 066	27 918	629 317	3 716 337	3 295 437	6 965 306	'835 071
500 to 999 employees .....	—	38	26 825	1 536 563	20 861	43 972	1 137 509	6 730 960	5 744 730	12 415 727	'579 749
1,000 to 2,499 employees .....	—	27	k	D	D	D	D	D	D	D	D
2,500 employees or more .....	—	2	i	D	D	D	D	D	D	D	D
Administrative records <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—	—

<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 small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1—10 to 19 percent; 2—20 to 29 percent; 3—30 to 39 percent; 4—40 to 49 percent; 5—50 to 59 percent; 6—60 to 69 percent; 7—70 to 79 percent; 8—80 to 89 percent; 9—90 percent or more.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

<sup>4</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.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 5. Industry Statistics by Primary Product Class Specialization: 2002**

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry or product class code	Industry or primary product class	All establishments <sup>1</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number <sup>2</sup>	Payroll (\$1,000)	Number <sup>2</sup>	Hours (1,000)	Wages (\$1,000)				
322121	Paper (except newsprint) mills .....	307	96 522	5 313 691	76 047	159 908	3 955 193	24 437 436	18 239 410	42 501 737	'2 676 825
3221211	Clay-coated printing and converting paper .....	34	21 282	1 259 620	16 471	34 664	931 771	4 189 422	4 402 695	8 603 332	'769 857
3221213	Uncoated freesheet paper (containing not more than 10 percent mechanical fiber) .....	70	31 439	1 759 504	24 317	52 048	1 274 923	6 819 424	5 699 571	12 409 066	'921 038
3221215	Bleached bristols (weight more than 150 g per sq meter), excluding cotton fiber index and bogus .....	1	b	D	D	D	D	D	D	D	D
3221217	Cotton fiber paper (containing 25 percent or more cotton or similar fibers) and thin paper .....	11	2 506	121 336	1 717	3 765	76 333	310 264	270 844	579 620	'18 102
3221219	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper .....	15	1 479	71 165	1 058	2 321	48 399	226 217	249 106	475 527	'13 917
322121A	Packaging and industrial converting paper, except unbleached kraft .....	14	1 351	66 814	1 043	2 292	47 005	167 071	225 059	392 548	'9 949
322121C	Special industrial paper, except specialty packaging, including absorbent, battery separator, electrical papers, etc. ....	41	7 202	372 650	5 187	10 810	241 267	1 049 570	1 081 472	2 115 263	'90 764
322121E	Construction paper .....	8	552	26 824	436	927	18 013	63 532	85 986	149 107	'12 549
322121G	Tissue paper and other machine-creped paper .....	31	4 861	239 219	3 787	7 855	174 817	991 312	905 396	1 883 124	'81 615
322121K	Disposable diapers and similar disposable products, made in paper mills .....	6	h	D	D	D	D	D	D	D	D
322121N	Sanitary tissue paper products, made in paper mills .....	31	21 678	1 190 420	18 566	37 756	975 698	8 771 481	4 360 836	13 088 916	'558 607

<sup>1</sup>Includes establishments with payroll at any time during the year.

<sup>2</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 6a. Products Statistics: 2002 and 1997**

[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. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
322121	Paper (except newsprint) mills	2002.. N 1997.. N	X X	X X	41 245 143 39 984 666
3221211	Clay-coated printing and converting paper	2002.. N 1997.. N	X X	X X	7 693 273 8 452 880
32212111	Clay-coated groundwood printing and converting paper (containing more than 10 percent mechanical fiber), including prime-coated body stock	2002.. N 1997.. N	X X	X X	3 462 765 3 706 540
322121111	Clay-coated groundwood printing and converting paper (containing more than 10 percent mechanical fiber), including prime-coated body stock	1,000 s tons. 2002.. 13 1997.. 12	X X	P5 163.4 4 818.5	3 462 765 3 706 540
32212112	Clay-coated freesheet printing and converting paper (containing not more than 10 percent mechanical fiber), including prime-coated body stock	2002.. N 1997.. N	X X	X X	4 230 508 4 746 340
3221211221	Clay-coated freesheet printing and converting paper, coated one side (containing not more than 10 percent mechanical fiber), including prime-coated body stock	1,000 s tons. 2002.. 12 1997.. 16	X X	9804.2 983.1	810 723 955 531
3221211231	Clay-coated freesheet printing and converting paper, coated two sides (containing not more than 10 percent mechanical fiber), including prime-coated body stock	1,000 s tons. 2002.. 15 1997.. 16	X X	P3 917.0 4 007.3	3 419 785 3 790 809
3221211Y	Clay-coated printing and converting paper, nsk	2002.. N 1997.. N	X X	X X	- -
3221211YVW	Clay-coated printing and converting paper, nsk	2002.. N 1997.. N	X X	X X	- -
3221213	Uncoated freesheet paper (containing not more than 10 percent mechanical fiber)	2002.. N 1997.. N	X X	X X	10 564 938 11 633 314
32212131	Bond and writing paper, and form bond in rolls, uncoated freesheet	2002.. N 1997.. N	X X	X X	2 924 380 3 472 714
3221213111	Bond and writing paper, including protective check, uncoated freesheet	1,000 s tons. 2002.. 18 1997.. 18	X X	2 723.3 3 050.4	2 160 125 2 287 119
3221213115	Form bond paper in rolls, uncoated freesheet	1,000 s tons. 2002.. 10 1997.. 15	X X	1 072.7 1 866.3	764 255 1 185 595
32212132	Other writing paper, including body stock for communication papers, technical and reproduction, tablet, ledger, onion skin, papeterie and wedding, etc., uncoated freesheet	2002.. N 1997.. N	X X	X X	2 771 911 2 095 580
3221213221	Body stock for communication, copying, and related papers, uncoated freesheet	1,000 s tons. 2002.. 10 1997.. 9	X X	2 983.5 1 090.5	2 086 620 787 854
3221213225	Other uncoated freesheet technical and reproduction papers, including mimeograph and gelatin and spirit process duplicating	1,000 s tons. 2002.. 8 1997.. 10	X X	358.9 1 134.3	479 926 848 845
3221213231	Writing tablet paper, uncoated freesheet	1,000 s tons. 2002.. 13 1997.. 11	X X	225.2 P327.8	148 186 216 922
3221213235	Other writing paper, including ledger, onion skin, papeterie and wedding, etc., uncoated freesheet	1,000 s tons. 2002.. 8 1997.. 10	X X	78.8 351.0	57 179 241 959
32212133	Publication and printing paper, uncoated freesheet, all types	2002.. N 1997.. N	X X	X X	2 501 350 2 776 755
3221213341	Plain publication and printing paper, uncoated freesheet, including machine finish, English finish, antique, bulking, eggshell, and supercalendered	1,000 s tons. 2002.. 11 1997.. 7	X X	663.4 257.7	622 250 214 668
3221213345	Offset publication and printing paper, uncoated freesheet	1,000 s tons. 2002.. 18 1997.. 23	X X	P1 597.8 2 231.6	1 123 985 1 730 654
3221213351	Other uncoated publication and printing freesheet paper	1,000 s tons. 2002.. 23 1997.. 21	X X	965.3 P894.5	755 115 831 433
32212134	Cover and text papers, envelope, body stock for coating, and all other converting and miscellaneous uncoated freesheet paper	2002.. N 1997.. N	X X	X X	2 367 297 3 288 265
3221213461	Cover and text papers, uncoated freesheet	1,000 s tons. 2002.. 19 1997.. 18	X X	S S	674 280 899 380
3221213471	Envelope (white wove) paper, uncoated freesheet	1,000 s tons. 2002.. 11 1997.. 13	X X	1 312.1 1 043.4	831 133 673 392
3221213481	Kraft envelope (bleached kraft and brown kraft) paper, uncoated freesheet	1,000 s tons. 2002.. 7 1997.. 10	X X	S 243.5	199 131 177 234
3221213491	Uncoated freesheet body stock paper for coating (base or raw stock for conversion of off-machine coating) and all other miscellaneous uncoated freesheet	1,000 s tons. 2002.. 12 1997.. 12	X X	S P1 261.4	662 753 1 538 259
3221213Y	Uncoated freesheet (containing not more than 10 percent mechanical fiber), nsk	2002.. N 1997.. N	X X	X X	- -
3221213YVW	Uncoated freesheet (containing not more than 10 percent mechanical fiber), nsk	2002.. N 1997.. N	X X	X X	- -
3221215	Bleached bristols (weight more than 150 g per sq meter), excluding cotton fiber index and bogus	2002.. N 1997.. N	X X	X X	1 226 783 1 230 728
32212151	Bleached bristols (weight more than 150 g per sq meter), excluding cotton fiber index and bogus	2002.. N 1997.. N	X X	X X	1 226 783 1 230 728
3221215111	Uncoated bleached bristol tag stock (weight more than 150 g per sq meter)	1,000 s tons. 2002.. 7 1997.. 10	X X	242.7 S	200 168 150 667
3221215121	Uncoated bleached bristol file folder stock (weight more than 150 g per sq meter)	1,000 s tons. 2002.. 8 1997.. 10	X X	386.4 311.2	306 389 231 124

See footnotes at end of table.

**Table 6a. Products Statistics: 2002 and 1997—Con.**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
322121	Paper (except newsprint) mills—Con.				
3221215	Bleached bristols (weight more than 150 g per sq meter), excluding cotton fiber index and bogus—Con.				
32212151	Bleached bristols (weight more than 150 g per sq meter), excluding cotton fiber index and bogus—Con.				
3221215131	Other uncoated bleached bristols, including tabulating card, index, printing, and postcard stock (weight more than 150 g per sq meter), excluding cotton fiber index and bogus . . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	13 14	X X	P355.6 301.9	300 840 269 369
3221215141	Coated bleached bristols (weight more than 150 g per sq meter), excluding cotton fiber index and bogus . . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	3 5	X X	S 720.0	419 386 579 568
3221215Y	Bleached bristols (weight more than 150 g per sq meter), excluding cotton fiber index and bogus, nsk . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	— —
3221215YVW	Bleached bristols (weight more than 150 g per sq meter), excluding cotton fiber index and bogus, nsk . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	— —
3221217	Cotton fiber paper (containing 25 percent or more cotton or similar fibers) and thin paper . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	D 762 448
32212171	Cotton fiber paper (containing 25 percent or more cotton or similar fibers) and thin paper . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	D 691 127
3221217111	Cotton fiber paper (containing 25 percent or more cotton or similar fibers) . . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	8 11	X X	D 141.5	D 334 311
3221217121	Thin paper including carbonizing, Bible, mimeograph and duplicating stencil tissue, India, tipping, condenser, cigarette paper, etc. . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	4 6	X X	D 133.3	D 356 816
3221217Y	Cotton fiber paper (containing 25 percent or more cotton or similar fibers) and thin paper, nsk . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	68 161 71 321
3221217YVW	Cotton fiber paper (containing 25 percent or more cotton or similar fibers) and thin paper, nsk . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	68 161 71 321
3221219	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	955 475 1 292 969
32212191	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	955 475 1 280 676
3221219111	Unbleached kraft shipping sack paper (meets minimum Federal specifications UU-S-48) and other unbleached kraft shipping sack paper . . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	8 4	X X	459.4 440.5	199 937 219 367
3221219121	Unbleached kraft bag and sack paper (except shipping), including grocers' and other unbleached kraft bag and sack for notion, millinery, etc. . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	12 16	X X	P526.8 1 252.9	225 575 625 092
3221219131	Unbleached kraft wrapping and specialty packaging paper (92 lb or less), including flour, sugar, dog food, fast foods, dairy products, etc. . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	13 10	X X	P201.9 156.6	165 219 97 575
3221219191	Other unbleached kraft converting paper, including creping (92 lb or less), asphaltting paper, coating and laminating, gumming, etc. . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	11 11	X X	Q603.7 913.6	364 744 338 642
3221219Y	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper, nsk . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	— 12 293
3221219YVW	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper, nsk . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	— 12 293
322121A	Packaging and industrial converting paper, except unbleached kraft . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	876 649 1 098 365
322121A1	Packaging and industrial converting paper, except unbleached kraft . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	876 649 1 080 132
322121A111	Shipping sack paper (except unbleached kraft), including combination kraft and rope, bleached and semibleached . . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	6 3	X X	54.1 32.7	50 500 26 655
322121A121	Other bag and sack paper, except unbleached kraft and shipping, including grocers', liquor, millinery, notion, variety, etc. . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	8 8	X X	155.9 178.1	121 162 118 656
322121A131	Specialty packaging (92 lbs or less) and wrapping paper, except unbleached kraft (butcher, flour, sugar, fast foods, confectionery, etc.) . . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	21 16	X X	Q457.6 P626.6	455 065 687 977
322121A141	Other converting stock, including asphaltting and creping stocks (not more than 92 lbs), coating and laminating, gummed, twisting and spinning stock (19 lbs or more), and waxing stock (18 lbs or more) . . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	12 11	X X	159.0 Q165.3	138 706 189 982
322121A151	Glassine, greaseproof, and vegetable parchment, all grades regardless of end use (92 lb or less) . . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	10 6	X X	Q96.0 45.1	111 216 56 862
322121AY	Packaging and industrial converting paper, except unbleached kraft, nsk . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	— 18 233
322121AYVW	Packaging and industrial converting paper, except unbleached kraft, nsk . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	— 18 233
322121C	Special industrial paper, except specialty packaging, including absorbent, battery separator, electrical papers, etc. . . . . 2002 . . . . .	N	X	X	1 817 312

See footnotes at end of table.

**Table 6a. Products Statistics: 2002 and 1997—Con.**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
322121	Paper (except newsprint) mills—Con.				
322121C	Special industrial paper, except specialty packaging, including absorbent, battery separator, electrical papers, etc.—Con.				
	1997..	N	X	X	1 843 513
322121C1	Special industrial paper, except specialty packaging, including absorbent, battery separator, electrical papers, etc.				
	2002..	N	X	X	1 817 312
	1997..	N	X	X	1 843 513
322121C100	Special industrial paper, except specialty packaging, including absorbent, battery separator, electrical papers, etc.				
	1,000 s tons..2002..	34	X	S	1 817 312
	1997..	35	X	P987.9	1 843 513
322121E	Construction paper				
	2002..	N	X	X	216 117
	1997..	N	X	D	D
322121E1	Construction paper				
	2002..	N	X	X	216 117
	1997..	N	X	X	D
322121E111	Roofing felts, saturating and dry				
	1,000 s tons..2002..	9	X	S	138 515
	1997..	12	X	P340.7	93 423
322121E121	Other construction paper, including sheathing paper, floor covering felts, automotive, insulating paper blankets, etc.				
	1,000 s tons..2002..	11	X	S	77 602
	1997..	9	X	D	D
322121EY	Construction paper, nsk				
	2002..	N	X	X	—
	1997..	N	X	X	—
322121EYVW	Construction paper, nsk				
	2002..	N	X	X	—
	1997..	N	X	X	—
322121G	Tissue paper and other machine-creped paper				
	2002..	N	X	X	2 022 039
	1997..	N	X	X	2 364 687
322121G1	Toilet tissue stock				
	2002..	N	X	X	704 037
	1997..	N	X	X	753 376
322121G111	Toilet tissue stock				
	1,000 s tons..2002..	14	X	P719.2	704 037
	1997..	20	X	P841.5	753 376
322121G2	Toweling paper stock, except wiper stock				
	2002..	N	X	X	565 881
	1997..	N	X	X	786 040
322121G221	Toweling paper stock, except wiper stock				
	1,000 s tons..2002..	12	X	P726.0	565 881
	1997..	19	X	P914.8	786 040
322121G3	Tissue paper and other machine-creped paper, excluding toilet tissue stock and toweling paper stock				
	2002..	N	X	X	752 121
	1997..	N	X	X	825 271
322121G331	Facial tissue stock, except toweling, napkin, and toilet				
	1,000 s tons..2002..	5	X	P14.6	14 080
	1997..	7	X	X	21 440
322121G341	Napkin paper stock, except sanitary napkin stock wadding				
	1,000 s tons..2002..	11	X	S	286 276
	1997..	18	X	P293.6	281 974
322121G351	Wiper tissue stock, regular, facial, and wadding stock				
	1,000 s tons..2002..	4	X	P35.7	43 273
	1997..	3	X	6.4	10 361
322121G361	Other sanitary paper stock, including sanitary napkin stock wadding, aseptic paper stock, reinforced paper stock, etc.				
	1,000 s tons..2002..	13	X	S	202 975
	1997..	13	X	P273.9	264 603
322121G371	Wrapping tissue, including florist tissue stock, hosiery paper, interleaving, antitamish, etc.				
	1,000 s tons..2002..	7	X	P63.4	109 680
	1997..	8	X	S	116 987
322121G391	Other tissue paper stock, including waxing tissue stock, creped wadding for interior packaging (excluding sanitary and thin)				
	1,000 s tons..2002..	6	X	S	95 837
	1997..	9	X	120.1	129 906
322121GY	Tissue paper and other machine-creped paper, nsk				
	2002..	N	X	X	—
	1997..	N	X	X	—
322121GYVW	Tissue paper and other machine-creped paper, nsk				
	2002..	N	X	X	—
	1997..	N	X	X	—
322121K	Disposable diapers and similar disposable products, made in paper mills				
	2002..	N	X	X	D
	1997..	N	X	X	N
322121K1	Disposable diapers and similar disposable products (including sanitary napkins, tampons, training pants, and incontinent pads), made in paper mills				
	2002..	N	X	X	D
	1997..	N	X	X	N
322121K100	Disposable diapers and similar disposable products (including sanitary napkins, tampons, training pants, and incontinent pads), made in paper mills <sup>1</sup>				
	millions..2002..	5	X	D	D
	1997..	N	X	N	N
322121N	Sanitary tissue paper products, made in paper mills				
	2002..	N	X	X	12 582 900
	1997..	N	X	X	9 293 076
322121N1	Facial tissues and handkerchiefs, including sputum wipes, made in paper mills				
	2002..	N	X	X	2 096 130
	1997..	N	X	X	795 176
322121N111	Facial tissues and handkerchiefs, including sputum wipes, made in paper mills <sup>2</sup>				
	1,000 s tons..2002..	10	X	S	2 096 130
	1997..	9	X	258.0	795 176
322121N2	Paper table napkins, industrial and retail packages, bulk and dispenser types, made in paper mills				
	2002..	N	X	X	908 082
	1997..	N	X	X	D
322121N201	Paper table napkins, industrial and retail packages, bulk and dispenser types, made in paper mills <sup>3</sup>				
	1,000 s tons..2002..	10	X	P522.3	908 082
	1997..	N	X	N	N
322121N3	Toilet tissue, retail packages, rolls and ovals, facial tissue type, two-ply or more, made in paper mills				
	2002..	N	X	X	3 556 136
	1997..	N	X	X	1 282 722
322121N331	Toilet tissue, retail packages, rolls and ovals, facial tissue type, two-ply or more, made in paper mills <sup>4</sup>				
	1,000 s tons..2002..	8	X	S	3 556 136
	1997..	9	X	P644.7	1 282 722
322121N4	Toilet tissue, retail packages, rolls and ovals, regular type, single-ply, made in paper mills				
	2002..	N	X	X	803 473
	1997..	N	X	X	D
322121N433	Toilet tissue, retail packages, rolls and ovals, regular type, single-ply, made in paper mills <sup>5</sup>				
	1,000 s tons..2002..	6	X	S	803 473
	1997..	9	X	D	D
322121N6	Paper towels, industrial packages (rolled, folded, and interfolded), made in paper mills				
	2002..	N	X	X	2 223 767
	1997..	N	X	X	791 194

See footnotes at end of table.

**Table 6a. Products Statistics: 2002 and 1997—Con.**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
322121	Paper (except newsprint) mills—Con.				
322121N	Sanitary tissue paper products, made in paper mills—Con.				
322121N6	Paper towels, industrial packages (rolled, folded, and interfolded), made in paper mills—Con.				
322121N661	Paper towels, industrial packages (rolled, folded, and interfolded), made in paper mills <sup>5</sup> . . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	7 6	X X	S P579.5	2 223 767 791 194
322121N7	Paper towels, retail packages (rolled, folded, and interfolded), made in paper mills . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	2 106 632 D
322121N701	Paper towels, retail packages (rolled, folded, and interfolded), made in paper mills <sup>7</sup> . . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	8 N	X X	S N	2 106 632 N
322121N9	Other sanitary paper products (including industrial packaged toilet tissue (all types), paper wipers (except nonwoven), absorbent pads, etc.), made in paper mills . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	826 905 N
322121N901	Other sanitary paper products (including industrial packaged toilet tissue (all types), paper wipers (except nonwoven), absorbent pads, etc.), made in paper mills <sup>8</sup> . . . . . 1,000 s tons . . . . . 2002 . . . . . 1997 . . . . .	8 N N N N N	X X X X X X	S N X X X X	826 905 N 61 775 70 255 61 775 70 255
322121NY	Sanitary tissue paper products, made in paper mills, nsk . . . . . 2002 . . . . . 1997 . . . . .	N N N N	X X X X	X X X X	19 928 47 078 19 928 47 078
322121NYWW	Sanitary tissue paper products, made in paper mills, nsk . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	19 928 47 078
322121W	Paper (except newsprint) mills, nsk, total . . . . . 2002 . . . . . 1997 . . . . .	N N N N	X X X X	X X X X	19 928 47 078 19 928 47 078
322121WY	Paper (except newsprint) mills, nsk, total . . . . . 2002 . . . . . 1997 . . . . .	N N N N	X X X X	X X X X	19 928 47 078 19 928 47 078
322121WYWW	Paper (except newsprint) mills, nsk, for nonadministrative-record establishments . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	19 928 47 078
322121WYWY	Paper (except newsprint) mills, nsk, for administrative-record establishments . . . . . 2002 . . . . . 1997 . . . . .	N N	X X	X X	— —

<sup>1</sup>This product code is primary to more than one industry. See industry 322291, product code 3222912100.  
<sup>2</sup>This product code is primary to more than one industry. See industry 322291, product code 3222915111.  
<sup>3</sup>This product code is primary to more than one industry. See industry 322291, product code 3222915215.  
<sup>4</sup>This product code is primary to more than one industry. See industry 322291, product code 3222915331.  
<sup>5</sup>This product code is primary to more than one industry. See industry 322121, product code 322121N701.  
<sup>6</sup>This product code is primary to more than one industry. See industry 322291, product code 3222915661.  
<sup>7</sup>This product code is primary to more than one industry. See industry 322291, product code 3222915701.  
<sup>8</sup>This product code is primary to more than one industry. See industry 322291, product code 3222915901.

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p–10 to 19 percent estimated; q–20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.



**Table 6b. Product Class Shipments for Selected States: 2002 and 1997**

[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 2002. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographic definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
3221211	Clay-coated printing and converting paper		
	United States .....	2002 .. 7 693 273 1997 .. 8 452 880	
3221213	Uncoated freesheet paper (containing not more than 10 percent mechanical fiber)		
	United States .....	2002 .. 10 564 938 1997 .. 11 633 314	
	Louisiana .....	2002 .. 697 078 1997 .. N	
	Massachusetts .....	2002 .. 45 980 1997 .. 138 033	
	New Jersey .....	2002 .. 120 478 1997 .. N	
	New York .....	2002 .. 623 481 1997 .. 626 195	
	Pennsylvania .....	2002 .. 625 518 1997 .. 1 046 439	
	Washington .....	2002 .. 530 466 1997 .. 565 790	
	Wisconsin .....	2002 .. 1 331 348 1997 .. 1 809 000	
	3221215	Bleached bristols (weight more than 150 g per sq meter), excluding cotton fiber index and bogus	
		United States .....	2002 .. 1 226 783 1997 .. 1 230 728
3221217	Cotton fiber paper (containing 25 percent or more cotton or similar fibers) and thin paper		
	United States .....	2002 .. D 1997 .. 762 448	
3221219	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper		
	United States .....	2002 .. 955 475 1997 .. 1 292 969	
322121A	Packaging and industrial converting paper, except unbleached kraft		
	United States .....	2002 .. 876 649 1997 .. 1 098 365	
322121C	Special industrial paper, except specialty packaging, including absorbent, battery separator, electrical papers, etc.		
	United States .....	2002 .. 1 817 312 1997 .. 1 843 513	
322121E	Construction paper		
	United States .....	2002 .. 216 117 1997 .. D	
322121G	Tissue paper and other machine-creped paper		
	United States .....	2002 .. 2 022 039 1997 .. 2 364 687	
322121K	Disposable diapers and similar disposable products, made in paper mills		
	United States .....	2002 .. D 1997 .. N	
322121N	Sanitary tissue paper products, made in paper mills		
	United States .....	2002 .. 12 582 900 1997 .. 9 293 076	
		2002 .. 255 405 1997 .. 396 972	
		2002 .. 2 356 183 1997 .. 1 668 507	

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

**Table 7. Materials Consumed by Kind: 2002 and 1997**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Material code	Material consumed	Quantity	Delivered cost (\$1,000)
322121	Paper (except newsprint) mills		
0090001	Total materials .....	X	15 138 445
	.....2002..	X	17 623 400
	.....1997..	X	
11331005	Spruce and true fir pulpwood bolts and logs .....	1 051.8	86 850
	.....1,000 standard cords..2002..	1 203.9	130 244
	.....1997..	S	42 695
11331007	Hemlock pulpwood bolts and logs .....	683.1	54 854
	.....1,000 standard cords..2002..		
	.....1997..		
11331009	Southern pine pulpwood bolts and logs .....	S	575 839
	.....1,000 standard cords..2002..	10 905.4	572 060
	.....1997..	S	259 198
11331023	Other softwood pulpwood bolts and logs, including Douglas fir and Jack pine .....	2 368.6	122 711
	.....1,000 standard cords..2002..	P6 751.1	504 022
	.....1997..	10 211.5	681 989
32100009	Softwood pulpwood wood chips, slabs, cores, sawdust, bark, and other mill residues .....		
	.....1,000 standard cords..2002..		
	.....1997..		
11331011	Southern mixed hardwood pulpwood bolts and logs .....	5 037.1	327 533
	.....1,000 standard cords..2002..	P7 743.4	431 852
	.....1997..	S	448 094
11331025	Other hardwood pulpwood bolts and logs .....	8 933.0	489 739
	.....1,000 standard cords..2002..	P5 807.8	397 248
	.....1997..	8 416.1	562 000
32518103	Chlorine (100 percent Cl basis) .....	82.9	22 530
	.....1,000 s tons..2002..	365.0	82 021
	.....1997..	P703.0	113 488
32518107	Sodium hydroxide (caustic soda)(100 percent NaOH) .....	1 257.8	247 702
	.....1,000 s tons..2002..	P674.7	221 753
	.....1997..	682.9	241 576
32518823	Sodium chlorate (100 percent NaClO <sub>3</sub> ) .....		
	.....1,000 s tons..2002..		
	.....1997..		
32510007	Other sodium compounds .....	X	33 516
	.....2002..	X	45 345
	.....1997..		
32518813	Aluminum sulfate (17 percent Al <sub>2</sub> O <sub>3</sub> ) .....	116.8	14 932
	.....1,000 s tons..2002..	149.6	19 616
	.....1997..		
32599811	Rosin sizing .....	P60.7	39 411
	..... mil lb (dry basis)..2002..	188.5	93 225
	.....1997..		
32741003	Lime .....	P523.5	31 776
	.....1,000 s tons..2002..	734.3	40 967
	.....1997..	q1 646.4	284 069
21232400	Kaolin and ball clay .....	2 036.2	322 274
	.....1,000 s tons..2002..	P1 884.1	316 933
	.....1997..	2 192.1	419 869
31122113	Starch .....		
	..... mil lb..2002..		
	.....1997..		
32521131	Synthetic resins .....	P315.2	173 664
	..... mil lb..2002..	425.1	279 707
	.....1997..	q239.0	199 840
32513103	Titanium dioxide, composite and pure (100 percent TiO <sub>2</sub> ) .....	382.7	326 403
	..... mil lb..2002..	P2 309.9	278 329
	.....1997..	1 832.8	261 717
32518829	Calcium carbonate, precipitated (100 percent CaCO <sub>2</sub> ) .....		
	.....1,000 s tons..2002..		
	.....1997..		
32500009	All other chemicals (including organic) .....	X	1 348 952
	.....2002..	X	1 473 728
	.....1997..		
32210029	Woodpulp produced at affiliated or associated mills at other locations .....	3 410.2	1 147 303
	.....1,000 s tons (dry basis)..2002..	1 980.7	889 868
	.....1997..	q4 228.7	1 688 594
32210031	Woodpulp, purchased (market) .....	7 825.0	3 259 888
	.....1,000 s tons (dry basis)..2002..		
	.....1997..		
00190006	Mixed wastepaper, excluding plant's own broke paper .....	S	215 841
	.....1,000 s tons..2002..	1 819.1	367 079
	.....1997..	D	D
00190007	Mechanical news wastepaper, excluding plant's own broke paper .....	D	D
	.....1,000 s tons..2002..	446.6	22 997
	.....1997..	568.5	76 536
00190072	Other mechanical wastepaper, excluding plant's own broke paper .....	313.3	38 654
	.....1,000 s tons..2002..		
	.....1997..		
00190073	Corrugated wastepaper (including kraft), excluding plant's own broke paper .....	1 217.4	115 697
	.....1,000 s tons..2002..	1 597.1	235 975
	.....1997..	524.1	108 264
00190009	High grade pulp substitutes wastepaper, excluding plant's own broke paper .....	439.7	133 513
	.....1,000 s tons..2002..	1 296.1	220 908
	.....1997..	P1 448.3	282 329
00190010	High grade deinking wastepaper, excluding plant's own broke paper .....		
	.....1,000 s tons..2002..		
	.....1997..		
31122305	Cotton linters .....	q32.6	26 154
	..... mil lb..2002..	q70.0	38 509
	.....1997..	9.1	12 563
32210033	Linters pulp .....	S	27 455
	.....1,000 s tons..2002..	D	D
	.....1997..	284.2	106 516
00190015	Other fibrous materials, including rags, straw, and bagasse .....		
	.....1,000 s tons..2002..		
	.....1997..		
32610013	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes .....	X	D
	.....2002..	X	52 209
	.....1997..	D	D
31323001	Nonwoven fabrics .....	S	172 684
	..... mil sq yd..2002..	X	550 537
	.....1997..	X	413 098
001900A2	Packaging paper and plastics film (including coated, laminated, printed, etc.) .....		
	.....2002..		
	.....1997..		
32552003	Glues and adhesives .....	S	108 376
	..... mil lb..2002..	100.9	76 275
	.....1997..	X	581 229
32221001	Paperboard containers, boxes, and corrugated paperboard .....	X	481 771
	.....2002..	X	2 598 446
	.....1997..	X	3 332 075
00970099	All other materials and components, parts, containers, and supplies .....	X	775 571
	.....2002..	X	792 906
	.....1997..	X	

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

# Appendix A.

## Explanation of Terms

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### **BEGINNING- AND END-OF-YEAR INVENTORIES**

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

### **Inventory data by stage of fabrication**

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

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

### **COST OF MATERIALS**

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

Included in this item are:

1. Cost of parts, components, containers, etc. Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.
3. Cost of fuels consumed for heat and power. Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity. The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work. This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

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## **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 that were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the "Cost of all other materials" Census material code 00970099.

Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the "Materials not specified by kind" Census materials code 00971000.

## **Duplication in cost of materials and value of shipment**

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries.

Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

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

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

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

## **SELECTED PURCHASED SERVICES**

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of selected purchased services for the repair and maintenance services of buildings and/or machinery; communication services; legal services; accounting, auditing, and bookkeeping services; advertising and promotional services; expensed computer hardware and supplies and purchased computer services; refuse removal services; management consulting and administrative services; taxes and license fees; and all other expenses not previously stated. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services. These expenses are normally considered as nonproduction related costs purchased from other companies.

Included in the cost of selected purchased services for the repair and maintenance services of buildings and/or 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. Excluded from this item are extensive repairs or reconstruction that was capitalized, which is considered capital expenditures; costs incurred directly by the establishment in using its own work force to perform repairs and maintenance work; and repairs and maintenance provided by the building or machinery owner as part of the rental contract.

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Included in the cost of selected purchased services for communication is the actual expense incurred or payable during the year for any type of communication. Such types of communication include telephone, data transmission, telegraph, Internet, connectivity, FAX, telex, photo transmission, paging, cellular telephone, on-line access and related services, etc.

Included in the cost of selected purchased services for legal services are payments made to other companies for these services that were paid directly by the establishment. Excluded are the salaries paid to employees of the establishment for these services.

Included in the cost of selected accounting, auditing, and bookkeeping services are payments made to other companies for these services that were paid directly by the establishment. Excluded are the salaries paid to employees of this establishment for these services.

Included in the cost of selected advertising and promotional services are payments made to other companies for these services that were paid directly by the establishment. These include payments for printing, media coverage, and other services and materials. Excluded are the salaries paid to employees of this establishment for these services.

Included in the cost of selected expensed computer hardware and supplies and purchased computer services are actual expenses incurred or payable during the year for this item. Purchases for computer hardware and supplies, computer services (software, data transmission, processing services, Web design, etc.) are all included. Excluded are services provided by other establishments of the same company (such as a separate central data processing unit).

Included in the cost of selected purchased refuse removal services are payments made to other companies for these services that were paid directly by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures and the salaries paid to employees of the establishment for these services.

Included in the cost of selected purchased management consulting and administrative services are payments made to other companies for these services that were paid directly by the establishment. Excluded are the salaries paid to employees of this establishment for these services.

Included in the cost of selected purchased taxes and license fees are payments made to other companies for these services that were paid directly by the establishment, excluding income, sales, payroll, and excise taxes. Excluded are also the salaries paid to employees of this establishment for these services.

### **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 nonreporters).

### **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.

### **NUMBER OF 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 that included the 12th of the months specified on the report form. Included are employees on paid sick leave, paid holidays, and paid vacations; not included are proprietors and partners of unincorporated businesses.

These individuals comprise of all full-time and part-time employees who are on the payrolls of establishments who worked or received pay for any part of the pay period including the 12th of March, May, August, and November.

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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**

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

### **All Other Employees**

The “other employees” 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.

### **TOTAL FRINGE BENEFITS**

This item is the employer’s costs for social security tax, unemployment tax, workmen’s compensation insurance, state disability insurance pension plans, stock purchase plans, union-negotiated benefits, life insurance premiums, and insurance premiums on hospital and medical plans for employees.

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

### **GROSS VALUE OF DEPRECIABLE ASSETS (ACQUISITION COSTS) 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 (BOY) and end of year (EOY). 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.

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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.

## **ESTABLISHMENT**

An establishment is a single physical location where business is conducted or where services or industrial operations are performed. Data in this sector includes those establishments where manufacturing is performed. A separate report was required for each manufacturing establishment (plant) with one employee or more that were in operation at any time during the year.

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.

## **Company**

A company or ("enterprise") is comprised of all the establishments that operate under the ownership or control of a single organization. A company may be a business, service, or membership organization; consist of one or several establishments; and operate at one or several locations. It includes all subsidiary organizations, all establishments that are majority-owned by the company or any subsidiary, and all the establishments that can be directed or managed by the company or any subsidiary.

A company may have one or many establishments. Examples include product and service sales offices (retail and wholesale), industrial production plants, processing or assembly operations, mines or well sites, and support operations (such as an administrative office, warehouse, customer service center, or regional headquarters). Each establishment should receive, complete, and return a separate census form.

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.

## **PAYROLL**

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

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

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

## **PRODUCT CODES AND CLASSES OF PRODUCTS**

NAICS United States industries are identified by a six-digit code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits.

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

In the manufacturing sector for 2002, 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). Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are 1,450 product classes (seven-digit codes), 5,674 census products, and an additional 3,746 ten-digit product 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.

### **PRODUCTION-WORKER HOURS**

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

### **QUANTITY OF ELECTRICITY PURCHASED 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.



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However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

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

### **RETIREMENTS OF DEPRECIABLE ASSETS**

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

### **CAPITAL EXPENDITURES FOR NEW AND USED PLANT AND EQUIPMENT**

Represents the total new and used capital expenditures reported by establishments in operation and any known plants under construction.

These data include expenditures for:

1. Permanent additions and major alterations to manufacturing and mining establishments.
2. New and used machinery and equipment used for replacement and additions to plant capacity, if they are of the type for which depreciation, depletion, or (for mining establishments) Office of Minerals Exploration accounts are ordinarily maintained. In addition, for mining establishments, these data include expenditures made during the year for development and exploration of mineral properties. For manufacturing establishments, these data are broken down into three types.
  - a. Automobiles, trucks, etc. for highway use. These include vehicles acquired under a lease-purchase agreement and excludes vehicles leased or normally designed to transport materials, property, or equipment on mining, construction, petroleum development, and similar projects. These vehicles are of such size or weight as to be normally restricted by state laws or regulations from operating on public highways. It also excludes purchases of vehicles that are purchased by a company for highway use.
  - b. Computers and peripheral data processing equipment. This item include all purchases of computers and related equipment.
  - c. All other expenditures for machinery and equipment excluding automobiles and computer equipment.

Capital expenditures include work done by contract, as well as by the establishment's own workforce.

These data exclude expenditures for land and mineral rights and cost of maintenance and repairs charged as current operating expenses.

### **VALUE ADDED**

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

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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: Reported contract work — receipts for work or services that a plant performed for others on their materials. Value of resales — sales of products brought and sold without further manufacture, processing, or assembly. 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: Primary products value of shipments. Secondary product value of shipments. 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.

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Before 1962, cost of materials and value of shipments were not published for some industries that 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 ratio**

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 ratio have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1 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

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### **322121 PAPER (EXCEPT NEWSPRINT) MILLS**

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

# Appendix C.

## Methodology

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### SOURCES OF THE DATA

The manufacturing sector includes approximately 350,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing. The amount of information requested from manufacturing establishments was 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).

Establishments in the 2002 Economic Census are divided into those sent report forms and those not sent report forms. The coverage of and the method of obtaining census information from each are described below:

1. Establishments sent a report form:

- 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-10000) 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 473 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 certain cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided

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for the respondent to describe significant materials not listed on the form.

A wide variety of special inquiries were 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 “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 “not specified by kind” (nsk) categories.

## 2. Establishments not sent a report form:

- a. 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 the Census Bureau’s ability to assign the correct six-digit NAICS industry classification to the establishment. For each six-digit NAICS 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 that 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 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 NAICS group classification codes available in the files. For manufacturing, these establishments were sent a

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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.

- b. All nonemployers, i.e., all firms subject to federal income tax, with no paid employees, during 2002 are excluded as in previous censuses. Data for nonemployers are not included in this report, but are released in the annual *Nonemployer Statistics* series.

The report forms used to collect information for establishments in this sector are available at [help.econ.census.gov/econhelp/resources/](http://help.econ.census.gov/econhelp/resources/).

A more detailed examination of census methodology is presented in the *History of the Economic Census* at [www.census.gov/econ/www/history.html](http://www.census.gov/econ/www/history.html).

## **INDUSTRY CLASSIFICATION OF ESTABLISHMENTS**

The classifications for all establishments covered in the 2002 Economic Census — Manufacturing are classified in 1 of 473 industries in accordance with the industry definitions in the *North American Industry Classification System (NAICS), United States, 2002* manual. There were no changes between the 2002 edition and the 1997 edition affecting this sector. When applicable, Appendix F of this report shows the product class and product comparability between the two systems for data in this report.

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

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 2002, 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). Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are 1,450 product classes (seven-digit codes), 5,674 census products, and an additional 3,746 ten-digit product codes. The ten-digit products are considered the primary products of the industry with the same first six digits.

For the 2002 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 2002, 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.

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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 that 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 2002 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 2002, 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 2002 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 ASM sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1999 survey year based on the 1997 Economic Census — Manufacturing. This sample will be in place through the 2003 ASM.

In 1997, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the establishments in the 1997 manufacturing population were partitioned into two components for developing estimates within the ASM. The details of each are described below:

1. Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies



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that operate at more than one physical location). Approximately 200,000 of the 370,000 establishments in the 1997 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 1999 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1997 census. Supplemental samples representing both 1998 and 1999 births (newly active establishments that were not included in the 1997 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 2003.

The 1999-2003 ASM sample design is similar to the one used since 1984. Companies in the 1997 Economic Census — Manufacturing 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 1999-2003 sample, there are approximately 500 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. Across these 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 1997 Economic Census — Manufacturing.

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 1997 industry classification and its 1997 product class data. For each product class (1,755) and six-digit industry (473), 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 the Census Bureau's 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) that permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

2. Nonmail stratum. The initial nonmail component of the survey was comprised of approximately 170,000 small, single-establishment companies that were tabulated as administrative records in the 1997 Economic Census — Manufacturing. 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.

## **RELIABILITY OF DATA**

All data compiled in the economic census are subject to nonsampling errors. Nonsampling errors can be attributed to many sources during the development or execution of the census. The following are two ways that further explain this method: ASM Estimating Procedure. Most of the ASM

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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 1997 (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 1998-2002 ASM estimates, the 1997 Economic Census — Manufacturing values serve as the base year. For the 2003 ASM, the base will be updated to be the 2002 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 contained approximately 170,000 individual establishments in 1999, 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. ASM Data Qualifications. The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists, but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

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

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

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

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

- From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
- From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.
- From three standard errors below to three standard errors above the derived estimate for nearly all samples.

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

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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.

#### **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 2002 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.

#### **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 in a specific industry or geographic area is not considered a disclosure; therefore, this information may be released even though other information is withheld. Techniques employed to limit disclosure are discussed at [www.census.gov/epcd/ec02/disclosure.htm](http://www.census.gov/epcd/ec02/disclosure.htm).

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. Nonetheless, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures, which can be suppressed even though value of shipments data are published.

# Appendix D. Geographic Notes

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Not applicable for this report.

# Appendix E. Metropolitan Areas and Micropolitan Statistical Areas

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Not applicable for this report.



2002 published	2002 collected	1997 published	2002 published	2002 collected	1997 published	2002 published	2002 collected	1997 published
3222225	3222225	3222225	3222233	3222233	3222233	3222331	3222331	3222331
3222225111	3222225111	3222225111	3222233111	3222233111	3222233111	3222331111	3222331111	3222331111
3222225221	3222225221	3222225221	3222233121	3222233121	3222233121	3222331121	3222331121	3222331121
3222225331	3222225331	3222225331	3222233131	3222233131	3222233131	3222331131	3222331131	3222331131
3222225341	3222225341	3222225341	3222233YVW	3222233YVW	3222233YVW	3222331YVW	3222331YVW	3222331YVW
3222225351	3222225351	3222225351						
3222225361	3222225361	3222225361	322223W	322223W	322223W	3222333	3222333	3222333
3222225371	3222225371	3222225371	322223WYVW	322223WYVW	322223WYVW	3222333111	3222333111	3222333111
3222225475	3222225475	3222225475	322223WYVW	322223WYVW	322223WYVW	3222333221	3222333221	3222333221
3222225581	3222225581	3222225581	322223WYVW	322223WYVW	322223WYVW	3222333331	3222333331	3222333331
3222225585	3222225585	3222225585				3222333441	3222333441	3222333441
3222225591	3222225591	3222225591	3222241	3222241	3222241	3222333551	3222333551	3222333551
3222225YVW	3222225YVW	3222225YVW	3222241111	3222241111	3222241111	3222333691	3222333691	3222333691
			3222241221	3222241221	3222241221	3222333YVW	3222333YVW	3222333YVW
			3222241231	3222241231	3222241231			
			3222241341	3222241341	3222241341	322233W	322233W	322233W
			3222241YVW	3222241YVW	3222241YVW	322233WYVW	322233WYVW	322233WYVW
						322233WYVW	322233WYVW	322233WYVW
3222226	3222226	3222226	3222243	3222243	3222243	3222912 pt.	3222911	3222911
3222226111	3222226111	3222226111	3222243111	3222243111	3222243111	3222912 pt.	3222913	3222913
3222226121	3222226121	3222226121	3222243221	3222243221	3222243221	3222912100 pt.	3222911111	3222911111
3222226131	3222226131	3222226131	3222243YVW	3222243YVW	3222243YVW	3222912100 pt.	3222911121	3222911121
3222226141	3222226141	3222226141				3222912100 pt.	3222911311	3222911311
3222226191	3222226191	3222226191				3222912100 pt.	3222911312	3222911312
3222226YVW	3222226YVW	3222226YVW				3222912100 pt.	3222911313	3222911313
			322224W	322224W	322224W	3222912YVW pt.	3222911YVW	3222911YVW
3222228	3329993	3329993	322224WYVW	322224WYVW	322224WYVW	3222912YVW pt.	3222911YVW	3222911YVW
3222228101	3329993101	3329993101	322224WYVW	322224WYVW	322224WYVW			
3222228106	3329993106	3329993106						
3222228111	3329993111	3329993111						
3222228YVW	3329993YVW	3329993YVW						
			3222250	3222250 pt.	3222250 pt.	3222915	3222915	3222915
3222229	3222229	3222229	3222250101	3222250101	3222250101	3222915111	3222915111	3222915111
3222229111	3222229111	3222229111	3222250206	3222250206	3222250206	3222915215 pt.	3222915221	3222915221
3222229121	3222229121	3222229121	3222250311	3222250311	3222250311	3222915215 pt.	3222915223	3222915223
3222229141	3222229141	3222229141	3222250516	3222250516	3222250516	3222915215 pt.	3222915225	3222915225
3222229161 pt.	3222229161 pt.	3222229161 pt.	3222250YVW	3222250YVW pt.	3222250YVW pt.	3222915215 pt.	3222915227	3222915227
3222229161 pt.	3222229161 pt.	3222229161 pt.	3222250YVW	3222250YVW pt.	3222250YVW pt.	3222915331	3222915329	3222915329
3222229YVW	3222229YVW	3222229YVW				3222915331	3222915331	3222915331
			3222260	3222260	3222260	3222915433	3222915433	3222915433
			3222260100	3222260100	3222260100	3222915661	3222915661	3222915661
322222A pt.	3222227	3222227	3222260YVW	3222260YVW	3222260YVW	3222915701 pt.	3222915773	3222915771
			3222260YVW	3222260YVW	3222260YVW			
322222A pt.	3222250 pt.	3222250 pt.				3222915701 pt.	3222915773	3222915773
						3222915901 pt.	3222915535	3222915535
						3222915901 pt.	3222915541	3222915541
322222A pt.	3329992 pt.	3329991 pt.	3222311	3222311	3222311	3222915901 pt.	3222915581	3222915581
322222A111	3222227111	3222227111	3222311111	3222311111	3222311111	3222915901 pt.	3222915891 pt.	3222915551
322222A121	3222227121	3222227121	3222311121	3222311121	3222311121	3222915901 pt.	3222915891 pt.	3222915891
322222A131 pt.	3222250421	3222250421	3222311231	3222311231	3222311231	3222915YVW	3222915YVW	3222915YVW
322222A131 pt.	3329992115	3329991111 pt.	3222311391	3222311391	3222311391			
322222A191	3222227191	3222227191	3222311YVW	3222311YVW	3222311YVW	322291W	322291W	322291W
322222AYVW pt.	3222227YVW	3222227YVW				322291WYVW	322291WYVW	322291WYVW
322222AYVW pt.	3222250YVW pt.	3222250YVW pt.	3222313	3222313	3222313	322291WYVW	322291WYVW	322291WYVW
322222AYVW pt.	3222250YVW pt.	3222250YVW pt.	3222313111	3222313111	3222313111			
322222AYVW pt.	3329992YVW pt.	3329991YVW pt.	3222313191	3222313191	3222313191	3222991	3222991	3222991
			3222313YVW	3222313YVW	3222313YVW	3222991100	3222991100	3222991100
322222W pt.	322222W	322222W	322231W	322231W	322231W	3222993	3222993	3222993
			322231WYVW	322231WYVW	322231WYVW	3222993111	3222993111	3222993111
			322231WYVW	322231WYVW	322231WYVW	3222993221	3222993221	3222993221
322222W pt.	332999W pt.	332999W pt.				3222993231	3222993231	3222993231
322222WYVW pt.	322222WYVW	322222WYVW	3222320	3222320	3222320	3222993241	3222993241	3222993241
322222WYVW pt.	332999WYVW pt.	332999WYVW pt.	3222320111	3222320111	3222320111	3222993351	3222993351	3222993351
322222WYVW pt.	322222WYVW	322222WYVW	3222320121	3222320121	3222320121	3222993361	3222993361	3222993361
322222WYVW pt.	332999WYVW pt.	332999WYVW pt.	3222320131	3222320131	3222320131	3222993471	3222993471	3222993471
			3222320141	3222320141	3222320141	3222993591	3222993591	3222993591
3222231	3222231	3222231	3222320YVW	3222320YVW	3222320YVW	3222993YVW	3222993YVW	3222993YVW
3222231100	3222231100	3222231100						
						322299W	322299W	322299W
						322299WYVW	322299WYVW	322299WYVW
						322299WYVW	322299WYVW	322299WYVW

