

Other Animal Food Manufacturing

1997

Issued December 1999

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1997 Economic Census

Manufacturing

Industry Series



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

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CONTENTS

Introduction to the Economic Census	1
Mining.....	5
TABLES	
1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997	7
2. Industry Statistics for Selected States and Offshore Areas: 1997	7
3. Detailed Statistics by Industry: 1997	8
4. Industry Statistics by Employment Size: 1997.....	8
5. Industry Statistics by Type of Operation: 1997	9
6a. Products or Services Statistics: 1997 and 1992	9
6b. Product Class Shipments for Selected States and Offshore Areas: 1997 and 1992	10
7. Selected Supplies, Minerals Received for Preparation, Purchased Machinery, and Fuels Consumed by Type: 1997 and 1992	10
APPENDIXES	
A. Explanation of Terms	A-1
B. NAICS Codes, Titles, and Descriptions	B-1
C. Coverage and Methodology.....	C-1
D. Geographic Notes	--
E. Metropolitan Areas	--
F. Footnotes for Products or Services Statistics, and Supplies and Fuels Consumed by Type	F-1
G. Comparability of Product Classes and Product Codes: 1997 to 1992.....	G-1

-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

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

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

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

ALL-NEW INDUSTRY CLASSIFICATIONS

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

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

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

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

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

RELATIONSHIP TO SIC

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

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

GEOGRAPHIC AREA CODING

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

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

BASIS OF REPORTING

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

DOLLAR VALUES

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

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

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

Special Tabulations

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

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

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

HISTORICAL INFORMATION

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

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

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

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

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

SOURCES FOR MORE INFORMATION

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

ABBREVIATIONS AND SYMBOLS

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

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

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

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Manufacturing

SCOPE

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

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

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

GENERAL

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

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

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

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

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

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

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

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

GEOGRAPHIC AREAS COVERED

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

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

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

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

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

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

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

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

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

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

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

DISCLOSURE

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

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

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

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

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

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

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

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

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-ditures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
311119	Other animal food mfg	965	1 514	32 753	980 156	19 580	39 288	504 040	4 497 615	14 689 447	19 168 810	290 458
204810	Prepared feeds, n.e.c. (pt)	N	1 514	32 753	980 156	19 580	39 288	504 040	4 497 615	14 689 447	19 168 810	290 458

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

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

Table 2. Industry Statistics for Selected States: 1997

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

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufac-ture (\$1,000)	Cost of materials (\$1,000)	Value of ship-ments (\$1,000)	Total capital ex-pen-ditures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
311119, OTHER ANIMAL FOOD MFG												
United States	1	1 514	526	32 753	980 156	19 580	39 288	504 040	4 497 615	14 689 447	19 168 810	290 458
Alabama	-	34	16	781	19 220	542	1 029	12 857	91 003	716 119	808 541	5 828
Arkansas	-	45	19	1 085	28 757	715	1 377	17 279	130 172	1 174 741	1 304 832	19 066
California	1	103	34	2 247	80 323	1 297	2 838	37 547	273 089	1 401 570	1 674 584	20 495
Delaware	1	7	5	258	9 019	158	402	4 767	17 926	372 439	388 450	1 930
Idaho	-	11	2	238	7 013	159	325	3 623	19 585	57 809	76 884	1 445
Illinois	1	67	23	1 405	41 220	746	1 597	18 725	195 207	454 452	646 092	14 273
Indiana	-	44	18	1 039	29 200	579	1 223	14 616	99 983	352 806	459 741	14 069
Kansas	-	53	15	1 105	31 305	719	1 841	17 911	87 289	346 472	432 593	6 643
Louisiana	1	17	7	283	7 693	215	444	5 059	53 894	177 506	232 454	1 014
Michigan	1	22	3	231	5 447	131	235	3 120	26 038	90 020	115 876	1 244
Minnesota	1	65	20	1 061	38 284	639	1 322	18 605	134 010	395 340	531 105	11 295
Missouri	-	52	18	1 304	36 932	800	1 471	18 064	289 853	539 951	832 624	16 633
New York	3	46	20	1 055	34 005	597	1 297	16 197	115 359	279 886	395 040	5 859
North Carolina	1	54	25	1 207	30 781	747	1 344	16 827	240 189	914 436	1 155 880	6 731
Ohio	-	47	15	1 108	37 516	631	1 382	19 673	103 233	258 788	361 527	5 500
Oregon	1	15	4	275	9 036	158	320	4 205	51 212	74 507	124 997	1 271
Pennsylvania	3	75	19	1 430	46 222	622	1 203	14 742	126 600	426 493	550 022	8 809
Texas	1	115	49	3 085	98 668	2 064	4 355	65 237	535 216	1 272 052	1 786 550	36 216
Wisconsin	1	72	20	1 679	54 733	885	1 729	22 343	188 941	399 746	591 605	13 364

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

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

Table 3. Detailed Statistics by Industry: 1997

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

Item	Value	Item	Value
311119, OTHER ANIMAL FOOD MFG		311119, OTHER ANIMAL FOOD MFG—Con.	
Companies ¹ number..	965	Value added \$1,000..	4 497 615
All establishments number..	1 514	Total inventories, beginning of year \$1,000..	839 203
Establishments with 1 to 19 employees number..	988	Finished goods inventories, beginning of year \$1,000..	326 894
Establishments with 20 to 99 employees number..	492	Work-in-process inventories, beginning of year \$1,000..	91 753
Establishments with 100 employees or more number..	34	Materials and supplies inventories, beginning of year \$1,000..	420 556
All employees number..	32 753	Total inventories, end of year \$1,000..	821 204
Total compensation ² \$1,000..	1 231 022	Finished goods inventories, end of year \$1,000..	285 110
Annual payroll \$1,000..	980 156	Work-in-process inventories, end of year \$1,000..	151 789
Total fringe benefits \$1,000..	250 866	Materials and supplies inventories, end of year \$1,000..	384 305
Production workers, average for year number..	19 580	Gross book value of total assets at beginning of year \$1,000..	5 399 491
Production workers on March 12 number..	19 652	Total capital expenditures (new and used) \$1,000..	290 458
Production workers on May 12 number..	19 541	Capital expenditures for buildings and other structures (new and used) \$1,000..	76 581
Production workers on August 12 number..	19 467	Capital expenditures for machinery and equipment (new and used) \$1,000..	213 877
Production workers on November 12 number..	19 660	Total retirements ² \$1,000..	59 380
Production-worker hours 1,000..	39 288	Gross book value of total assets at end of year \$1,000..	5 630 569
Production-worker wages \$1,000..	504 040	Total depreciation during year ² \$1,000..	227 210
Total cost of materials \$1,000..	14 689 447	Total rental payments ² \$1,000..	85 018
Cost of materials, parts, containers, etc., consumed \$1,000..	13 278 965	Buildings and other structures rental payments ² \$1,000..	20 721
Cost of resales \$1,000..	1 191 015	Machinery and equipment rental payments ² \$1,000..	64 297
Cost of fuels \$1,000..	73 383	Cost of purchased services for the repair of buildings and other structures ³ \$1,000..	19 943
Cost of purchased electricity \$1,000..	114 438	Response coverage ratio ⁴ percent..	82
Cost of contract work \$1,000..	31 646	Cost of purchased services for the repair of machinery and equipment ³ \$1,000..	91 470
Quantity of electricity purchased for heat and power 1,000 kWh..	2 069 157	Response coverage ratio ⁴ percent..	82
Quantity of electricity generated less sold for heat and power 1,000 kWh..	—	Cost of purchased communications services ³ \$1,000..	21 565
Total value of shipments \$1,000..	19 168 810	Response coverage ratio ⁴ percent..	82
Primary products value of shipments \$1,000..	17 510 737	Cost of purchased legal services ³ \$1,000..	6 960
Secondary products value of shipments \$1,000..	283 826	Response coverage ratio ⁴ percent..	82
Total miscellaneous receipts \$1,000..	1 374 247	Cost of purchased accounting and bookkeeping services ³ \$1,000..	9 254
Value of resales \$1,000..	1 306 616	Response coverage ratio ⁴ percent..	82
Contract receipts \$1,000..	43 074	Cost of purchased advertising services ³ \$1,000..	9 931
Other miscellaneous receipts \$1,000..	24 557	Response coverage ratio ⁴ percent..	82
Primary products specialization ratio percent..	98	Cost of purchased software and other data processing services ³ \$1,000..	3 577
Value of primary products shipments made in all industries \$1,000..	17 776 726	Response coverage ratio ⁴ percent..	82
Value of primary products shipments made in this industry \$1,000..	17 510 737	Cost of purchased refuse removal (including hazardous waste) services ³ \$1,000..	5 042
Value of primary products shipments made in other industries \$1,000..	265 989	Response coverage ratio ⁴ percent..	82
Coverage ratio percent..	98		

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

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

³Based on ASM sample data.

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

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

Table 4. Industry Statistics by Employment Size: 1997

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

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
311119, OTHER ANIMAL FOOD MFG												
All establishments	1	1 514	526	32 753	980 156	19 580	39 288	504 040	4 497 615	14 689 447	19 168 810	290 458
Establishments with 1 to 4 employees	2	320	—	705	30 095	483	778	23 088	291 472	439 291	729 859	12 587
Establishments with 5 to 9 employees	4	276	—	1 923	46 547	1 265	2 099	25 849	254 281	686 809	940 017	15 672
Establishments with 10 to 19 employees	1	392	—	5 424	148 769	3 426	6 676	80 073	789 001	2 462 028	3 254 505	36 273
Establishments with 20 to 49 employees	—	388	388	11 771	345 399	7 275	14 408	182 075	1 755 156	6 727 818	8 471 247	114 754
Establishments with 50 to 99 employees	1	104	104	6 993	215 886	3 719	7 869	100 857	832 108	2 729 602	3 554 959	74 041
Establishments with 100 to 249 employees	1	30	30	4 509	143 644	2 451	5 645	65 053	281 284	1 415 080	1 690 922	24 589
Establishments with 250 to 499 employees	—	4	4	1 428	49 816	961	1 813	27 045	294 313	228 819	527 301	12 542
Establishments with 500 to 999 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	303	—	1 441	25 675	914	1 116	14 217	104 739	306 688	409 267	7 583

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

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

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

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

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
311119	Other animal food mfg	1 514	32 753	980 156	19 580	39 288	504 040	4 497 615	14 689 447	19 168 810	290 458
3111191	Chicken and turkey feed, supplements, concentrates, and premixes	209	6 272	188 876	4 043	8 415	113 521	1 465 032	6 732 897	8 195 834	86 688
3111194	Dairy cattle feed, complete	140	4 972	156 779	2 894	6 251	78 183	503 377	1 632 819	2 133 054	29 092
3111197	Dairy cattle feed supplements, concentrates, and premixes	100	2 253	71 533	1 072	2 131	29 770	275 906	756 315	1 042 461	16 878
311119A	Swine feed, complete	50	862	28 085	495	980	12 153	98 746	398 684	498 088	4 021
311119D	Swine feed supplements, concentrates, and premixes	115	2 944	90 324	1 420	2 780	36 726	494 669	1 270 228	1 767 297	37 618
311119G	Beef cattle feed, complete	62	2 308	61 429	1 615	3 348	37 453	167 206	471 819	623 463	24 093
311119J	Beef cattle feed supplements, concentrates, and premixes	72	1 563	47 386	871	1 842	21 147	144 726	449 151	595 025	6 956
311119M	Other poultry and livestock feed, nec.	60	1 616	54 293	917	1 866	27 465	206 843	473 790	680 700	8 344
311119P	Other prepared animal feed, including feeding materials and adjuncts, nec.	80	1 629	49 672	1 052	2 212	26 609	247 709	481 641	727 598	18 184
311119T	Specialty feed	83	2 656	86 136	1 713	3 486	43 941	283 232	522 685	807 035	24 367

Table 6a. Products Statistics: 1997 and 1992

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

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
311119	Other animal food products	N	X	X	17 776 726	N	X	X	N
3111191	Chicken and turkey feed, supplements, concentrates, and premixes	N	X	X	8 136 813	N	X	X	4 890 288
31111911	Complete chicken feed, starter-growers and layer-breeders	N	X	X	1 907 737	N	X	X	N
3111191111	Complete chicken feed, starter-growers	74	X	4 745.6	934 892	84	X	3 630.6	571 154
3111191121	Complete chicken feed, layer-breeders	85	X	4 978.2	972 845	111	X	4 843.6	679 254
31111912	Complete chicken feed, broilers	N	X	X	3 915 478	N	X	X	N
3111191231	Complete chicken feed, broilers	41	X	20 957.9	3 915 478	47	X	15 861.5	2 563 036
31111913	Turkey feed; chicken and turkey supplements, concentrates, and premixes	N	X	X	1 856 554	N	X	X	N
3111191341	Complete turkey feed	47	X	3 826.7	714 827	54	X	3 143.1	458 874
3111191351	Chicken feed supplements and concentrates, starter-growers	12	X	68.5	20 579	14	X	S	18 912
3111191361	Chicken feed supplements and concentrates, layer-breeders	20	X	D	D	28	X	P233.4	60 326
3111191371	Chicken feed supplements and concentrates, broilers	8	X	D	D	9	X	581.4	132 982
3111191381	Turkey feed supplements and concentrates	8	X	540.3	111 896	11	X	Q28.3	6 828
3111191391	Chicken feed premixes (feed-base), starter-growers	17	X	S	60 132	6	X	D	D
31111913A1	Chicken feed premixes (feed-base), layer-breeders	3	X	S	5 438	14	X	Q58.8	27 768
31111913B1	Chicken feed premixes (feed-base), broilers	5	X	Q8.4	9 605	6	X	S	15 201
31111913C1	Turkey feed premixes (feed-base)	4	X	Q3.7	1 255	3	X	D	D
3111191Y	Chicken and turkey feed, supplements, concentrates, and premixes, nsk	N	X	X	457 044	N	X	X	N
3111191YWV	Chicken and turkey feed, supplements, concentrates, and premixes, nsk	N	X	X	457 044	N	X	X	334 649
3111194	Dairy cattle feed, complete	N	X	X	1 599 474	N	X	X	1 454 714
31111941	Dairy cattle feed, complete	N	X	X	1 599 474	N	X	X	N
3111194100	Dairy cattle feed, complete	143	X	P8 362.9	1 599 474	164	X	P11 761.0	1 454 714
3111197	Dairy cattle feed supplements, concentrates, and premixes	N	X	X	905 155	N	X	X	678 471
31111971	Dairy cattle feed supplements and concentrates, and feed premixes	N	X	X	893 017	N	X	X	N
3111197111	Dairy cattle feed supplements and concentrates	102	X	2 865.2	733 998	125	X	3 196.9	532 016
3111197121	Dairy cattle feed premixes (feed-base)	39	X	308.8	159 019	46	X	P323.2	127 812
3111197Y	Dairy cattle feed supplements, concentrates, and premixes, nsk	N	X	X	12 138	N	X	X	N
3111197YWV	Dairy cattle feed supplements, concentrates, and premixes, nsk	N	X	X	12 138	N	X	X	18 643
311119A	Swine feed, complete	N	X	X	581 842	N	X	X	541 915
311119A1	Swine feed, complete	N	X	X	581 842	N	X	X	N
311119A100	Swine feed, complete	124	X	3 052.2	581 842	151	X	P2 526.5	541 915
311119D	Swine feed supplements, concentrates, and premixes	N	X	X	981 825	N	X	X	1 181 400
311119D1	Swine feed supplements and concentrates and premixes	N	X	X	970 527	N	X	X	N
311119D111	Swine feed supplements and concentrates	74	X	1 778.0	696 412	100	X	4 504.7	906 843
311119D121	Swine feed premixes (feed-base)	53	X	396.1	274 115	59	X	P441.6	246 834
311119DY	Swine feed supplements, concentrates, and premixes, nsk	N	X	X	11 298	N	X	X	N
311119DYWV	Swine feed supplements, concentrates, and premixes, nsk	N	X	X	11 298	N	X	X	27 723
311119G	Beef cattle feed, complete	N	X	X	613 154	N	X	X	524 219
311119G1	Beef cattle feed, complete	N	X	X	613 154	N	X	X	N
311119G100	Beef cattle feed, complete	122	X	P3 685.7	613 154	141	X	Q3 611.0	524 219
311119J	Beef cattle feed supplements, concentrates, and premixes	N	X	X	616 961	N	X	X	622 981
311119J1	Beef cattle feed supplements and concentrates and premixes	N	X	X	611 317	N	X	X	N
311119J111	Beef cattle feed supplements and concentrates	84	X	2 224.3	523 749	88	X	4 340.7	522 050
311119J121	Beef cattle feed premixes (feed-base)	34	X	280.2	87 568	41	X	S	94 280
311119JY	Beef cattle feed supplements, concentrates, and premixes, nsk	N	X	X	5 644	N	X	X	N
311119JYWV	Beef cattle feed supplements, concentrates, and premixes, nsk	N	X	X	5 644	N	X	X	6 651

See footnotes at end of table.

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

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

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
311119	Other animal food products— Con.								
311119M	Other poultry and livestock feed, nec	N	X	X	676 368	N	X	X	511 879
311119M1	Other poultry and livestock feed	N	X	X	623 303	N	X	X	N
311119M111	Other poultry complete feed (duck, etc.)	17	X	^P 193.3	46 194	18	X	^P 120.8	18 666
311119M121	Other poultry feed supplements and concentrates (duck, etc.)	5	X	D	D	5	X	D	D
311119M131	Other poultry feed premixes (feed-base) (duck, etc.)	2	X	D	D	1	X	D	D
311119M141	Horse and mule complete feed	89	X	1 262.7	296 709	111	X	^{P1} 379.2	250 139
311119M151	Other livestock (sheep, etc.) complete feed	44	X	638.8	175 141	45	X	^P 301.7	69 515
311119M161	Horse and mule feed supplements and concentrates	15	X	^Q 56.1	16 956	23	X	S	11 333
311119M171	Other livestock (sheep, etc.) feed supplements and concentrates	25	X	^{P4} 1.3	13 501	27	X	^Q 146.0	41 778
311119M181	Horse and mule feed premixes (feed-base)	8	X	S	4 261	7	X	S	2 022
311119M191	Other livestock (sheep, etc.) feed premixes (feed-base)	9	X	S	14 595	10	X	S	20 771
311119MY	Other poultry and livestock feed, nsk	N	X	X	53 065	N	X	X	N
311119MYWV	Other poultry and livestock feed, nsk	N	X	X	53 065	N	X	X	33 204
311119P	Other prepared animal feed, including feeding materials and adjuncts, nec	N	X	X	651 735	N	X	X	N
311119P1	Other prepared animal feed, including feeding materials and adjuncts	N	X	X	648 972	N	X	X	N
311119P111	Grain animal feed (ground, rolled, pulverized, chopped, or crimped), excluding cornmeal	54	X	S	254 020	69	X	S	106 588
311119P121	Mineral mixture animal feed, including oyster shells prepared for feed use	30	X	467.3	94 206	50	X	S	161 241
311119P131	Dehydrated alfalfa meal animal feed	22	X	^P 314.9	37 621	23	X	S	30 286
311119P141	Sun cured and cubed alfalfa meal animal feed	8	X	96.4	13 061	18	X	S	23 258
311119P151	Other prepared animal feed	35	X	S	250 064	N	X	N	N
311119PY	Other prepared animal feeds, including feeding materials and adjuncts, nsk	N	X	X	2 763	N	X	X	N
311119PYWV	Other prepared animal feeds, including feeding materials and adjuncts, nsk	N	X	X	2 763	N	X	X	N
311119T	Specialty feed	N	X	X	892 628	N	X	X	747 433
311119T1	Specialty feed	N	X	X	830 205	N	X	X	N
311119T111	Fresh and frozen meat of horses and other animals for animal feed	8	X	149.6	27 124	11	X	342.7	60 977
311119T121	Other specialty pet food, except dog and cat	16	X	^P 341.1	112 524	11	X	S	156 914
311119T131	Specialty laboratory (mouse, guinea pig, etc.) feed	5	X	^Q 55.1	30 063	8	X	72.5	35 402
311119T141	Specialty fur animal (mink, fox, etc.) feed	7	X	S	18 231	6	X	11.8	2 514
311119T151	Specialty bird (wild, tame, pigeon, game) feed	49	X	S	285 718	31	X	S	142 995
311119T161	Specialty rabbit feed	29	X	126.9	31 674	35	X	^Q 174.5	37 493
311119T171	Specialty fish feed	23	X	645.3	197 869	30	X	S	167 128
311119T181	Other specialty feed	35	X	^P 652.0	127 002	24	X	S	92 492
311119TY	Specialty feeds, nsk	N	X	X	62 423	N	X	X	N
311119TYWV	Specialty feeds, nsk	N	X	X	62 423	N	X	X	51 518
311119W	Prepared feeds, nec, nsk, total	N	X	X	2 120 771	N	X	X	N
311119WY	Prepared feeds, nec, total	N	X	X	2 120 771	N	X	X	N
311119WYWV	Prepared feeds, nec, nsk, for nonadministrative-record establishments	N	X	X	1 752 643	N	X	X	N
311119WYWY	Prepared feeds, nec, nsk, for administrative-record establishments	N	X	X	368 128	N	X	X	N

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

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

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

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

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

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

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
3111191	CHICKEN AND TURKEY FEED, SUPPLEMENTS, CONCENTRATES, AND PREMIXES		
	United States	8 136 813	4 890 288
	Alabama	699 558	556 587
	Arkansas	1 109 403	778 971
	California	478 721	390 733
	Delaware	309 432	160 973
	Florida	85 921	60 868
	Georgia	841 019	541 648
	Illinois	82 855	12 880
	Indiana	109 000	69 060
	Iowa	117 657	66 953
	Kentucky	22 892	6 768
	Michigan	34 244	22 415
	Minnesota	119 968	62 588
	Mississippi	240 263	77 833
	Missouri	560 775	107 946
	Nebraska	22 384	8 686
	New York	10 680	11 451
	North Carolina	824 345	525 857
	Ohio	61 344	48 284
	Pennsylvania	126 492	185 706
	Texas	869 010	298 348
	Vermont	5 959	N
	Virginia	428 223	153 097
	Washington	16 185	22 986
	Wisconsin	22 154	11 087
3111194	DAIRY CATTLE FEED, COMPLETE		
	United States	1 599 474	1 454 714
	Alabama	18 377	18 345
	Arkansas	7 234	13 594
	California	430 232	328 661
	Florida	87 987	70 008
	Georgia	46 150	55 827
	Illinois	42 319	58 748
	Indiana	50 004	14 022
	Iowa	2 684	7 568
	Kansas	31 950	12 119
	Kentucky	26 864	35 759
	Massachusetts	23 678	N
	Michigan	8 876	7 323
	Minnesota	25 199	19 880
	Missouri	36 978	56 762
	Nebraska	5 276	5 999
	New York	92 820	115 333
	North Carolina	38 115	32 799
	Ohio	42 604	33 808
	Oklahoma	12 539	11 498
	Pennsylvania	77 832	59 332
	Tennessee	14 161	N
	Texas	149 431	121 817
	Virginia	39 072	24 640
	Washington	43 311	72 478
	Wisconsin	52 359	48 383
3111197	DAIRY CATTLE FEED SUPPLEMENTS, CONCENTRATES, AND PREMIXES		
	United States	905 155	678 471
	California	102 013	77 772
	Colorado	7 135	3 443
	Florida	8 888	7 150
	Georgia	12 563	10 233
	Idaho	14 735	N
	Illinois	25 289	42 700
	Indiana	35 139	32 572
	Iowa	47 735	51 021
	Kansas	6 205	11 044
	Kentucky	11 816	12 618
	Michigan	25 868	23 908
	Minnesota	60 112	79 823
	Missouri	10 397	16 728
	Nebraska	12 252	13 808
	New York	55 292	31 238
	North Carolina	10 945	9 867
	Ohio	37 219	31 897
	Oregon	8 331	N
	Pennsylvania	49 407	53 405
	South Dakota	2 412	4 332
	Texas	64 770	29 178
	Utah	2 478	3 041
	Virginia	7 283	9 784
	Washington	35 778	8 567
	Wisconsin	175 672	79 716

See footnotes at end of table.

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

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

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
311119A	SWINE FEED, COMPLETE		
	United States	581 842	541 915
	California	7 185	9 967
	Georgia	12 942	21 162
	Illinois	67 041	53 064
	Indiana	39 035	36 088
	Iowa	106 049	77 303
	Kansas	15 925	6 789
	Kentucky	6 607	7 265
	Minnesota	28 394	13 444
	Missouri	29 913	26 826
	Nebraska	50 126	33 165
	North Carolina	71 285	52 902
	Ohio	14 176	13 966
	Oklahoma	9 298	19 043
	Pennsylvania	12 909	22 257
	South Dakota	2 563	5 689
Texas	8 591	13 115	
Wisconsin	5 110	20 953	
311119D	SWINE FEED SUPPLEMENTS, CONCENTRATES, AND PREMIXES		
	United States	981 825	1 181 400
	Georgia	14 007	22 293
	Illinois	105 484	177 613
	Indiana	87 047	81 753
	Iowa	381 385	411 673
	Kansas	31 174	24 001
	Kentucky	15 843	15 815
	Michigan	8 314	15 277
	Minnesota	48 966	71 038
	Missouri	20 094	57 031
	Nebraska	100 391	114 093
	North Carolina	45 889	44 912
	Ohio	32 810	35 194
	Oklahoma	15 279	N
	South Dakota	9 205	35 832
	Wisconsin	19 007	19 972
311119G	BEEF CATTLE FEED, COMPLETE		
	United States	613 154	524 219
	Alabama	5 431	5 062
	Arkansas	16 486	15 780
	California	17 928	11 040
	Florida	37 016	19 615
	Georgia	10 181	8 379
	Indiana	4 244	5 820
	Iowa	27 737	11 438
	Kansas	121 446	101 956
	Kentucky	6 390	7 833
	Louisiana	7 069	6 664
	Minnesota	3 058	11 926
	Missouri	27 504	23 680
	Montana	3 923	3 645
	Nebraska	22 238	19 294
	North Carolina	5 595	2 470
Ohio	5 277	4 761	
Oklahoma	64 805	45 689	
Pennsylvania	2 509	N	
South Dakota	10 298	3 821	
Tennessee	7 884	N	
Texas	133 997	104 842	
Wisconsin	2 754	2 233	
311119J	BEEF CATTLE FEED SUPPLEMENTS, CONCENTRATES, AND PREMIXES		
	United States	616 961	622 981
	California	6 660	7 853
	Colorado	9 766	22 598
	Georgia	13 796	8 323
	Idaho	2 077	N
	Illinois	17 902	42 164
	Indiana	16 297	16 114
	Iowa	69 985	70 149
	Kansas	112 345	80 735
	Kentucky	6 488	6 207
	Michigan	2 781	2 437
	Minnesota	10 793	21 371
	Missouri	15 584	21 042
	Nebraska	70 594	68 348
	North Carolina	3 661	16 385
	Ohio	7 875	11 773
Pennsylvania	4 112	4 330	
South Dakota	16 079	25 407	
Texas	128 649	92 776	
Washington	4 248	N	
Wisconsin	12 155	14 724	

See footnotes at end of table.

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

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

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)		
		1997	1992	
311119M	OTHER POULTRY AND LIVESTOCK FEED, NEC			
	United States	676 368	511 879	
	Alabama	6 785	6 839	
	California	31 703	26 543	
	Colorado	5 705	9 578	
	Florida	27 838	23 310	
	Georgia	78 523	14 812	
	Illinois	37 622	81 572	
	Indiana	26 169	23 977	
	Iowa	57 650	22 162	
	Kansas	23 932	6 500	
	Kentucky	7 675	4 816	
	Michigan	6 825	3 830	
	Minnesota	6 878	5 071	
	Mississippi	2 508	4 244	
	Missouri	11 854	7 712	
	Nebraska	2 768	12 792	
	New York	26 863	22 444	
	North Carolina	27 334	12 109	
	Ohio	28 598	17 864	
	Oklahoma	12 438	16 647	
	Pennsylvania	53 314	18 325	
	Tennessee	8 822	9 979	
	Texas	84 727	53 648	
	Virginia	6 557	7 378	
	Washington	8 965	3 472	
	Wisconsin	14 787	48 098	
	311119P	OTHER PREPARED ANIMAL FEED, INCLUDING FEEDING MATERIALS AND ADJUNCTS, NEC		
		United States	651 735	N
		Arkansas	2 494	N
California		120 639	N	
Colorado		4 161	N	
Florida		33 380	N	
Georgia		22 992	N	
Idaho		13 822	N	
Illinois		27 959	N	
Indiana		10 984	N	
Iowa		84 239	N	
Kansas		14 724	N	
Kentucky		2 784	N	
Minnesota		10 217	N	
Missouri		13 723	N	
Nebraska		25 872	N	
New York		10 645	N	
North Carolina		5 080	N	
Ohio		16 190	N	
Oklahoma		6 751	N	
Oregon		33 136	N	
Pennsylvania		6 566	N	
South Dakota		3 788	N	
Tennessee		2 625	N	
Texas		34 741	N	
Utah		4 250	N	
Washington		21 035	N	
Wisconsin		88 291	N	
311119T		SPECIALTY FEED		
		United States	892 628	747 433
	Arkansas	21 258	17 410	
	California	87 740	47 995	
	Colorado	32 648	18 021	
	Florida	6 691	4 023	
	Georgia	37 882	5 307	
	Illinois	22 677	15 612	
	Indiana	32 582	N	
	Iowa	14 874	5 083	
	Kansas	27 081	10 375	
	Kentucky	2 406	2 489	
	Massachusetts	7 464	N	
	Michigan	3 454	6 473	
	Minnesota	50 864	36 259	
	Mississippi	105 946	70 585	
	Nebraska	24 876	16 601	
	New York	31 968	20 268	
	North Carolina	15 759	5 713	
	Ohio	29 767	26 899	
	Pennsylvania	33 249	32 608	
	Tennessee	2 892	3 008	
	Texas	26 166	64 292	
	Utah	25 630	N	
	Washington	6 786	11 276	
	Wisconsin	73 291	N	

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

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

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

Table 7. Materials Consumed by Kind: 1997 and 1992

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

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
311119	OTHER ANIMAL FOOD MFG				
11114001	Wheat 1,000 s tons..	S	143 445	N	N
11115001	Field corn, whole grain mil lb..	S	3 132 288	N	N
11119901	Oats 1,000 s tons..	553.5	80 316	N	N
11119903	Barley 1,000 s tons..	749.6	95 804	N	N
11119905	Sorghum 1,000 s tons..	S	158 403	N	N
31121101	Wheat flour 1,000 cwt..	S	43 597	N	N
31121115	Wheat millfeed and screenings 1,000 s tons..	S	292 701	N	N
31122207	Soybean millfeed and screenings 1,000 s tons..	988.5	178 975	N	N
31121135	Other millfeed and screenings 1,000 s tons..	S	190 965	N	N
31121137	Hominy feed and corn meal 1,000 s tons..	198.2	26 017	N	N
31122109	Corn gluten feed and meal 1,000 s tons..	424.0	82 844	N	N
31111900	Alfalfa meal, excluding alfalfa hay 1,000 s tons..	274.8	45 292	N	N
31131003	Sugar, cane and beet (in terms of sugar solids) 1,000 s tons..	S	15 467	N	N
31131007	Molasses 1,000 s tons..	768.5	77 474	N	N
31122307	Cottonseed cake and meal 1,000 s tons..	S	193 952	N	N
31100017	Fats and oils 1,000 s tons..	1 160.1	387 319	N	N
31161303	Meat meal and tankage 1,000 s tons..	1 130.3	318 783	N	N
31161305	Poultry feather and byproducts meal 1,000 s tons..	956.0	320 507	N	N
31170000	Fish meal and solubles (dry weight equivalent) 1,000 s tons..	284.8	127 277	N	N
31212000	Brewers' and distillers' grains 1,000 s tons..	589.6	84 182	N	N
31122205	Soybean cake and meal 1,000 s tons..	9 658.9	2 516 509	N	N
32518827	Calcium 1,000 s tons..	S	51 230	N	N
32518837	Phosphorus, elemental (technical) 1,000 s tons..	753.5	187 653	N	N
31194205	Salt 1,000 s tons..	S	38 882	N	N
32518841	Other minerals, except trace minerals 1,000 s tons..	S	214 810	N	N
32541109	Vitamins X		379 960	X	N
32541111	Drugs and antibiotics X		369 590	X	N
32541105	Other microingredients, including trace minerals X		354 190	X	N
32221001	Paperboard containers, boxes, and corrugated paperboard X		9 393	X	N
001900A1	Packaging paper and plastics film, coated and laminated X		46 357	X	N
31491101	Bags, textile (burlap, cotton, polypropylene, etc.) X		8 377	X	N
001900A3	Bags; plastics, foil, and coated paper X		39 600	X	N
32222401	Bags; uncoated paper and multiwall X		65 202	X	N
33243101	Metal cans, can lids and ends X		567	X	N
00970099	All other materials and components, parts, containers, and supplies X		936 265	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k. X		2 064 772	X	N

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

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

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

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

Inventory Data by Stage of Fabrication

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

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

COST OF MATERIALS

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

Included in this item are:

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

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

Specific Materials Consumed

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

Duplication in Cost of Materials and Value of Shipment

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

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

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

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

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

COST OF PURCHASED SERVICES

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

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

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

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

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

Response Coverage Ratio

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

DEPRECIATION CHARGES FOR FIXED ASSETS

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

EMPLOYEES

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

Production Workers

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

All Other Employees

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

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

FRINGE BENEFITS

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

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

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

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

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

NUMBER OF ESTABLISHMENTS AND COMPANIES

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

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

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

PAYROLL

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

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

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

PRODUCT CODES AND CLASSES OF PRODUCTS

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

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

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

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

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

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

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

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

PRIMARY PRODUCT CLASS CODE

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

PRODUCTION-WORKER HOURS

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

QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER

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

RENTAL PAYMENTS

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

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

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

RETIREMENTS OF DEPRECIABLE ASSETS

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

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

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

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

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

VALUE ADDED

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

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

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

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

VALUE OF SHIPMENTS

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

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

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

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

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

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

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

Duplication in Cost of Materials and Value of Shipment

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

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

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

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

Specialization and Coverage Ratios

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

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

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

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

Appendix B.

NAICS Codes, Titles, and Descriptions

311119 OTHER ANIMAL FOOD MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing animal food (except dog and cat) from ingredients, such as grains, oilseed mill products, and meat products.

The data published with NAICS code 311119 include the following SIC industry:

2048 Prepared feeds and feed ingredients for animals and fowls, except dogs and cats (pt)

This definition comes from the 1997 NAICS manual. However, for this industry, the 1997 Economic Census – Manufacturing did not fully implement the conversion to NAICS. Data for NAICS industry 311119 do not include establishments primarily engaged in the custom grinding of grain. The NAICS definitions will be fully implemented with the 2002 Economic Census.

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

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

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

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

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

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

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

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

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

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

2. Establishments sent a report form.

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

- a. ASM sample establishments.

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

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

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

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

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

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

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

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

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

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

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

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

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

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

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

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

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

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

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

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

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

ESTABLISHMENT BASIS OF REPORTING

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

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

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

DESCRIPTION OF THE ASM SURVEY SAMPLE

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

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

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

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

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

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

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

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

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

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

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

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

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

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

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

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

QUALIFICATIONS OF THE ASM DATA

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

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

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

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

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

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

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

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

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

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

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

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

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

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

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

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

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

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

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

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

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

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

Not applicable for this report.

