## Concentration Ratios in Manufacturing



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## Concentration Ratios in Manufacturing

1997 Economic Census
Manufacturing
Subject Series

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| nufacturing . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . |
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## TABLES

1. Share of Industry Statistics for Companies Ranked by Value Added: 1997
2. Share of Value of Shipments Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997
3. Share of Value Added Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997

## APPENDIXES

A. Explanation of Terms ........................................ A-1
B. NAICS Codes, Titles, and Descriptions............................ . -
C. Coverage and Methodology ............................................ C-1
D. Geographic Notes
E. Metropolitan Areas
-- 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 |

Finance and Insurance
Real Estate and Rental and Leasing
Professional, Scientific, and Technical Services
Management of Companies and Enterprises
Administrative and Support and Waste
Management and Remediation Services
Educational Services
Health Care and Social Assistance
Arts, Entertainment, and Recreation
Accommodation and Foodservices
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 Service Sector Statistics Division

301-457-4673
301-457-2668

## HISTORICAL INFORMATION

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

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

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

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

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

## SOURCES FOR MORE INFORMATION

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

## ABBREVIATIONS AND SYMBOLS

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

A Standard error of 100 percent or more.
D Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F Exceeds 100 percent because data include establishments with payroll exceeding revenue.
$\mathrm{N} \quad$ 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.

Represents less than 50 vehicles or .05 percent.
Not applicable.
Disclosure withheld because of insufficient coverage of merchandise lines.
Less than half the unit shown.
0 to 19 employees.
20 to 99 employees.
100 to 249 employees.
250 to 499 employees.
500 to 999 employees.
1,000 to 2,499 employees.
2,500 to 4,999 employees.
5,000 to 9,999 employees.
10,000 to 24,999 employees.
25,000 to 49,999 employees.
50,000 to 99,999 employees.
100,000 employees or more.
10 to 19 percent estimated.
20 to 29 percent estimated.
Revised.
Sampling error exceeds 40 percent.
Not elsewhere classified.
Not specified by kind. Represents zero (page image/print only).
C) Consolidated city.

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 HirschmannHerfindahl Indexes for each industry.

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

## GEOGRAPHIC AREAS COVERED

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

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

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the
component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

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

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

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

## COMPARABILITY OF THE 1992 AND 1997 CENSUSES

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

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

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

## DISCLOSURE

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

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

## AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

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

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

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

Table 1. Share of Industry Statistics for Companies Ranked by Value Added: 1997
[Percent. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Company rank group based on value added by manufacture ${ }^{1}$ | All employees | Payroll | Production workers |  |  | Value added by manufacture | Cost of materials | Value of shipments | Total capital expenditures |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Total | Hours | Wages |  |  |  |  |
| 50 largest. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 11.7 | 17.3 | 10.6 | 11.1 | 16.8 | 24.0 | 22.0 | 23.0 | 21.3 |
| 51st to 100th largest | 4.4 | 5.3 | 4.2 | 4.4 | 5.2 | 7.7 | 8.6 | 8.2 | 7.3 |
| 101st to 150th largest | 3.6 | 4.2 | 3.7 | 3.7 | 4.4 | 5.2 | 4.8 | 5.0 | 5.3 |
| 151st to 200th largest | 2.8 | 3.0 | 2.9 | 3.0 | 3.3 | 3.8 | 4.7 | 4.3 | 4.1 |
| 201st and larger ..... | 77.5 | 70.2 | 78.6 | 77.7 | 70.4 | 59.3 | 59.8 | 59.6 | 62.0 |

${ }^{1}$ For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
Note: All percentages are independently rounded and do not necessarily add to 100.

Table 2. Share of Value of Shipments Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997
[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value of shipments ${ }^{2}$ (\$1000) | Percent of value of shipments accounted for by the- |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 311 | Food mfg . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 21958 | 421737017 | 14.3 | 22.0 | 34.8 | 50.8 | 91.0 |
| 3111 | Animal food mfg | 1077 | 27732347 | 23.1 | 34.7 | 56.1 | 73.1 | 238.8 |
| 31111 | Animal food mfg | 1077 | 27732347 | 23.1 | 34.7 | 56.1 | 73.1 | 238.8 |
| 311111 | Dog \& cat food mfg | 129 | 8688239 | 58.4 | 80.2 | 92.4 | 98.3 | 1266.5 |
| 311119 | Other animal food mfg . . . . . . . . . . . . . . . . . . . . . . . | 962 | 19044108 | 23.7 | 36.3 | 54.5 | 71.2 | 240.6 |
| 3112 | Grain \& oilseed milling. . . . . . . . . . . . . . . . . . . . . . . . . | 534 | 52075763 | 45.3 | 59.1 | 77.1 | 89.1 | 711.4 |
| 31121 | Flour milling \& malt mfg. . . . . . . . . . . . . . . . . . . . . . . . | 324 | 11141876 | 38.7 | 51.8 | 71.4 | 89.2 | 485.7 |
| 311211 | Flour milling . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 254 | 8001978 | 48.4 | 62.5 | 79.2 | 93.4 | 699.6 |
| 311212 | Rice milling . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 56 | 2364582 | 51.8 | 75.3 | 92.5 | 99.8 | 894.2 |
| 311213 | Malt mfg . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 19 | 775316 | 69.0 | 94.5 | 100.0 | N | 1458.7 |
| 31122 | Starch \& vegetable fats \& oils mfg . . . . . . . . . . . . . | 179 | 31835054 | 57.7 | 73.0 | 88.3 | 96.9 | 1213.5 |
| 311221 | Wet corn milling . . . . . . . . . . . . . . . . . . . . . . . . . . . | 30 | 8455172 | 71.7 | 90.3 | 99.8 | 100.0 | 1507.4 |
| 311222 | Soybean processing | 43 | 14036271 | 79.6 | 94.5 | 99.5 | 100.0 | 2035.4 |
| 311223 | Other oilseed processing ...................... | 32 | 1720738 | 66.6 | 81.9 | 98.9 | 100.0 | 2149.2 |
| 311225 | Fats \& oils refining \& blending . . . . . . . . . . . . . . . | 91 | 7622873 | 36.7 | 63.0 | 89.5 | 98.8 | 602.8 |
| 31123 | Breakfast cereal mfg . . . . . . . . . . . . . . . . . . . . . . . | 48 | 9098833 | 82.9 | 93.5 | 99.2 | 100.0 | 2445.9 |
| 311230 | Breakfast cereal mfg . . . . . . . . . . . . . . . . . . . . . . | 48 | 9098833 | 82.9 | 93.5 | 99.2 | 100.0 | 2445.9 |
| 3113 | Sugar \& confectionery product mfg . . . . . . . . . . . . . . . | 1556 | 24114454 | 41.9 | 56.4 | 75.0 | 86.3 | 580.3 |
| 31131 | Sugar mfg . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 49 | 7399171 | 64.4 | 84.0 | 95.9 | 100.0 | 1452.2 |
| 311311 | Sugarcane mills | 34 | 1457482 | 56.6 | 71.4 | 94.3 | 100.0 | 1158.7 |
| 311312 | Cane sugar refining | 12 | 3209186 | 98.7 | 99.9 | 100.0 | N | D |
| 311313 | Beet sugar mfg.... | 8 | 2732503 | 85.0 | 100.0 | N | N | 1997.6 |
| $\begin{aligned} & 31132 \\ & 311320 \end{aligned}$ | Chocolate \& confectionery mfg from cacao beans . . Chocolate \& confectionery mfg from cacao | 152 | 3755268 | 79.5 | 92.5 | 97.6 | 99.0 | 2567.1 |
|  | beans | 152 | 3755268 | 79.5 | 92.5 | 97.6 | 99.0 | 2567.1 |
| 31133 | Confectionery mfg from purchased chocolate...... | 796 | 7879752 | 65.2 | 75.3 | 84.2 | 92.0 | 1600.6 |
| 311330 | Confectionery mfg from purchased chocolate.... | 796 | 7879752 | 65.2 | 75.3 | 84.2 | 92.0 | 1600.6 |
| $31134$ | Nonchocolate confectionery mfg . . . . . . . . . . . . . . . . . | 578 | 5080263 | 40.7 | 60.1 | 78.0 | 91.0 | 623.0 |
| $311340$ | Nonchocolate confectionery mfg | 578 | 5080263 | 40.7 | 60.1 | 78.0 | 91.0 | 623.0 |
| $3114$ | Fruit \& vegetable preserving \& specialty food mfg . . . . | 1394 | 46618107 | 26.6 | 35.6 | 51.8 | 69.2 | 253.3 |
| 31141 | Frozen food mfg | 531 | 19691664 | 31.3 | 44.6 | 62.8 | 79.8 | 349.5 |
| 311411 | Frozen fruit, juice, \& vegetable mfg. . . . . . . . . . . . | 177 | 9 549256 | 34.3 | 47.4 | 70.6 | 90.5 | 443.7 |
| 311412 | Frozen specialty food mfg...................... | 363 | 10142408 | 40.2 | 56.9 | 74.9 | 88.6 | 530.5 |
| 31142 | Fruit \& vegetable canning, pickling, \& drying. . . . . . . | 887 | 26926443 | 27.9 | 39.3 | 58.3 | 76.7 | 342.0 |
| 311421 | Fruit \& vegetable canning . . . . . . . . . . . . . . . . . . . . . | 661 | 15801279 | 24.9 | 38.0 | 59.7 | 77.1 | 259.3 |
| 311422 | Specialty canning . . . . . . | 122 | 8051059 | 67.2 | 83.5 | 96.1 | 99.5 | 2165.1 |
| 311423 | Dried \& dehydrated food mfg . . . . . . . . . . . . . . . . | 125 | 3074105 | 30.3 | 51.1 | 80.2 | 96.9 | 440.8 |
| $3115$ | Dairy product mfg | 1329 | 58670293 | 16.5 | 26.0 | 45.4 | 64.2 | 147.0 |
| $31151$ | Dairy product (except frozen) mfg . . . . . . . . . . . . . . . . | 948 | 52812384 | 18.1 | 28.4 | 48.6 | 66.7 | 169.8 |
| 311511 | Fluid milk mfg . . . . . . . . . . . . . . . . . . . . . . . . . . . | 402 | 21995148 | 21.3 | 31.0 | 50.5 | 72.2 | 204.6 |
| 311512 | Creamery butter mfg . . . . . . . . . . . . . . . . . . . . . . | 32 | 1367548 | 52.4 | 73.2 | 97.3 | 100.0 | 889.8 |
| 311513 | Cheese mfg.................................. | 399 | 20232146 | 34.6 | 50.9 | 70.6 | 85.1 | 524.6 |
| 311514 | Dry, condensed, \& evaporated dairy product mfg | 169 | 9217542 | 47.1 | 58.6 | 78.1 | 94.0 | 816.9 |
| 31152 | Ice cream \& frozen dessert mfg . . . . . . . . . . . . . . . | 409 | 5857909 | 32.3 | 48.7 | 71.1 | 88.3 | 444.7 |
| 311520 | Ice cream \& frozen dessert mfg................ | 409 | 5857909 | 32.3 | 48.7 | 71.1 | 88.3 | 444.7 |
| 3116 | Meat product mfg . . . . . . . . . . . . . . . . . . . . . . . . . . | 2794 | 112979006 | 35.0 | 47.5 | 61.3 | 72.1 | 392.6 |
| 31161 | Animal slaughtering \& processing . . . . . . . . . . . . . . | 2794 | 112979006 | 35.0 | 47.5 | 61.3 | 72.1 | 392.6 |
| 311611 | Animal (except poultry) slaughtering............ | 1307 | 54284253 | 57.0 | 70.8 | 81.5 | 89.7 | 1069.1 |
| 311612 | Meat processed from carcasses . . . . . . . . . . . . . | 1163 | 24260511 | 20.4 | 30.3 | 45.0 | 62.0 | 171.6 |
| 311613 311615 | Rendering \& meat byproduct processing . . . . . . . . | 137 257 | 2556547 31877695 | 37.4 | 54.1 | 75.5 | 92.6 | 569.4 |
| 311615 | Poultry processing . . . . . . . . . . . . . . . . . . . . . . . . | 257 | 31877695 | 40.6 | 54.0 | 72.6 | 90.0 | 667.7 |
| 3117 | Seafood product preparation \& packaging. . . . . . . . . . | 731 | 6919210 | 12.4 | 20.9 | 39.1 | 61.8 | 104.9 |
| 31171 | Seafood product preparation \& packaging.......... | 731 | 6919210 | 12.4 | 20.9 | 39.1 | 61.8 | 104.9 |
| 311711 | Seafood canning............................. . . | 152 | 862118 | 25.9 | 42.5 | 71.4 | 93.4 | 342.6 |
| 311712 | Fresh \& frozen seafood processing . . . . . . . . . . | 586 | 6057092 | 13.6 | 22.9 | 42.2 | 65.8 | 120.6 |

See footnotes at end of table.

Table 2. Share of Value of Shipments Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997-Con.
[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value of shipments$(\$ 1000)$ | Percent of value of shipments accounted for by the- |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 311 | Food mfg-Con. |  |  |  |  |  |  |  |
| 3118 | Bakeries \& tortilla mfg | 10437 | 43722668 | 28.6 | 40.1 | 55.5 | 68.1 | 281.2 |
| 31181 | Bread \& bakery product mfg. | 9489 | 25953070 | 33.2 | 43.6 | 58.3 | 69.0 | 423.4 |
| 311811 | Retail bakeries .......... | 6906 | 1946153 | 2.5 | 3.9 | 6.7 | 11.1 | 3.7 |
| 311812 | Commercial bakeries | 2401 | 21494992 | 39.2 | 51.3 | 66.0 | 77.6 | 593.0 |
| 311813 | Frozen cakes, pies, \& other pastries mfg........ | 223 | 2511925 | 38.2 | 49.8 | 67.3 | 86.3 | 552.1 |
| 31182 | Cookie, cracker, \& pasta mfg . | 767 | 16656299 | 41.7 | 53.3 | 68.4 | 85.2 | 602.0 |
| 311821 | Cookie \& cracker mfg ........................ | 322 | 9889921 | 59.9 | 71.9 | 87.8 | 95.3 | 1383.3 |
| 311822 | Flour mixes \& dough mfg from purchased flour .. | 206 | 4999850 | 43.7 | 58.2 | 77.1 | 93.6 | 1051.4 1 |
| 311823 | Dry pasta mfg ............................. | 249 | 1766528 | 57.1 | 74.3 | 88.0 | 92.8 | 1321.5 |
| 31183 | Tortilla mfg ................................ | 217 | 1113299 | 57.2 | 64.2 | 74.7 | 88.7 | 1852.0 |
| 311830 | Tortilla mfg................................... | 217 | 1113299 | 57.2 | 64.2 | 74.7 | 88.7 | 1852.0 |
| 3119 | Other food mfg | 2493 | 48905169 | 34.7 | 42.7 | 54.4 | 65.7 | 366.2 |
| 31191 | Snack food mfg. ............................... | 466 | 13590607 | 57.2 | 63.5 | 75.8 | 88.2 | 1996.4 |
| 311911 | Roasted nuts \& peanut butter mfg . . . . . . . . . . . . . | 128 | 3933112 | 37.5 | 57.6 | 79.6 | 94.9 | 551.1 |
| 311919 | Other snack food mfg ...................... | 340 | 9657495 | 70.9 | 76.5 | 87.5 | 94.3 | D |
| 31192 | Coffee \& tea mfg ............................ | 215 | 7974921 | 52.5 | 65.6 | 84.4 | 95.0 | 1028.3 |
| 311920 | Coffee \& tea mfg . . . . . . . . . . . . . . . . . . . . . . | 215 | 7974921 | 52.5 | 65.6 | 84.4 | 95.0 | 1028.3 |
| 31193 | Flavoring syrup \& concentrate mfg ............. | 149 | 6590816 | 80.7 | 87.9 | 93.3 | 97.9 | D |
| 311930 | Flavoring syrup \& concentrate mfg ............. | 149 | 6590816 | 80.7 | 87.9 | 93.3 | 97.9 | D |
| 31194 | Seasoning \& dressing mfg . . . . . . . . . . . . . . . . | 525 | 10027200 | 34.4 | 46.9 | 62.9 | 80.4 | 395.3 |
| 311941 | Mayonnaise, dressing, \& other prepared sauce mfg | 293 | 5810040 | 40.3 | 56.5 | 74.7 | 91.8 | 651.0 |
| 311942 | Spice \& extract mfg ........................... | 241 | 4217160 | 43.7 | 53.5 | 70.1 | 86.1 | 798.7 |
| 31199 | All other food mfg. | 1197 | 10721625 | 19.8 | 28.1 | 42.9 | 60.2 | 157.9 |
| 311991 | Perishable prepared food mfg | 415 | 2730103 | 24.3 | 35.6 | 54.2 | 73.5 | 225.8 |
| 311999 | All other miscellaneous food mfg................. | 785 | 7991522 | 23.5 | 34.6 | 51.7 | 70.1 | 220.3 |
| 312 | Beverage \& tobacco product mfg | 2237 | 96971368 | 45.1 | 59.1 | 72.7 | 83.7 | 777.2 |
| 3121 | Beverage mfg . .............................. | 2169 | 60896055 | 40.9 | 52.1 | 66.0 | 79.4 | 531.5 |
| 31211 | Soft drink \& ice mfg | 1008 | 32587038 | 45.5 | 53.6 | 68.8 | 82.4 | 743.3 |
| 312111 | Soft drink mfg ................................ | 388 | 31376263 | 47.2 | 55.6 | 70.9 | 84.8 | 800.4 |
| 312112 | Bottled water mfg | 109 | 785869 | 51.7 | 64.4 | 80.3 | 94.9 | 986.6 |
| 312113 | Ice mfg ................................... | 514 | 424906 | 24.4 | 31.3 | 43.1 | 60.3 | 302.3 |
| 31212 | Breweries... | 494 | 18203492 | 89.7 | 93.4 | 95.2 | 96.7 | D |
| 312120 | Breweries. | 494 | 18203492 | 89.7 | 93.4 | 95.2 | 96.7 | D |
| 31213 | Wineries.. | 637 | 6194564 | 43.2 | 59.2 | 76.6 | 85.3 | 837.5 |
| 312130 | Wineries ................................. | 637 | 6194564 | 43.2 | 59.2 | 76.6 | 85.3 | 837.5 |
| 31214 | Distilleries | 44 | 3910961 | 59.8 | 77.0 | 96.9 | 100.0 | 1075.7 |
| 312140 | Distilleries | 44 | 3910961 | 59.8 | 77.0 | 96.9 | 100.0 | 1075.7 |
| 3122 | Tobacco mfg ................. | 70 | 36075313 | 83.4 | 93.3 | 99.0 | 99.9 | D |
| 31221 | Tobacco stemming \& redrying .................. | 13 | 3263376 | 83.7 | 97.8 | 100.0 | N | 2320.2 |
| 312210 | Tobacco stemming \& redrying ................ | 13 | 3263376 | 83.7 | 97.8 | 100.0 | N | 2320.2 |
| 31222 | Tobacco product mfg. | 63 | 32811937 | 89.0 | 95.7 | 99.6 | 99.9 | D |
| 312221 | Cigarette mfg | 9 | 29252787 | 98.9 | D | 100.0 | N | D |
| 312229 | Other tobacco product mfg . . . . . . . . . . . . . . . . . . . | 56 | 3559150 | 62.4 | 83.5 | 97.8 | 99.9 | 1846.0 |
| 313 | Textile mills | 3863 | 58707401 | 13.8 | 21.7 | 35.9 | 52.9 | 94.4 |
| 3131 | Fiber, yarn, \& thread mills.......................... | 358 | 12896617 | 29.8 | 42.6 | 63.4 | 82.2 | 344.3 |
| 31311 | Fiber, yarn, \& thread mills. | 358 | 12896617 | 29.8 | 42.6 | 63.4 | 82.2 | 344.3 |
| 313111 | Yarn spinning mills ........................... | 229 | 8143185 | 25.5 | 40.5 | 63.9 | 87.1 | 294.1 |
| 313112 | Yarn texturing, throwing, \& twisting mills | 101 | 4231500 | 60.3 | 71.9 | 87.7 | 97.8 | 1495.3 |
| 313113 | Thread mills................................. | 44 | 521932 | 69.5 | 83.6 | 95.8 | 100.0 | 1472.7 |
| 3132 | Fabric mills .................................... | 1796 | 29979595 | 15.9 | 23.5 | 40.7 | 61.1 | 122.3 |
| 31321 313210 |  | 734 734 | 18269155 18269155 | 23.8 23.8 | 35.4 35.4 | 58.1 58.1 | 80.6 80.6 | 252.1 25.1 |
| 313210 | Broadwoven fabric mills .................... | 734 | 18269155 | 23.8 | 35.4 | 58.1 | 80.6 | 252.1 |
| 31322 | Narrow fabric mills \& schiffli machine embroidery .. | 478 | 1645969 | 17.2 | 27.6 | 49.6 | 74.9 | 167.5 |
| 313221 | Narrow fabric mills ........................... | 243 | 1409967 | 20.1 | 32.2 | 57.9 | 84.5 | 223.5 |
| 313222 | Schiffli machine embroidery ..................... | 235 | 236002 | 26.1 | 43.2 | 65.5 | 83.5 | 310.1 |
| 31323 | Nonwoven fabric mills... | 212 | 4367765 | 33.8 | 48.2 | 68.0 | 86.2 | 435.8 |
| 313230 | Nonwoven fabric mills ............ | 212 | 4367765 | 33.8 | 48.2 | 68.0 | 86.2 | 435.8 |
| 31324 | Knit fabric mills . . . . . . . . . . . . . . . . . . . . . . . . . . | 407 | 5696706 | 28.0 | 38.2 | 53.9 | 72.5 | 272.6 |
| 313241 | Weft knit fabric mills | 236 | 3070633 | 31.0 | 39.7 | 57.8 | 81.4 | 425.3 |
| 313249 | Other knit fabric \& lace mills . . . . . . . . . . . . . . . . . | 181 | 2626073 | 40.4 | 54.4 | 72.2 | 88.6 | 592.9 |
| 3133 | Textile \& fabric finishing \& fabric coating mills........ | 1827 | 15831189 | 17.4 | 26.3 | 40.6 | 54.8 | 131.3 |
| 31331 | Textile \& fabric finishing mills . . . . . . . . . . . . . . . . | 1589 | 13697712 | 20.2 | 30.4 | 46.3 | 61.2 | 172.2 |
| 313311 | Broadwoven fabric finishing mills. | 1255 1346 | 9 294623 | 28.0 | 38.4 | 51.9 | 66.2 | 274.8 |
| 313312 | Textile \& fabric finishing mills . . . . . . . . . . . . . . . | 346 | 4403089 | 29.7 | 41.6 | 61.7 | 79.7 | 323.9 |
| 31332 | Fabric coating mills . . . . . . . . . . . . . . . . . . . . | 246 | 2133477 | 14.8 | 26.2 | 49.9 | 75.3 | 160.2 |
| 313320 | Fabric coating mills ........................... | 246 | 2133477 | 14.8 | 26.2 | 49.9 | 75.3 | 160.2 |

Table 2. Share of Value of Shipments Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997-Con.
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| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value of shipments ${ }^{2}$ (\$1000) | Percent of value of shipments accounted for by the- |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 314 | Textile product mills . . . . . . . . . . . . . . . . . . . . . . . . . . | 7516 | 31051835 | 22.8 | 31.9 | 45.1 | 57.0 | 186.2 |
| $\begin{aligned} & 3141 \\ & 31411 \\ & 314110 \end{aligned}$ | Textile furnishings mills Carpet \& rug mills. Carpet \& rug mills. | 7516 3080 413 413 | $\begin{array}{lll} 20 & 296 & 040 \\ 11 & 492 & 786 \\ 11 & 492 & 786 \end{array}$ | $\begin{aligned} & 34.1 \\ & 50.7 \\ & 50.7 \end{aligned}$ | $\begin{aligned} & 47.4 \\ & 65.0 \\ & 65.0 \end{aligned}$ | $\begin{aligned} & 63.4 \\ & 81.0 \\ & 81.0 \end{aligned}$ | 77.1 92.9 92.9 | $\begin{aligned} & 396.3 \\ & 922.5 \\ & 922.5 \end{aligned}$ |
| 31412 <br> 314121 <br> 314129 | Curtain \& linen mills Curtain \& drapery mills Other household textile product mills | 2670 2012 668 | $\begin{array}{lll} 8 & 803 & 254 \\ 1 & 852 & 089 \\ 6 & 951 & 165 \end{array}$ | $\begin{aligned} & 39.7 \\ & 26.5 \\ & 50.0 \end{aligned}$ | $\begin{aligned} & 48.5 \\ & 36.3 \\ & 58.7 \end{aligned}$ | $\begin{aligned} & 61.8 \\ & 50.1 \\ & 72.5 \end{aligned}$ | 73.6 64.7 83.2 | $\begin{aligned} & 499.4 \\ & 294.8 \\ & 765.8 \end{aligned}$ |
| $\begin{aligned} & 3149 \\ & 31491 \\ & 314911 \\ & 314912 \end{aligned}$ |  | 4455 2094 423 1673 | 10755795 2502064 972920 1529144 | 10.6 7.9 19.1 10.4 | 17.1 13.8 29.6 17.1 | 29.3 25.1 50.0 28.4 | 41.7 40.9 71.0 42.8 | 59.1 45.1 180.2 56.9 |
| $\begin{aligned} & 31499 \\ & 314991 \\ & 314992 \\ & 314999 \end{aligned}$ | All other textile product mills........................... <br> Rope, cordage, \& twine mills <br> Tire cord \& tire fabric mills $\qquad$ $\qquad$ <br> All other miscellaneous textile product mills | 1 2366 189 15 2164 | 8253731 777091 1268662 6207978 | 13.8 37.0 65.0 16.3 | 22.3 51.6 94.7 25.2 | 38.2 70.8 100.0 36.6 | 53.1 88.5 N 51.0 | 99.1 464.0 1361.2 114.5 |
| 315 | Apparel mfg. | 15839 | 68018116 | 17.6 | 23.2 | 29.8 | 38.8 | 100.6 |
| $\begin{aligned} & 3151 \\ & 31511 \\ & 315111 \\ & 315119 \end{aligned}$ | Apparel knitting mills <br> Hosiery \& sock mills. <br> Sheer hosiery mills <br> Other hosiery \& sock mills | 1829 532 136 399 | 9600569 4562009 1658474 2903535 | 22.7 28.6 50.6 25.7 | 33.1 38.4 66.0 37.6 | 48.7 56.7 88.1 60.8 | 65.6 77.7 97.3 79.4 | 211.5 324.5 998.3 269.2 |
| 31519 <br> 315191 <br> 315192 | Other apparel knitting mills Outerwear knitting mills Underwear \& nightwear knitting mills ................ | 683 645 43 | $\begin{array}{rl} 5 & 038 \\ 4 & 352 \\ 686 \\ 682 \\ & 028 \end{array}$ | $\begin{aligned} & 33.8 \\ & 39.1 \\ & 63.0 \end{aligned}$ | 47.1 52.0 82.9 | 61.4 63.6 98.8 | 75.6 76.4 100.0 | 459.7 583.2 1325.0 |
| 3152 | Cut \& sew apparel mfg | 12487 | 53851513 | 20.2 | 26.2 | 33.3 | 43.0 | 136.0 |
| 31521 | Cut \& sew apparel contractors. | 7677 | 5536959 | 7.3 | 11.2 | 18.7 | 27.9 | 25.8 |
| $\begin{aligned} & 315211 \\ & 315212 \end{aligned}$ | Men's \& boys' cut \& sew apparel contractors Women's, girls', \& infants' cut \& sew apparel contractors. | 636 7056 | 1534022 4002937 | 20.4 6.3 | 29.2 9.9 | 45.2 16.8 | 61.4 24.6 | 176.1 20.3 |
| $\begin{aligned} & 31522 \\ & 315221 \end{aligned}$ | Men's \& boys' cut \& sew apparel mfg . Men's \& boys' cut \& sew underwear \& nightwear | 1362 | 21298782 | 37.3 | 46.2 | 57.1 | 70.3 | 461.9 |
| 315222 | mfg <br> Men's \& boys' cut \& sew suit, coat, \& overcoat | 62 | 1404202 | 67.5 | 84.0 | 96.3 | 99.9 | 1693.8 |
| 315223 | mfg <br> Men's \& boys' cut \& sew shirt (exc work shirt) | 193 | 2082863 | 42.0 | 55.5 | 75.1 | 92.0 | 845.7 |
| 315224 | $\mathrm{mfg}$ <br> Men's \& boys' cut \& sew trouser, slack, \& jean | 387 | 6916178 | 42.9 | 55.4 | 71.9 | 85.6 | 659.3 |
| $\begin{aligned} & 315225 \\ & 315228 \end{aligned}$ | mfg <br> Men's \& boys' cut \& sew work clothing mfg Men's \& boys' cut \& sew other outerwear mfg $\qquad$ | 199 149 430 | $\begin{array}{lll} 7 & 152379 \\ 1 & 865 & 304 \\ 1 & 877 & 856 \end{array}$ | 68.9 46.6 20.3 | 76.4 62.3 32.0 | 87.2 81.8 52.6 | 95.4 95.3 73.8 | 2253.8 851.0 202.4 |
| $\begin{aligned} & 31523 \\ & 315231 \end{aligned}$ | Women's \& girls' cut \& sew apparel mfg . . . . . . . . . . Women's \& girls' cut/sew lingerie \& nightwear | 2927 | 24832784 | 13.1 | 19.2 | 31.1 | 44.3 | 76.1 |
| 315232 | mfg .............................. | 249 714 | 3910357 3995123 | 42.8 12.6 | 58.1 22.1 | 75.4 42.0 | 90.2 66.8 | 589.4 |
| 315233 | Women's \& girls' cut \& sew dress mfg ...... | 747 | 5009262 | 14.2 | 23.7 | 39.4 | 60.4 | 111.3 |
| 315234 | Women's \& girls' cut \& sew suit, coat, skirt mfg .. | 428 | 3759250 | 31.9 | 41.0 | 57.2 | 76.3 | 333.3 |
| 315239 | Women's \& girls' cut \& sew other outerwear mfg . | 818 | 8158792 | 22.3 | 36.9 | 56.3 | 75.4 | 229.3 |
| 31529 | Other cut \& sew apparel mfg | 665 | 2182988 | 26.3 | 36.6 | 56.0 | 73.4 | 290.8 |
| 315291 | Infants' cut \& sew apparel mfg | 39 | 945119 | 60.9 | 79.5 | 98.0 | 100.0 | 1300.1 |
| 315292 | Fur \& leather apparel mfg . . . . . . . . . . . . . . . . . . . | 224 | 244687 | 22.6 | 34.8 | 54.0 | 74.1 | 221.2 |
| 315299 | All other cut \& sew apparel mfg | 402 | 993182 | 22.5 | 37.3 | 56.2 | 74.7 | 226.3 |
| 3159 | Apparel accessories \& other apparel mfg | 2201 | 4566034 | 14.2 | 23.0 | 39.2 | 53.9 | 107.8 |
| 31599 | Apparel accessories \& other apparel mfg | 2201 | 4566034 | 14.2 | 23.0 | 39.2 | 53.9 | 107.8 |
| 315991 | Hat, cap, \& millinery mfg . . . . . . . . . . . . . . . . . . . . . | 363 | 980704 | 36.0 | 46.6 | 61.3 | 77.8 | 398.3 |
| 315992 | Glove \& mitten mfg . . . . . . . . . . . . . . . . . . . . . . . | 98 | 672639 | 63.8 | 73.0 | 85.4 | 97.1 | 1691.4 |
| 315993 | Men's \& boys' neckwear mfg . . . . . . . . . . . . . . . . . | 119 | 598457 | 48.2 | 62.0 | 79.4 | 93.8 | 751.3 |
| 315999 | Other apparel accessories \& other apparel mfg .. | 1626 | 2314234 | 19.0 | 28.5 | 44.1 | 58.5 | 144.9 |
| 316 | Leather \& allied product mfg | 1727 | 10876510 | 19.0 | 31.4 | 48.5 | 65.0 | 167.2 |
| 3161 31611 | Leather \& hide tanning \& finishing. Leather \& hide tanning \& finishing | 327 <br> 327 | 3 3 3 5766567 | 49.1 49.1 | 66.5 66.5 | 79.9 79.9 | 91.5 91.5 | 741.5 741.5 |
| 316110 | Leather \& hide tanning \& finishing............... | 327 | 3576657 | 49.1 | 66.5 | 79.9 | 91.5 | 741.5 |
| 3162 | Footwear mfg . . . . . . . . . . . . . . . . . . . . . . . . . . | 366 | 4210975 | 27.7 | 42.4 | 65.0 | 84.3 | 317.0 |
| 31621 | Footwear mfg | 366 | 4210975 | 27.7 | 42.4 | 65.0 | 84.3 | 317.0 |
| 316211 | Rubber \& plastics footwear mfg . . . . . . . . . . . . . . . | 50 | 1009838 | 54.6 | 69.1 | 92.9 | 100.0 | 1079.4 |
| 316212 | House slipper mfg ........................... | 22 | 263816 | 82.5 | 95.8 | D | 100.0 | 2053.4 |
| 316213 | Men's footwear (except athletic) mfg . ........... | 123 | 2019647 | 49.7 | 67.7 | 89.7 | 98.7 | 857.2 |
| 316214 | Women's footwear (except athletic) mfg ......... | 97 | 703653 | 49.5 | 65.8 | 88.5 | 98.6 | 794.8 |
| 316219 | Other footwear mfg ......................... | 87 | 214021 | 32.6 | 54.3 | 81.7 | 96.9 | 469.1 |
| 3169 | Other leather \& allied product mfg. | 1045 | 3088878 | 26.5 | 35.3 | 49.5 | 66.7 | 354.3 |
| 31699 | Other leather \& allied product mfg................. | 1045 | 3088878 | 26.5 | 35.3 | 49.5 | 66.7 | 354.3 |
| 316991 | Luggage mfg. .............................. | 270 | 1425871 | 51.9 | 62.4 | 75.0 | 86.8 | 1418.6 |
| 316992 | Women's handbag \& purse mfg . . . . . . . . . . . . . . . | 136 | 287341 | 58.6 | 71.3 | 86.4 | 95.8 | 1521.4 |
| 316993 | Personal leather good (except women's handbag \& purse) mfg | 178 | 465206 | 42.2 | 56.6 | 79.8 | 93.1 | 841.0 |
| 316999 | All other leather good mfg...................... | 464 | 910460 | 24.9 | 38.6 | 62.3 | 79.3 | 270.2 |
| 321 | Wood product mfg .................................. | 15621 | 88470180 | 10.5 | 16.7 | 26.4 | 37.8 | 52.7 |
| 3211 | Sawmills \& wood preservation.................... | 4372 4 4 4 | 29093601 | 14.5 | 20.1 | 31.4 31.4 | 44.4 | 86.7 |
| 321113 | Sawmills..................................... | 4024 | 24632080 | 16.8 | 23.2 | 35.9 | 48.1 | 112.3 |
| 321114 | Wood preservation............................ | 361 | 4461521 | 19.7 | 30.7 | 50.0 | 73.8 | 188.2 |
| 3212 | Veneer, plywood, \& engineered wood product mfg ... | 1491 | 18815394 | 26.9 | 40.8 | 53.4 | 64.9 | 286.9 |
| 32121 | Veneer, plywood, \& engineered wood product mfg . | 1491 | 18815394 | 26.9 | 40.8 | 53.4 | 64.9 | 286.9 |
| 321211 | Hardwood veneer \& plywood mfg . . . . . . . . . . . . . | 303 | 2861556 | 30.5 | 40.5 | 55.7 | 74.3 | 430.4 |
| 321212 | Softwood veneer \& plywood mfg ................ | 88 | 5658347 | 48.8 | 68.1 | 86.4 | 98.7 | 914.9 |
| 321213 | Engineered wood member (except truss) mfg ... | 32 | 1431123 | 77.1 | 86.9 | 96.6 | 100.0 | 2453.5 |
| 321214 | Truss mfg................................ | 886 | 3610943 | 8.8 | 13.4 | 22.9 | 39.5 | 42.4 |
| 321219 | Reconstituted wood product mfg ............. | 212 | 5253425 | 42.9 | 58.1 | 76.1 | 91.3 | 592.3 |

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| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value of shipments ${ }^{2}$ (\$1000) | Percent of value of shipments accounted for by the- |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 325 | Chemical mfg-Con. |  |  |  |  |  |  |  |
| 3251 | Basic chemical mfg-Con. |  |  |  |  |  |  |  |
| 32519 | Other basic organic chemical mfg . . . . . . . . . . . . . . | 581 | 61302564 | 22.7 | 36.7 | 55.1 | 77.5 | 227.7 |
| 325191 | Gum \& wood chemical mfg.................... | 45 | 814676 | 74.6 | 92.2 | 98.6 | 100.0 | 1707.4 |
| 325192 | Cyclic crude \& intermediate mfg | 36 | 6861138 | 61.7 | 79.4 | 98.2 | 100.0 | 1701.2 |
| 325193 | Ethyl alcohol mfg . . . . . . . . . . . . . . . . . . . . . . . . | 31 | 1222166 | 63.1 | 82.9 | 98.5 | 100.0 | 1225.3 |
| 325199 | All other basic organic chemical mfg............ | 487 | 52404584 | 25.3 | 38.3 | 56.8 | 79.6 | 256.4 |
| 3252 | Resin, syn rubber, \& artificial \& syn fibers \& filaments |  |  |  |  |  |  |  |
| 32521 |  | 469 406 | 64417772 51379595 | 26.7 24.8 | 37.7 37.4 | 60.1 60.9 | 84.6 86.3 | 312.9 277.3 |
| 325211 | Plastics material \& resin mfg ................... | 299 | 45225887 | 25.6 | 39.0 | 64.2 | 89.0 | 304.1 |
| 325212 | Synthetic rubber mfg .......................... | 122 | 6153708 | 39.0 | 61.8 | 93.1 | 98.8 | 618.2 |
| 32522 | Artificial \& synthetic fibers \& filaments mfg ........ | 70 | 13038177 | 69.0 | 85.1 | 96.9 | 99.9 | 1588.6 |
| 325221 | Cellulosic organic fiber mfg. . . . . . . . . . . . . . . . . | 4 | 1096983 | 100.0 | N | N | N | D |
| 325222 | Noncellulosic organic fiber mfg ................ | 67 | 11941194 | 69.1 | 86.6 | 97.6 | 99.9 | 1708.4 |
| 3253 | Pesticide, fertilizer, \& other agricultural chemical mfg . | 692 | 24176999 | 27.4 | 45.8 | 70.6 | 85.8 | 342.3 |
| 32531 | Fertilizer mfg ........ | 477 | 12759745 | 39.8 | 55.1 | 74.8 | 87.5 | 566.9 |
| 325311 | Nitrogenous fertilizer mfg | 116 | 3961254 | 54.2 | 75.9 | 94.2 | 98.7 | 902.6 |
| 325312 | Phosphatic fertilizer mfg | 43 | 5474672 | 70.5 | 88.1 | 99.1 | 100.0 | 1675.3 |
| 325314 | Fertilizer (mixing only) mfg | 334 | 3323819 | 26.3 | 40.8 | 57.5 | 74.2 | 285.7 |
| 32532 | Pesticide \& other agricultural chemical mfg . . . . . . . | 222 | 11417254 | 48.8 | 73.0 | 89.1 | 96.2 | 811.2 |
| 325320 | Pesticide \& other agricultural chemical mfg...... | 222 | 11417254 | 48.8 | 73.0 | 89.1 | 96.2 | 811.2 |
| 3254 | Pharmaceutical \& medicine mfg | 1428 | 92932786 | 32.3 | 47.9 | 66.6 | 82.5 | 446.3 |
| 32541 | Pharmaceutical \& medicine mfg .................. | 1428 | 92932786 | 32.3 | 47.9 | 66.6 | 82.5 | 446.3 |
| 325411 | Medicinal \& botanical mfg ... | 312 | 11888455 | 61.5 | 72.9 | 84.6 | 93.3 | 2058.7 |
| 325412 | Pharmaceutical preparation mfg | 707 | 66734737 | 35.6 | 50.1 | 71.4 | 88.5 | 462.4 |
| 325413 | In-vitro diagnostic substance mfg | 203 | 8682377 | 62.5 | 75.9 | 86.6 | 94.6 | 1685.1 |
| 325414 | Biological product (except diagnostic) mfg....... | 267 | 5627217 | 42.9 | 64.0 | 82.9 | 93.8 | 680.2 |
| 3255 | Paint, coating, \& adhesive mfg | 1724 | 26369629 | 23.6 | 35.5 | 52.2 | 66.3 | 220.1 |
| 32551 | Paint \& coating mfg | 1205 | 19057194 | 32.0 | 47.0 | 63.9 | 75.1 | 371.2 |
| 325510 | Paint \& coating mfg . $\ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots$ | 1205 | 19057194 | 32.0 | 47.0 | 63.9 | 75.1 | 371.2 |
| 32552 | Adhesive mfg | 540 | 7312435 | 22.3 | 32.6 | 50.5 | 72.1 | 217.2 |
| 325520 | Adhesive mfg | 540 | 7312435 | 22.3 | 32.6 | 50.5 | 72.1 | 217.2 |
| 3256 | Soap, cleaning compound, \& toilet preparation mfg ... | 2251 | 55141340 | 33.7 | 45.7 | 63.2 | 74.9 | 495.4 |
| 32561 | Soap \& cleaning compound mfg | 1583 | 30928488 | 40.7 | 55.1 | 68.1 | 78.0 | 625.9 |
| 325611 | Soap \& other detergent mfg. | 738 | 17772851 | 65.6 | 77.9 | 85.3 | 90.6 | 1618.6 |
| 325612 | Polish \& other sanitation good mfg . . . . . . . . . . . . . | 675 | 8369554 | 55.1 | 60.7 | 71.2 | 83.2 | 1090.5 |
| 325613 | Surface active agent mfg .................... | 183 | 4786083 | 34.3 | 47.6 | 69.9 | 89.1 | 416.1 |
| 32562 | Toilet preparation mfg . | 681 | 24212852 | 38.6 | 58.4 | 74.8 | 86.6 | 564.2 |
| 325620 | Toilet preparation mfg . . . . . . . . . . . . . . . . . . . | 681 | 24212852 | 38.6 | 58.4 | 74.8 | 86.6 | 564.2 |
| 3259 | Other chemical product mfg | 2287 | 39221070 | 25.4 | 32.1 | 44.5 | 59.2 | 378.4 |
| 32591 | Printing ink mfg ................................ | 255 | 4076500 | 55.4 | 63.1 | 75.5 | 88.2 | 1227.4 |
| 325910 | Printing ink mfg........................... | 255 | 4076500 | 55.4 | 63.1 | 75.5 | 88.2 | 1227.4 |
| 32592 | Explosives mfg . | 66 | 1447274 | 45.3 | 68.6 | 91.1 | 99.8 | 726.7 |
| 325920 | Explosives mfg | 66 | 1447274 | 45.3 | 68.6 | 91.1 | 99.8 | 726.7 |
| 32599 | All other chemical product \& preparation $\mathrm{mfg} . . .$. . | 1973 | 33697296 | 28.0 | 35.1 | 47.5 | 63.0 | 493.9 |
| 325991 | Custom compounding of purchased resin ....... | 728 | 7960246 | 14.9 | 25.2 | 45.0 | 67.1 | 137.2 |
| $\begin{aligned} & 325992 \\ & 325998 \end{aligned}$ | Photographic film, paper, plate, \& chemical mfg. . All other miscellaneous chemical product \& | 276 | 12918747 | 69.7 | 83.0 | 92.9 | 98.1 | D |
|  | preparation mfg ............................. | 985 | 12818303 | 19.6 | 28.6 | 46.1 | 63.3 | 158.8 |
| 326 | Plastics \& rubber products mfg | 13798 | 159161346 | 8.2 | 11.4 | 18.3 | 28.7 | 30.2 |
| 3261 | Plastics product mfg . . . . . . . . . . . . . . . . . . . . . . | 11613 | 124445374 | 3.9 | 6.9 | 14.1 | 24.4 | 14.1 |
| 32611 | Unsupported plastics film, sheet, \& bag mfg ....... | 1250 | 24624844 | 13.1 | 23.0 | 39.3 | 56.8 | 103.5 |
| 326111 | Unsupported plastics bag mfg ................ | 440 | 7300237 | 24.7 | 35.9 | 52.9 | 70.1 | 236.4 |
| 326112 | Unsupported plastics packaging film \& sheet mfg | 131 | 3638911 | 52.1 | 62.7 | 76.4 | 91.9 | 818.6 |
| 326113 | Unsupported plastics film \& sheet (except packaging) mfg | 713 | 13685696 | 17.6 | 27.7 | 46.1 | 66.1 | 149.2 |
| 32612 | Plastics pipe, pipe fitting, \& unsupported profile shape mfg | 1048 | 9228294 | 15.8 | 24.9 | 41.9 | 59.5 |  |
| 326121 | Unsupported plastics profile shape mfg .......... | 733 | 4436148 | 25.5 | 34.8 | 50.3 | 65.3 | 234.5 |
| 326122 | Plastics pipe \& pipe fitting mfg ................. | 317 | 4792146 | 23.9 | 37.4 | 59.8 | 78.8 | 260.2 |
| 32613 | Laminated plastics plate, sheet, \& shape mfg..... | 438 | 3195293 | 36.0 | 53.2 | 74.3 | 87.1 | 523.9 |
| 326130 | Laminated plastics plate, sheet, \& shape $\mathrm{mfg} . .$. | 438 | 3195293 | 36.0 | 53.2 | 74.3 | 87.1 | 523.9 |
| 32614 | Polystyrene foam product mfg . . . . . . . . . . . . . . . . | 379 | 4899240 | 41.4 | 50.0 | 65.5 | 82.7 | 665.4 |
| 326140 | Polystyrene foam product mfg ................. | 379 | 4899240 | 41.4 | 50.0 | 65.5 | 82.7 | 665.4 |
| 32615 | Urethane \& other foam product (except polystyrene) mfg | 447 | 6664656 | 32.3 | 43.5 | 62.9 | 78.8 | 403.1 |
| 326150 | Urethane \& other foam product (except polystyrene) mfg | 447 | 6664656 | 32.3 | 43.5 | 62.9 | 78.8 | 403.1 |
| 32616 | Plastics bottle mfg . ........................... | 245 | 6335218 | 32.7 | 51.8 | 72.9 | 88.2 | 425.0 |
| 326160 | Plastics bottle mfg ............................ | 245 | 6335218 | 32.7 | 51.8 | 72.9 | 88.2 | 425.0 |
| 32619 | Other plastics product mfg .................... | 8077 | 69497829 | 5.1 | 8.2 | 14.4 | 24.0 | 15.6 |
| 326191 | Plastics plumbing fixture mfg ................... | 539 | 2181207 | 34.9 | 44.6 | 58.8 | 74.8 | 396.2 |
| 326192 | Resilient floor covering mfg . . . . . . . . . . . . . . . . . | 28 | 1684216 | 86.9 | 98.9 | 99.9 | 100.0 | 2983.5 |
| 326199 | All other plastics product mfg .................. | 7522 | 65632406 | 5.0 | 8.1 | 13.9 | 23.3 | 14.9 |

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|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 326 | Plastics \& rubber products mfg-Con. |  |  |  |  |  |  |  |
| 3262 | Rubber product mfg. | 2271 | 34715972 | 36.8 | 46.4 | 57.8 | 68.4 | 444.8 |
| 32621 | Tire mfg | 736 | 15699140 | 68.4 | 85.8 | 93.0 | 96.4 | 1517.8 |
| 326211 | Tire mfg (except retreading) | 110 | 14728525 | 72.4 | 90.8 | 98.0 | 99.8 | 1690.3 |
| 326212 | Tire retreading............. | 628 | 970615 | 25.5 | 36.5 | 50.1 | 64.5 | 260.6 |
| 32622 | Rubber \& plastics hoses \& belting mfg . . . . . . . . . . | 149 | 4025238 | 49.3 | 61.9 | 80.2 | 94.9 | 786.1 |
| 326220 | Rubber \& plastics hoses \& belting mfg .......... | 149 | 4025238 | 49.3 | 61.9 | 80.2 | 94.9 | 786.1 |
| 32629 | Other rubber product mfg ..................... | 1408 | 14991594 | 12.1 | 20.4 | 34.4 | 51.6 | 82.5 |
| 326291 | Rubber product mfg for mechanical use ...... | 608 | 6668381 | 19.2 | 28.8 | 45.7 | 67.6 | 166.3 |
| 326299 | All other rubber product mfg................. | 827 | 8323213 | 17.5 | 27.5 | 43.2 | 60.8 | 139.7 |
| 327 | Nonmetallic mineral product mfg . . . . . . . . . . . . . . . . . | 11921 | 86464708 | 9.1 | 16.4 | 27.7 | 41.5 | 52.1 |
| 3271 | Clay product \& refractory mfg | 1715 | 9107840 | 13.5 | 22.5 | 40.1 | 60.4 | 108.5 |
| 32711 | Pottery, ceramics, \& plumbing fixture mfg ......... | 1204 | 3992979 | 21.8 | 33.7 | 51.6 | 71.8 | 210.7 |
| 327111 | Vitreous china plumbing fixture \& bathroom accessories mfg | 43 | 1109995 | 63.8 | 87.2 | 99.1 | 100.0 | 1456.7 |
| 327112 | Vitreous china, fine earthenware, \& other pottery product mfg . | 1034 | 1715783 | 24.7 | 35.9 | 54.0 | 70.9 | 244.8 |
| 327113 | Porcelain electrical supply mfg................... | 131 | 1167201 | 32.4 | 48.5 | 73.3 | 93.2 | 487.5 |
| 32712 | Clay building material \& refractories mfg .......... | 519 | 5114861 | 20.8 | 33.4 | 56.0 | 75.6 | 215.5 |
| 327121 | Brick \& structural clay tile mfg ................. | 127 | 1411833 | 40.4 | 58.3 | 73.9 | 92.2 | 549.9 |
| 327122 | Ceramic wall \& floor tile mfg. . . . . . . . . . . . . . . . . | 157 | 851405 | 58.5 | 75.6 | 91.3 | 97.4 | 309.4 |
| 327123 | Other structural clay product mfg | 48 | 117376 | 44.0 | 68.7 | 95.2 | 100.0 | 827.2 |
| 327124 | Clay refractory mfg. | 115 | 1115939 | 39.9 | 54.7 | 75.2 | 93.2 | 575.1 |
| 327125 | Nonclay refractory mfg ....................... | 91 | 1618308 | 41.2 | 60.5 | 85.9 | 98.1 | 603.3 |
| 3272 | Glass \& glass product mfg . | 1996 | 22732942 | 31.0 | 46.3 | 68.3 | 84.2 | 359.0 |
| 32721 | Glass \& glass product mfg ..................... | 1996 | 22732942 | 31.0 | 46.3 | 68.3 | 84.2 | 359.0 |
| 327211 | Flat glass mfg | 13 | 2795507 | 77.4 | 99.5 | 100.0 | N | 1828.9 |
| 327212 | Other pressed \& blown glass \& glassware mfg... | 465 | 6094602 | 48.2 | 68.8 | 90.9 | 96.6 | 760.5 |
| 327213 | Glass container mfg .......................... | 11 | 4198122 | 91.1 | 98.0 | 100.0 | N | 2959.9 |
| 327215 | Glass product mfg made of purchased glass .... | 1522 | 9644711 | 28.8 | 45.2 | 64.4 | 77.1 | 366.3 |
| 3273 | Cement \& concrete product mfg | 5930 | 34591507 | 8.3 | 14.4 | 25.0 | 35.8 | 40.7 |
| 32731 | Cement mfg................................... | 176 | 6531747 | 33.5 | 52.0 | 78.7 | 96.9 | 466.6 |
| 327310 | Cement mfg............................... | 176 | 6531747 | 33.5 | 52.0 | 78.7 | 96.9 | 466.6 |
| 32732 | Ready-mix concrete mfg. | 2888 | 17219886 | 7.0 | 11.1 | 20.0 | 33.0 | 29.4 |
| 327320 | Ready-mix concrete mfg | 2888 | 17219886 | 7.0 | 11.1 | 20.0 | 33.0 | 29.4 |
| 32733 | Concrete pipe, brick, \& block mfg | 955 | 4852512 | 16.4 | 22.0 | 31.9 | 45.3 | 96.7 |
| 327331 | Concrete block \& brick mfg. . | 708 | 2844076 | 12.5 | 17.7 | 28.1 | 43.4 | 69.8 |
| 327332 | Concrete pipe mfg ........................... | 264 | 2008436 | 26.4 | 37.3 | 55.4 | 73.9 | 290.6 |
| 32739 | Other concrete product mfg . . . . . . . . . . . . . . . . . . | 2079 | 5987362 | 10.0 | 15.8 | 26.7 | 41.8 | 52.6 |
| 327390 | Other concrete product mfg ................... | 2079 | 5987362 | 10.0 | 15.8 | 26.7 | 41.8 | 52.6 |
| 3274 | Lime \& gypsum product mfg. | 230 | 5533623 | 54.0 | 65.4 | 81.5 | 95.3 | 1000.8 |
| 32741 | Lime mfg ...................................... | 46 | 1168450 | 44.9 | 65.1 | 88.5 | 100.0 | 719.4 |
| 327410 | Lime mfg ................................... | 46 | 1168450 | 44.9 | 65.1 | 88.5 | 100.0 | 719.4 |
| 32742 | Gypsum product mfg ......................... | 185 | 4365173 | 68.4 | 79.1 | 93.4 | 97.9 | 1557.2 |
| 327420 | Gypsum product mfg ........................ | 185 | 4365173 | 68.4 | 79.1 | 93.4 | 97.9 | 1557.2 |
| 3279 | Other nonmetallic mineral product mfg.............. | 2159 | 14498796 | 33.4 | 42.2 | 50.7 | 61.3 | 333.3 |
| 32791 | Abrasive product mfg............................ | 319 | 4660043 | 60.4 | 65.3 | 74.0 | 84.2 | 1691.7 |
| 327910 | Abrasive product mfg........................ | 319 | 4660043 | 60.4 | 65.3 | 74.0 | 84.2 | 1691.7 |
| 32799 | All other nonmetallic mineral product mfg ......... | 1849 | 9838753 | 28.6 | 37.8 | 48.0 | 61.4 | 277.2 |
| 327991 | Cut stone \& stone product mfg ................ | 1004 | 1244735 | 19.2 | 23.6 | 33.0 | 46.3 | 153.2 |
| 327992 | Ground or treated mineral \& earth mfg .......... | 261 | 2362480 | 27.0 | 38.0 | 59.2 | 80.5 | 369.5 |
| 327993 | Mineral wool mfg . . . . . . . . . . . . . . . . . . . . . . . . | 201 | 4422507 | 62.0 | 75.5 | 86.1 | 95.3 | 1203.6 |
| 327999 | All other miscellaneous nonmetallic mineral product mfg | 404 | 1809031 | 17.5 | 28.0 | 47.0 | 67.1 | 155.2 |
| 331 | Primary metal mfg ................................ | 4076 | 168117728 | 13.8 | 22.3 | 37.3 | 54.1 | 97.4 |
| 3311 | Iron \& steel mills \& ferroalloy mfg . . . . . . . . . . . . . . . . | 209 | 58383159 | 31.9 | 51.4 | 73.0 | 91.8 | 424.7 |
| 33111 | Iron \& steel mills \& ferroalloy mfg | 209 | 58383159 | 31.9 | 51.4 | 73.0 | 91.8 | 424.7 |
| 331111 | Iron \& steel mills .............................. | 191 | 56994468 | 32.7 | 52.7 | 74.8 | 93.6 | 445.3 |
| 331112 | Electrometallurgical ferroalloy product mfg ...... | 19 | 1388691 | 60.6 | 82.4 | 100.0 | N | 1122.8 |
| 3312 | Steel product mfg from purchased steel. . . . . . . . . . | 503 | 18516877 | 16.7 | 25.6 | 40.5 | 62.0 | 126.6 |
| 33121 | Iron \& steel pipes \& tubes mfg from purchased steel | 166 | 7450132 | 19.5 | 29.7 | 51.6 | 81.7 | 199.6 |
| 331210 | Iron \& steel pipes \& tubes mfg from purchased steel | 166 | 7450132 | 19.5 | 29.7 | 51.6 | 81.7 | 199.6 |
| 33122 | Rolling \& drawing of purchased steel . $\ldots \ldots \ldots \ldots$. | 346 | 11066745 | 24.8 | 35.1 | 54.9 | 76.0 | 240.4 |
| 331221 | Cold-rolled steel shape mfg ..................... | 153 | 6239017 | 44.0 | 60.0 | 80.6 | 96.3 | 630.5 |
| 331222 | Steel wire drawing ........................... | 199 | 4827728 | 21.3 | 35.6 | 56.0 | 79.7 | 223.2 |
| 3313 | Alumina \& aluminum production \& processing . . . . . . | 248 | 32550279 | 48.0 | 64.0 | 79.1 | 89.1 | 816.3 |
| 33131 | Alumina \& aluminum production \& processing ..... | 248 | 32550279 | 48.0 | 64.0 | 79.1 | 89.1 | 816.3 |
| 331311 | Alumina refining ............................ | 5 | 1219057 | D | 100.0 | N | N | D |
| 331312 | Primary aluminum production.................. | 13 | 6224610 | 59.2 | 81.7 | 100.0 | N | 1230.6 |
| 331314 | Secondary smelting \& alloying of aluminum ..... | 87 | 3595436 | 40.7 | 53.7 | 76.0 | 94.3 | 629.6 |
| 331315 | Aluminum sheet, plate, \& foil mfg ............... | 41 | 13708307 | 65.0 | 85.4 | 97.9 | 10.0 | 1447.0 |
| 331316 | Aluminum extruded product mfg ............... | 105 | 6177701 | 44.5 | 58.9 | 75.2 | 91.1 | 680.0 |
| 331319 | Other aluminum rolling \& drawing ............. | 30 | 1625168 | 62.7 | 79.4 | 98.4 | 100.0 | 1162.8 |

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|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 331 | Primary metal mfg-Con. |  |  |  |  |  |  |  |
| 3314 | onferrous metal (except aluminum) production \&rocessing ........................... |  |  |  |  |  |  |  |
|  |  | 698 | 29616370 | 24.3 | 34.7 | 52.8 | 71.8 | 242.6 |
| 33141 | refining | 134 | 9530263 | 64.1 | 74.7 | 89.1 | 98.2 | 1178.4 |
| $\begin{aligned} & 331411 \\ & 331419 \end{aligned}$ | Primary smelting \& refining of copper . . . . . . . . . . . Other nonferrous metal primary smelting \& | 9 | 6128370 | 94.5 | D | 100.0 | N | 2392.3 |
|  | refining .................................... . | 127 | 3401893 | 32.7 | 49.6 | 77.9 | 96.5 | 431.3 |
| $\begin{aligned} & 33142 \\ & 331421 \\ & 331422 \\ & 331423 \end{aligned}$ | Copper rolling, drawing, extruding, \& alloying Copper rolling, drawing, \& extruding. Copper wire (except mechanical) drawing Secondary smelting, refining, \& alloying of copper | 154 91 | 9800616 7619953 | 30.0 37.4 | 50.2 62.8 | 75.1 88.7 | 92.5 99.1 | 404.5 598.8 |
|  |  | 33 | 983 284 | 48.5 | 69.7 | 94.7 | 100.0 | 851.8 |
|  |  | 34 | 1197379 | 50.5 | 73.4 | 93.1 | 100.0 | 986.2 |
| 33149 | Other nonferrous metal rolling, drawing, extruding, \& alloying Other nonferrous metal rolling, drawing, \& extruding Other nonferrous metal secondary smelting, refining, \& alloying | 440 | 10285491 | 20.2 | 30.8 | 51.0 | 73.0 | 190.0 |
| 331491 <br> 331492 |  | 220 | 7057705 | 28.1 | 43.6 | 66.4 | 86.1 | 325.9 |
| $331492$ |  | 233 | 3227786 | 22.0 | 37.4 | 58.8 | 82.7 | 244.8 |
| 3315 | Foundries. <br> Ferrous metal foundries $\qquad$ Iron foundries Steel investment foundries $\qquad$ <br> Steel foundries (except investment) | 2521 | 29051043 | 13.4 | 21.1 | 34.9 | 49.4 | 93.6 |
| 33151 |  | 986 | 17428045 | 18.2 | 30.3 | 48.4 | 66.3 | 176.4 |
| 331511 |  | 602 | 12187267 | 25.1 | 40.1 | 60.0 | 76.3 | 292.1 |
| 331512 |  | 145 | 2341737 | 46.1 | 61.4 | 77.1 | 90.9 | 795.3 |
| 331513 |  | 263 | 2899041 | 26.6 | 38.9 | 62.2 | 83.7 | 337.5 |
| 33152 | Nonferrous metal foundries Aluminum die-casting foundries. $\qquad$ <br> Nonferrous (except aluminum) die-casting foundries | 1559 | 11622998 | 12.2 | 19.7 | 32.3 | 48.6 | 74.8 |
| $\begin{aligned} & 331521 \\ & 331522 \end{aligned}$ |  | 291 | 3843845 | 25.7 | 37.2 | 55.1 | 77.0 | 258.3 |
|  |  | 267 | 1998772 | 18.0 | 28.4 | 49.4 | 74.5 | 170.6 |
| 331524331525 | Aluminum foundries (except die-casting) ........ | 592 | 3916527 | 19.3 | 30.9 | 51.6 | 71.4 | 183.0 |
|  | Copper foundries (except die-casting) ......... | 301 | - 846578 | 13.4 | 23.0 | 42.7 | 68.3 | 127.7 |
| 331528 | Other nonferrous foundries (except die-casting). . | 136 | 1017276 | 71.2 | 78.3 | 88.5 | 96.8 | 2147.9 |
| 332 | Fabricated metal product mfg | 58516 | 242813453 | 3.5 | 5.8 | 10.9 | 18.0 | 8.5 |
|  | Forging \& stamping | 3026 | 24375589 | 7.9 | 12.0 | 19.4 | 30.5 | 29.2 |
|  | Forging \& stamping. | 3026 | 24375589 | 7.9 | 12.0 | 19.4 | 30.5 | 29.2 |
| 33211 332111 | Iron \& steel forging | 390 | 4869727 | 24.2 | 33.5 | 50.6 | 72.9 | 237.4 |
|  | Nonferrous forging . | 75 | 1838385 | 47.4 | 65.8 | 88.2 | 99.1 | 990.5 |
| $\begin{aligned} & 332112 \\ & 332114 \end{aligned}$ | Custom roll forming | 360 | 3301907 | 28.4 | 37.7 | 54.8 | 73.1 | 387.5 |
| 332115332116 | Crown \& closure mfg | 55 | 953864 | 58.2 | 77.9 | 93.2 | 99.9 | 1119.7 |
|  | Metal stamping ... | 2051 | 12078985 | 7.6 | 11.3 | 18.1 | 29.3 | 27.7 |
| 332117 | Powder metallurgy part mfg | 114 | 1332721 | 28.7 | 45.1 | 68.3 | 90.9 | 355.4 |
| 332233221 | Cutlery \& handtool mfg | 1545 | 11475344 | 18.3 | 28.2 | 45.3 | 64.0 | 157.0 |
|  | Cutlery \& handtool mfg . . . . . . . . . . . . . . . | 1545 | 11475344 | 18.3 | 28.2 | 45.3 | 64.0 | 157.0 |
| 332211 | Cutlery \& flatware (except precious) mfg ........ | 163 | 2013256 | 64.6 | 75.2 | 88.1 | 96.7 | 1990.3 |
| 332212 | Hand \& edge tool mfg ........................ | 1164 | 6713485 | 21.4 | 31.3 | 48.6 | 66.2 | 182.0 |
|  | Saw blade \& handsaw mfg. | 166 | 1447890 | 39.6 | 53.6 | 79.6 | 93.7 | 609.4 |
| 332214 | Kitchen utensil, pot, \& pan mfg | 69 | 1300713 | 57.8 | 80.7 | 93.0 | 99.6 | 1203.3 |
| 332333231 | Architectural \& structural metals mfg | 11649 | 53547213 | 4.4 | 7.4 | 14.2 | 23.4 | 14.5 |
|  | Plate work \& fabricated structural product mfg ..... | 4423 | 23574845 | 8.9 | 13.7 | 22.4 | 34.1 | 41.1 |
| 332311 | Prefabricated metal building \& component mfg .. | 557 | 4686554 | 26.1 | 41.3 | 59.8 | 75.8 | 274.9 |
| 332312 | Fabricated structural metal mfg . . . . . . . . . . . . . . | 2872 | 16115143 | 11.0 | 15.4 | 25.0 | 36.9 | 57.4 |
| 332313 | Plate work mfg . . . . . . . . . . . . . . . . . . . . . . . . | 1011 | 2773148 | 7.4 | 12.5 | 24.2 | 40.7 | 41.8 |
| $\begin{aligned} & 33232 \\ & 332321 \end{aligned}$ | Ornamental \& architectural metal products mfg .... | 7275 | 29972368 | 5.3 | 9.3 | 16.3 | 27.7 | 19.6 |
|  | Metal window \& door mfg . . . . . . . . . . . . . . . . . . | 1249 | 10209522 | 14.5 | 24.7 | 41.0 | 59.9 | 115.4 |
| 332322 | Sheet metal work mfg . | 4202 | 15584570 | 4.1 | 7.5 | 15.4 | 25.4 | 15.8 |
| 332323 | Ornamental \& architectural metal work mfg...... | 1845 | 4178276 | 12.2 | 20.5 | 32.1 | 45.2 | 73.7 |
| 332433241332410 | Boiler, tank, \& shipping container mfg $\ldots \ldots \ldots \ldots$Power boiler \& heat exchanger mfg $\ldots \ldots \ldots \ldots$Power boiler \& heat exchanger mfg $\ldots \ldots \ldots \ldots$ | 1526 | 22714389 | 30.4 | 46.0 | 57.1 | 68.1 | 338.9 |
|  |  | 436 | 3867379 3 | 16.9 | 25.5 | 42.0 | 64.3 | 140.4 |
|  |  | 436 | 3867379 | 16.9 | 25.5 | 42.0 | 64.3 | 140.4 |
| $\begin{aligned} & 33242 \\ & 332420 \end{aligned}$ | Metal tank (heavy gauge) mfg Metal tank (heavy gauge) mfg | 552 | $\begin{aligned} & 4703647 \\ & 4703647 \end{aligned}$ | 16.6 16.6 | 27.1 | 42.7 | 59.6 59.6 | 132.4 132.4 |
| 33243 | Metal can, box, \& other metal container (light |  |  |  |  |  |  |  |
|  | gauge) mfg .................................. | 557 | 14143363 | 48.9 | 73.8 | 84.4 | 91.6 | 846.7 |
| 332431332439 | Metal can mfg ................................ | 107 | 11930448 | 57.9 | 87.1 | 96.8 | 99.5 | 1880.2 |
|  | Other metal container mfg . ................... | 455 | 2212915 | 20.8 | 30.9 | 49.6 | 71.2 | 194.3 |
| $\begin{aligned} & 3325 \\ & 33251 \\ & 332510 \end{aligned}$ | Hardware mfg... | 906 | 11061736 | 17.4 | 27.7 | 47.4 | 68.6 | 154.6 |
|  | Hardware mfg ............................... | 906 | 11061736 | 17.4 | 27.7 | 47.4 | 68.6 | 154.6 |
|  | Hardware mfg ................................. | 906 | 11061736 | 17.4 | 27.7 | 47.4 | 68.6 | 154.6 |
| 3326 | Spring \& wire product mfg | 1646 | 8533707 | 14.6 | 20.4 | 31.0 | 43.9 | 103.1 |
| 332611332611 | Spring \& wire product mfg ....................... | 1646 | 8533707 | 14.6 | 20.4 | 31.0 | 43.9 | 103.1 |
|  | Spring (heavy gauge) mfg ..................... | 124 | 845199 | 31.7 | 49.5 | 72.2 | 92.8 | 404.9 |
| 332612 | Spring (light gauge) mfg .................... | +320 | 2481151 | 38.7 | 49.4 | 63.7 | 78.9 | 677.9 |
| 332618 | Other fabricated wire product mfg ............ | 1213 | 5207357 | 11.8 | 18.3 | 29.1 | 44.6 | 66.8 |
| 3327 | Machine shops, turned product, \& screw, nut, \& bolt |  |  |  |  |  |  |  |
|  | Machine shops Machine shops | 26999 23430 | 43362901 26850065 | 3.8 | 5.4 2.7 | 8.6 4 | 13.3 8 | 6.4 |
| $\begin{aligned} & 33271 \\ & 332710 \end{aligned}$ |  | 23430 | 26850065 | 1.6 | 2.7 | 4.9 | 8.7 | 1.9 |
| $\begin{aligned} & 33272 \\ & 332721 \\ & 332722 \end{aligned}$ | Turned product \& screw, nut, \& bolt mfg Precision turned product mfg . $\square$ Bolt, nut, screw, rivet, \& washer mfg ............. . . | 3593 | 16512836 | 9.4 | 13.7 | 21.3 | 31.9 | 40.2 |
|  |  | 2696 | 8304805 | 3.6 | 6.7 | 13.3 | 23.9 | 13.2 |
|  |  | 913 | 8208031 | 19.0 | 27.5 | 41.4 | 58.1 | 153.1 |
| 3328 <br> 33281 <br> 332811 | Coating, engraving, heat treating, \& allied activities . Coating, engraving, heat treating, \& allied activities <br> Metal heat treating . . . . . . . . . . . . . . . . . . . . . . . . . . <br> Metal coating/engraving (exc jewelry/silverware)/ allied services <br> Electroplating, plating, polishing, anodizing, \& coloring. | 5885 | 17956236 | 10.2 | 15.6 | 24.7 | 36.0 | 46.2 |
|  |  | 5885 | 17956236 | 10.2 | 15.6 | 24.7 | 36.0 | 46.2 |
|  |  | 662 | 3442317 | 23.7 | 35.6 | 50.1 | 64.6 | 239.6 |
| $332812$ |  | 1978 | 8515488 | 21.4 | 30.5 | 46.1 | 58.7 | 164.8 |
| 332813 |  | 3286 | 5998431 | 4.6 | 8.3 | 14.9 | 25.1 | 16.1 |

Table 2. Share of Value of Shipments Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997-Con.
[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value of shipments ${ }^{2}$ (\$1000) | Percent of value of shipments accounted for by the- |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 332 | Fabricated metal product mfg-Con. |  |  |  |  |  |  |  |
| 3329 | Other fabricated metal product mfg Metal valve mfg | 6040 | 49786338 | 9.8 | 16.3 | 29.2 | 43.8 | 57.2 |
| 33291 |  | 1077 | 21983284 | 18.1 | 16.5 | 43.4 |  | 144.0 |
| 332911 | Mndustrial valve mfg ......................... | 429 | 8965193 | 27.5 | 37.5 | 56.5 | 61.4 75.5 | 323.2529.6 |
| 332912 |  | 360 | 6594554 | 40.3 | 53.4 | 70.3 |  |  |
| 332913 |  | 97 | 3616737 | 44.6 | 57.6 | 77.9 | 85.8 95.7 | 783.3249.6 |
| 332919 | Other metal valve \& pipe fitting mfg ............ | 220 | 2806800 | 22.9 | 35.5 | 60.2 | 81.9 |  |
| 33299 | All other fabricated metal product mfg | 5011 | 27803054 | 11.8 | 18.5 | 31.7 | 45.9 |  |
| 332991 | Ball \& roller bearing mfg .. | 107 | 6093840976944 | 49.4 | 66.3 | 89.597.5 | 98.6 |  |
| 332992 | Small arms ammunition mfg................... |  |  | 88.9 | 93.8 |  | 99.4100.0 | $\begin{array}{r} 73.6 \\ 887.3 \\ \text { D } \end{array}$ |
| 332993 | Ammunition (except small arms) mfg | 45 | $\begin{array}{r}976944 \\ 1471101 \\ \hline\end{array}$ | 66.5 | 84.5 | 98.7 |  | 1782.9 |
| 332994 | Small arms mfg.................. | 189 | 1248048 | 41.5 | 64.9 | 87.5 | 94.6 | 663.2 |
| 332995 | Other ordnance \& accessories mfg . | 65806 | 1362401 | 78.3 | 88.626.1 | 95.938.8 | 99.8 |  |
| 332996 | Fabricated pipe \& pipe fitting mfg .. |  | 4118699623605 | 18.6 |  |  | 55.5 | r130.966.8 |
| 332997 | Industrial pattern mfg........... | 66882 |  | 11.0 | $\begin{aligned} & 17.5 \\ & 74.1 \end{aligned}$ | 30.2 | 48.0 |  |
| 332998 332999 |  |  | $\begin{array}{r} 623605 \\ 1553730 \end{array}$ | 54.1 |  | 93.8 | 99.4 | 66.8 1301.0 |
| 332999 | All other miscellaneous fabricated metal product mfg | 2955 | 10354686 | 11.8 | 17.1 | 26.0 | 40.1 | 60.2 |
| 333 | Machinery mfg ................................... | 27983 | 270687165 | 11.5 | 15.6 | 23.9 | 34.3 | 55.4 |
| 3331 | Agriculture, construction, \& mining machinery mfg Agricultural implement mfg... <br> Farm machinery \& equipment mfg Lawn \& garden tractor \& home lawn \& garden equipment mfg |  | 54181573 | 37.8 | 45.7 | 57.2 | 69.3 | 572.5 |
| 33311 |  | $\begin{aligned} & 1386 \\ & 1264 \end{aligned}$ | 2337136715995219 | 50.0 | 60.1 | 71.1 | 81.8 | 1246.1 |
| $\begin{aligned} & 333111 \\ & 333112 \end{aligned}$ |  |  |  | 53.2 | 60.4 | 70.5 | 80.1 | 1707.2 |
|  |  |  | 7376148 | 64.4 | 80.3 | 94.3 | 98.8 | 1171.7 |
| 33312 | Construction machinery mfg. . . . . . . . . . . . . . . . . . . . Construction machinery mfg | 723 | 2211744022117440 | 49.6 | 59.5 | 72.6 | 84.6 | 1020.3 |
| 333120 |  | 723 |  | 49.6 | 59.5 | 72.6 | 84.6 | 1020.3 |
| $\begin{aligned} & 33313 \\ & 333131 \\ & 333132 \end{aligned}$ | Mining \& oil \& gas field machinery mfg............. Mining machinery \& equipment mfg Oil \& gas field machinery \& equipment mfg . | $\begin{aligned} & 748 \\ & 261 \\ & 494 \end{aligned}$ | 869276627058855 | 23.636.43 | 36.7 <br> 50.9 | 57.769.9 | 75.2 | $\begin{aligned} & 245.8 \\ & 515.5 \\ & 391.7 \end{aligned}$ |
|  |  |  |  |  |  |  | 86.1 |  |
|  |  |  | 5986881 | 30.5 | 46.2 | 68.5 | 83.4 |  |
| $\begin{aligned} & 3332 \\ & 33321 \\ & 333210 \end{aligned}$ | Industrial machinery mfg . Sawmill \& woodworking machinery mfg Sawmill \& woodworking machinery mfg | $\begin{array}{r} 4439 \\ 312 \\ 312 \end{array}$ | 3665871412962001296200 | $\begin{aligned} & 13.5 \\ & 30.0 \\ & 30.0 \end{aligned}$ | $\begin{aligned} & 18.7 \\ & 43.2 \\ & 43.2 \end{aligned}$ | 29.162.962.9 | $\begin{aligned} & 41.9 \\ & 81.2 \\ & 81.2 \end{aligned}$ | $\begin{array}{r} 89.4 \\ 344.8 \\ 344.8 \end{array}$ |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| $\begin{aligned} & 33322 \\ & 333220 \end{aligned}$ | Plastics \& rubber industry machinery mfg .......... Plastics \& rubber industry machinery mfg ........ | $\begin{aligned} & 427 \\ & 427 \end{aligned}$ | $\begin{array}{lll} 3 & 570 & 320 \\ 3 & 570 & 320 \end{array}$ | $\begin{aligned} & 30.2 \\ & 30.2 \end{aligned}$ | $\begin{aligned} & 41.5 \\ & 41.5 \end{aligned}$ | 57.257.2 | 76.5 | 373.9373.9 |
|  |  |  |  |  |  |  |  |  |
| 33329333291333292333293333294333295333298 | Other industrial machinery mfg <br> Paper industry machinery mfg Textile machinery mfg Printing machinery \& equipment mfg Food product machinery mfg Semiconductor machinery mfg All other industrial machinery mfg | 3713 | $\begin{array}{r} 31792194 \\ 3 \quad 386920 \end{array}$ | $\begin{aligned} & 15.4 \\ & 37.2 \end{aligned}$ | 21.4 <br> 53.1 | 32.5 | 45.8 | 114.9 |
|  |  | 330 |  |  |  | 69.5 | 83.4 | 490.3 |
|  |  | 454 | 1766419 | 24.4 | 36.4 | 53.8 | 72.0 | 269.3 |
|  |  | 504 | 3786716 | 29.6 | 41.5 | 59.2 | 75.8 | 326.8 |
|  |  | 573 | 2857928 | 19.1 | 27.1 | 41.0 | 60.0 | 139.8 |
|  |  | 244 | 11162764 | 43.5 | 59.4 | 77.2 | 91.4 | 818.4 |
|  |  | 1634 | 8831447 | 10.6 | 16.6 | 27.8 | 43.3 | 57.5 |
| 3333 | Commercial \& service industry machinery mfg . . . . . . | 2492 | 26009857 | 30.2 | 35.7 | 45.8 | 58.8 | 401.5 |
| 333311 | Commercial \& service industry machinery mfg ..... | 2492 | 26009857 | 30.2 | 35.7 | 45.8 | 58.8 | 401.5 |
| 333311 | Automatic vending machine mfg .............. | 117 | 1327998 | 67.9 | 84.1 | 92.3 | 97.5 | 1484.3 |
| 333312 | Commercial laundry, drycleaning, \& pressing machine mfg $\qquad$ | 63 | 604939 | 44.7 | 65.4 | 92.0 | 99.7 | 779.0 |
| 333313 | Office machinery mfg. .......................... | 158 | 3162823 | 53.0 | 68.2 | 81.2 | 93.5 | 1208.3 |
| 333314 | Optical instrument \& lens mfg ................ | 482 | 3139837 | 25.4 | 38.4 | 56.1 | 74.7 | 263.2 |
| 333315 333319 | Photographic \& photocopying equipment mfg.... Other commercial \& service industry machinery | 412 | 8290986 | 80.9 | 85.0 | 90.6 | 94.5 | D |
|  | mfg | 1274 | 9483274 | 14.0 | 21.9 | 36.7 | 54.6 | 95.3 |
| 3334 | Ventilation, heating, AC, \& commercial refrigeration equip mfg . | 1563 | 30791331 | 29.7 | 39.8 | 54.9 | 67.3 | 283.3 |
| 33341 | Ventiation, heating, AC, \& commercial refrigeration |  |  |  |  |  |  |  |
|  | equip mfg . ................................ | 1563 | 30791331 | 29.7 | 39.8 | 54.9 | 67.3 | 283.3 |
| 333411 | Air purification equipment mfg $\ldots \ldots \ldots \ldots \ldots \ldots$ | 333 | 2218051 | 21.3 | 33.3 | 53.8 | 75.1 | 207.5 |
| 333412 | Industrial \& commercial fan \& blower mfg ....... | 173 | 1899077 | 22.5 | 38.4 | 64.4 | 87.2 | 276.4 |
| 333414 | Heating equipment (except warm air furnaces) mfg | 441 | 3707615 | 20.2 | 31.0 | 49.8 | 72.6 | 182.9 |
| 333415 | AC \& warm air heating \& commercial/industrial refrig equip mfg | 646 | 22966588 | 39.2 | 52.6 | 71.6 | 83.5 | 491.0 |
| 3335 | Metalworking machinery mfg . . . . . . . . . . . . . . . . . . | 10000 | 30417553 | 7.3 | 10.7 | 16.8 | 26.1 | 23.2 |
| 33351 | Metalworking machinery mfg . . . . . . . . . . . . . . . . . . . . | 10000 | 30417553 | 7.3 | 10.7 | 16.8 | 26.1 | 23.2 |
| 333511 | Industrial mold mfg............................ | 2475 | 5087422 | 6.6 | 9.8 | 16.8 | 26.7 | 22.4 |
| 333512 | Machine tool (metal cutting types) mfg.......... | 368 | 5331245 | 24.7 | 40.7 | 59.2 | 75.5 | 267.2 |
| 333513 | Machine tool (metal forming types) mfg .......... | 219 | 2247954 | 21.2 | 33.8 | 54.6 | 74.7 | 208.7 |
| 333514 | Special die \& tool, die set, jig, \& fixture mfg...... | 4667 | 8237755 | 5.5 | 8.4 | 14.6 | 24.0 | 16.5 |
| 333515 | Cutting tool \& machine tool accessory mfg ...... | 1820 | 5379842 | 21.6 | 27.9 | 40.0 | 54.0 | 206.4 |
| 333516 | Rolling mill machinery \& equipment mfg ........ | 98 | 300084 | 53.0 | 72.7 | 87.0 | 97.0 | 908.1 |
| 333518 | Other metalworking machinery mfg ............ | 446 | 3433251 | 17.2 | 27.4 | 43.9 | 64.7 | 140.7 |
| 3336 | Engine, turbine, \& power transmission equipment mfg | 789 | 30508866 | 42.5 | 57.8 | 73.1 | 85.8 | 596.2 |
| 33361 | Engine, turbine, \& power transmission equipment mfg | 789 | 30508866 | 42.5 | 57.8 | 73.1 | 85.8 | 596.2 |
| 333611 | Turbine \& turbine generator set unit mfg........ | 68 | 5854113 | 78.2 | 90.1 | 97.4 | 99.9 | 2390.1 |
| 333612 | Speed changer, industrial high-speed drive, \& gear mfg. | 237 | 2391269 | 29.0 | 45.7 | 68.6 | 83.6 | 345.2 |
| 333613 | Mechanical power transmission equipment mfg.. | 259 | 3252399 | 26.1 | 41.6 | 64.6 | 83.6 | 303.4 |
| 333618 | Other engine equipment mfg .................. | 245 | 19011085 | 55.8 | 76.0 | 90.1 | 97.0 | 1019.1 |

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| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value of shipments ${ }^{2}$ (\$1000) | Percent of value of shipments accounted for by the- |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 333 | Machinery mfg-Con. |  |  |  |  |  |  |  |
| 3339 | Other general-purpose machinery mfg . | 6347 | 62119271 | 6.4 | 11.4 | 22.1 | 36.6 | 33.6 |
| 33391 | Pump \& compressor mfg | 723 | 13683351 | 19.2 | 29.8 | 49.4 | 72.5 | 176.8 |
| 333911 | Pump \& pumping equipment mfg | 406 | 6735133 | 24.3 | 37.5 | 58.5 | 82.0 | 267.2 |
| 333912 | Air \& gas compressor mfg ...... | 269 | 5651176 | 30.9 | 46.6 | 71.1 | 90.4 | 382.8 |
| 333913 | Measuring \& dispensing pump mfg............ | 63 | 1297042 | 65.6 | 81.6 | 94.5 | 99.6 | 1581.3 |
| 33392 | Material handling equipment mfg. | 1741 | 16646105 | 14.1 | 23.1 | 39.1 | 53.6 | 103.8 |
| 333921 | Elevator \& moving stairway mfg | 178 | 1607066 | 52.7 | 65.6 | 77.9 | 90.5 | 846.7 |
| 333922 | Conveyor \& conveying equipment mfg.......... | 864 | 6364898 | 17.6 | 23.5 | 36.1 | 52.2 | 114.4 |
| 333923 | Overhead traveling crane, hoist, \& monorail system mfg | 283 | 3135815 | 35.7 | 51.0 | 70.5 | 85.6 | 477.3 |
| 333924 | Industrial truck, tractor, trailer, \& stacker machinery mfg | 435 | 5538326 | 38.5 | 52.3 | 67.4 | 80.2 | 503.0 |
| 333999 | All other general-purpose machinery mfg | 3938 | 31789815 3 | 11.0 | 17.6 | 29.5 | 44.3 | 62.5 |
| 3339991 | Power-driven handtool mfg........ | 198 | 3609779 | 47.0 | 68.7 | 89.5 | 96.2 | 816.6 |
| 333992 | Welding \& soldering equipment mfg | 218 | 4444978 | 53.4 | 64.8 | 77.7 | 89.9 | 1000.8 |
| 333993 | Packaging machinery mfg......... | 644 | 4900477 | 16.6 | 26.2 | 44.3 | 63.1 | 145.3 |
| 333994 | Industrial process furnace \& oven mfg | 378 | 2869912 | 22.3 | 33.3 | 52.1 | 71.5 | 217.0 |
| 333995 | Fluid power cylinder \& actuator mfg .. | 282 | 3542331 | 44.2 | 53.9 | 70.7 | 87.4 | 697.2 |
| 333996 | Fluid power pump \& motor mfg .... | 149 | 2811223 | 48.7 | 73.2 | 89.1 | 96.1 | 819.0 |
| 333997 | Scale \& balance (except laboratory) mfg . . . . . . . | 110 | 682181 | 57.2 | 67.0 | 81.9 | 94.9 | 1136.9 |
| 333999 | All other miscellaneous general-purpose machinery mfg | 2005 | 8928934 | 11.7 | 18.1 | 30.6 | 47.1 | 70.7 |
| 334 | Computer \& electronic product mfg................. | 15492 | 439381300 | 19.1 | 28.1 | 41.1 | 55.0 | 136.6 |
| 3341 | Computer \& peripheral equipment mfg. | 1870 | 110054987 | 37.0 | 52.1 | 72.8 | 86.3 | 464.9 |
| 33411 | Computer \& peripheral equipment mfg. | 1870 | 110054987 | 37.0 | 52.1 | 72.8 | 86.3 | 464.9 |
| 334111 | Electronic computer mfg . | 531 | 66301810 | 45.4 | 68.5 | 91.4 | 97.2 | 727.9 |
| 334112 | Computer storage device mfg | 203 | 15354924 | 53.1 | 77.1 | 92.9 | 98.1 | 1015.8 |
| 334113 | Computer terminal mfg ... | 141 | 1486965 | 39.4 | 64.5 | 87.2 | 96.5 | 645.4 |
| 334119 | Other computer peripheral equipment mfg . ..... | 1015 | 26911288 | 45.3 | 60.2 | 73.0 | 85.4 | 659.7 |
| 3342 | Communications equipment mfg . | 2078 | 82852421 | 36.5 | 49.3 | 63.7 | 75.8 | 449.0 |
| 33421 | Telephone apparatus mfg.................... | 548 | 38375534 | 54.4 | 66.5 | 78.5 | 88.2 | 999.4 |
| 334210 | Telephone apparatus mfg................... | 548 | 38375534 | 54.4 | 66.5 | 78.5 | 88.2 | 999.4 |
| 33422 | Radio \& TV broadcasting \& wireless communications equipment mfg . | 1096 | 40373077 | 48.9 | 59.2 | 71.1 | 81.6 | 971.9 |
| 334220 | Radio \& TV broadcasting \& wireless communications equipment mfg | 1096 | 40373077 | 48.9 | 59.2 | 71.1 | 81.6 | 971.9 |
| 33429 | Other communications equipment mfg . | 461 | 4103810 | 38.1 | 50.2 | 68.6 | 84.9 | 526.0 |
| 334290 | Other communications equipment mfg......... | 461 | 4103810 | 38.1 | 50.2 | 68.6 | 84.9 | 526.0 |
| 3343 | Audio \& video equipment mfg | 521 | 8226685 | 29.8 | 52.4 | 74.6 | 87.8 | 414.7 |
| 33431 | Audio \& video equipment mfg ................... | 521 | 8226685 | 29.8 | 52.4 | 74.6 | 87.8 | 414.7 |
| 334310 | Audio \& video equipment mfg ................. | 521 | 8226685 | 29.8 | 52.4 | 74.6 | 87.8 | 414.7 |
| 3344 | Semiconductor \& other electronic component mfg . . . . | 5652 | 139083873 | 34.3 | 42.8 | 54.2 | 65.5 | 413.7 |
| 33441 | Semiconductor \& other electronic component mfg. . | 5652 | 139083873 | 34.3 | 42.8 | 54.2 | 65.5 | 413.7 |
| 334411 | Electron tube mfg........................... | 147 | 3789948 | 57.3 | 80.2 | 91.5 | 98.1 | 1183.4 |
| 334412 | Bare printed circuit board mfg ................. | 1319 | 8507125 | 16.3 | 24.7 | 39.3 | 58.1 | 117.4 |
| 334413 | Semiconductor \& related device mfg ............ | 993 | 78479496 | 52.5 | 64.0 | 78.0 | 88.5 | 1080.1 |
| 334414 | Electronic capacitor mfg ...................... | 112 | 2560984 | 61.1 | 74.9 | 88.2 | 97.3 | 1086.3 |
| 334415 | Electronic resistor mfg......................... | 90 | 1240008 | 42.6 | 59.1 | 82.3 | 97.0 | 719.4 |
| 334416 | Electronic coil, transformer, \& other inductor mfg. | 426 | 1524064 | 13.5 | 21.8 | 38.6 | 57.3 | 102.9 |
| 334417 | Electronic connector mfg .................... | 281 | 5550540 | 50.7 | 62.0 | 76.1 | 88.3 | 1356.2 |
| 334418 | Printed circuit assembly (electronic assembly) mfg | 673 | 27103573 | 40.6 | 53.0 | 67.0 | 79.4 | 605.0 |
| 334419 | Other electronic component mfg .............. | 1781 | 10328135 | 7.8 | 13.6 | 25.5 | 42.6 | 46.4 |
| 3345 | Navigational, measuring, medical, \& control instruments mfg | 4845 | 89465709 | 24.1 | 33.2 | 47.4 | 61.0 | 207.5 |
| 33451 | Navigational, measuring, medical, \& control instruments |  |  |  |  |  |  |  |
| 334510 | instruments mfg <br> Electromedical \& electrotherapeutic apparatus | 4845 | 89465709 | 24.1 | 33.2 | 47.4 | 61.0 | 207.5 |
|  | mfg ...................................... | 490 | 11581624 | 22.7 | 37.7 | 60.0 | 82.0 | 250.3 |
| 334511 | Search, detection, navigation, \& guidance instrument mfg | 579 | 32661495 | 56.7 | 75.0 | 87.7 | 94.6 | 1144.6 |
| 334512 | Automatic environmental control mfg ........... | 297 | 2943971 | 52.8 | 64.3 | 77.6 | 87.6 | 918.6 |
| 334513 | Industrial process control instrument mfg ....... | 919 | 7662564 | 30.8 | 39.1 | 53.0 | 66.5 | 317.4 |
| 334514 | Totalizing fluid meter \& counting device mfg ..... | 210 | 3716095 | 53.2 | 68.2 | 86.4 | 94.4 | 1250.6 |
| 334515 | Electricity measuring \& testing instrument mfg ... | 762 | 14025050 | 42.7 | 53.7 | 65.7 | 79.5 | 632.7 |
| 334516 | Analytical laboratory instrument mfg............ | 637 | 6899852 | 33.6 | 48.3 | 64.0 | 77.3 | 387.0 |
| 334517 | Irradiation apparatus mfg .................... | 134 | 3970454 | 58.3 | 77.4 | 91.4 | 97.3 | 1190.1 |
| 334518 | Watch, clock, \& part mfg . . . . . . . . . . . . . . . . . . | 145 | ¢ 921827 | 48.1 | 62.7 | 86.9 | 96.9 | 750.2 |
| 334519 | Other measuring \& controlling device $\mathrm{mfg} . . . . .$. | 826 | 5082777 | 16.0 | 25.6 | 40.0 | 57.7 | 117.5 |
| 3346 |  | 843 | 9697625 | 25.2 | 41.1 | 65.3 | 81.8 | 294.1 |
| 33461 | Mfg \& reproducing magnetic \& optical media ...... | 843 | 9697625 | 25.2 | 41.1 | 65.3 | 81.8 | 294.1 |
| 334611 | Software reproducing....................... | 112 | 1209207 | 65.3 | 75.2 | 87.1 | 96.6 | D |
| 334612 | Prerecorded CD (except software), tape, \& record reproducing. | 492 | 3809652 | 39.3 | 56.0 | 73.8 | 85.3 | 539.4 |
| 334613 | Magnetic \& optical recording media mfg ......... | 241 | 4678766 | 37.9 | 59.4 | 87.0 | 95.9 | 585.7 |
| 335 | Electrical equipment, appliance, \& component mfg ..... | 5839 | 112116267 | 14.8 | 23.2 | 36.8 | 51.0 | 105.9 |
| 3351 | Electric lighting equipment mfg | 1211 | 12710091 | 35.3 | 49.2 | 61.4 | 71.9 | 396.4 |
| 33511 | Electric lamp bulb \& part mfg ..................... | 54 | 3306009 | 88.9 | 94.3 | 98.6 | 99.9 | 2849.0 |
| 335110 | Electric lamp bulb \& part mfg ................... | 54 | 3306009 | 88.9 | 94.3 | 98.6 | 99.9 | 2849.0 |
| 33512 | Lighting fixture mfg. . . . . . . . . . . . . . . . . . . . . . . | 1160 | 9404082 | 28.6 | 39.6 | 52.6 | 65.6 | 272.8 |
| 335121 | Residential electric lighting fixture mfg .......... | 543 | 2255251 | 24.5 | 36.5 | 55.8 | 73.6 | 266.3 |
| 335122 | Commercial/industrial/institutional electric lighting fixture mfg | 326 | 4101442 | 43.5 | 59.4 | 71.2 | 83.3 |  |
| 335129 | Other lighting equipment mfg ................. | 310 | 3047389 | 25.1 | 38.2 | 59.7 | 80.9 | 262.1 |

[^1]Table 2. Share of Value of Shipments Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997-Con.
[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value of shipments ${ }^{2}$ (\$1000) | Percent of value of shipments accounted for by the- |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 335 | Con. |  |  |  |  |  |  |  |
| 3352 | Household appliance mfg . | 265 | 21394445 | 53.6 | 65.0 | 80.1 | 95.3 | 816.2 |
| 33521 | Small electrical appliance mfg | 144 | 5907367 | 35.0 | 53.3 | 85.1 | 98.2 | 510.4 |
| 335211 | Electric housewares \& household fan mfg . | 119 | 3532813 | 43.1 | 65.1 | 92.6 | 98.7 | 777.5 |
| 335212 | Household vacuum cleaner mfg ................ | 25 | 2374554 | 68.5 | 92.4 | 99.9 | 100.0 | 1437.9 |
| 33522 | Major appliance mfg. <br> Household cooking appliance mfg. Household refrigerator \& home freezer mfg Household laundry equipment mfg <br> Other major household appliance mfg | 126 | 15487078 | 66.6 | 78.5 | 93.7 | 99.1 | 1276.3 |
| 335221 |  | 77 | 3520635 | 58.1 | 78.3 | 94.8 | 99.8 | 1083.2 |
| 335222 |  | 21 | 4887364 | 81.5 | 97.0 | D | 100.0 | 2025.1 |
| 335224 |  | 10 | 3847002 | 90.4 | D | 100.0 | N | 2870.3 |
| 335228 |  | 32 | 3232077 | 56.6 | 86.2 | 99.5 | 100.0 | 1086.8 |
| 3353 | Electrical equipment mfg. <br> Electrical equipment mfg. <br> Power, distribution, \& specialty transformer mfg <br> Motor \& generator mfg <br> Switchgear \& switchboard apparatus mfg <br> Relay \& industrial control mfg. | 2517 | 36233634 | 25.7 | 40.2 | 55.5 | 68.0 | 255.5 |
| 33531 |  | 2517 | 36233634 | 25.7 | 40.2 | 55.5 | 68.0 | 255.5 |
| 335311 |  | 275 | 4743781 | 40.9 | 61.0 | 78.9 | 91.4 | 592.0 |
| 335312 |  | 559 | 12174434 | 33.0 | 47.0 | 68.1 | 84.9 | 439.0 |
| 335313 |  | 496 | 7488911 | 49.6 | 64.3 | 76.1 | 85.0 | 753.5 |
| 335314 |  | 1241 | 11826508 | 38.3 | 47.9 | 58.3 | 70.0 | 569.5 |
| 3359 | Other electrical equipment \& component mfg Battery mfg <br> Storage battery mfg <br> Primary battery mfg | 1939 | 41778097 | 11.5 | 18.4 | 33.0 | 55.2 | 80.8 |
| 33591 |  | 127 | 6823196 | 46.5 | 71.9 | 91.9 | 98.8 | 814.7 |
| 335911 |  | 96 | 4435329 | 52.0 | 75.0 | 92.4 | 99.1 | 898.7 |
| 335912 |  | 35 | 2387867 | 90.1 | 97.7 | 99.8 | 100.0 | 2882.9 |
| 33592 | Communication \& energy wire \& cable $\mathrm{mfg} . . .$. <br> Fiber optic cable mfg <br> Other communication \& energy wire $\mathrm{mfg} . . .$. | 219 | 15245693 | 28.0 | 42.1 | 69.5 | 87.0 | 335.6 |
| 335921 |  | 36 | 2772428 | 69.0 | 84.5 | 96.8 | 100.0 | 1790.9 |
| 335929 |  | 193 | 12473265 | 28.4 | 41.7 | 69.7 | 87.8 | 340.2 |
| 33593 | Wiring device mfg. Current-carrying wiring device mfg Noncurrent-carrying wiring device mfg | 604 | 10328708 | 17.4 | 29.6 | 52.4 | 77.5 | 185.7 |
| 335931 |  | 446 | 5877522 | 21.2 | 35.0 | 59.1 | 80.3 | 232.0 |
| 335932 |  | 168 | 4451186 | 30.8 | 50.5 | 82.3 | 95.8 | 440.1 |
| 33599 | All other electrical equipment \& component mfg. Carbon \& graphite product mfg All other miscellaneous electrical equipment \& component mfg | 1026 | 9380500 | 12.8 | 21.0 | 37.4 | 55.2 | 93.9 |
| 335991 335999 |  | 99 | 2340732 | 51.4 | 71.6 | 88.1 | 97.5 | 813.2 |
| 335999 |  | 928 | 7039768 | 10.9 | 20.2 | 34.8 | 52.8 | 81.1 |
| 336 | Transportation equipment mfg | 10979 | 575306996 | 49.7 | 57.8 | 68.6 | 77.5 | 797.6 |
| 3361 | Motor vehicle mfg. <br> Automobile \& light duty motor vehicle mfg <br> Automobile mfg. <br> Light truck \& utility vehicle mfg | 325 | 220052857 | 82.4 | 91.8 | 98.8 | 99.7 | 2505.8 |
| 33611 |  | 253 | 205543825 | 88.3 | 97.5 | 99.7 | 99.9 | 2862.8 |
| 336111 |  | 173 | 95365667 | 79.5 | 96.3 | 99.5 | 99.9 | 2349.7 |
| 336112 |  | 84 | 110178158 | 99.3 | 99.9 | 99.9 | 99.9 | D |
| 33612 | Heavy duty truck mfg Heavy duty truck mfg. | 75 | 14509032 | 74.4 | 90.3 | 98.5 | 99.8 | 1597.1 |
| 336120 |  | 75 | 14509032 | 74.4 | 90.3 | 98.5 | 99.8 | 1597.1 |
| 3362 | Motor vehicle body \& trailer mfg Motor vehicle body \& trailer mfg Motor vehicle body mfg Truck trailer mfg Motor home mfg Travel trailer \& camper mfg | 1922 | 23007668 | 22.4 | 30.7 | 45.1 | 61.8 | 198.9 |
| 33621 |  | 1922 | 23007668 | 22.4 | 30.7 | 45.1 | 61.8 | 198.9 |
| 336211 |  | 747 | 9008512 | 34.4 | 43.9 | 59.4 | 74.9 | 694.7 |
| 336212 |  | 355 | 5504115 | 41.7 | 54.1 | 71.5 | 85.6 | 578.3 |
| 336213 |  | 75 | 3894350 | 52.2 | 75.4 | 94.5 | 99.7 | 980.2 |
| 336214 |  | 761 | 4600691 | 26.0 | 35.3 | 49.8 | 67.1 | 262.2 |
| 3363 | Motor vehicle parts mfg . Motor vehicle gasoline engine \& engine parts mfg.. Carburetor, piston, piston ring, \& valve $\mathrm{mfg} . . .$. Gasoline engine \& engine parts mfg . | 4767 | 178511569 | 41.6 | 49.3 | 61.0 | 70.7 | 658.8 |
| 33631 |  | 924 | 28518227 | 64.4 | 72.6 | 82.3 | 91.2 | 1293.8 |
| 336311 |  | 122 | 2731573 | 60.2 | 77.8 | 92.5 | 98.5 | 1558.5 |
| 336312 |  | 810 | 25786654 | 67.5 | 75.5 | 84.8 | 92.8 | 1425.1 |
| 33632 |  |  |  |  |  |  |  |  |
|  |  | 981 | 21633391 | 51.8 | 61.0 | 73.3 | 85.7 | 1419.9 |
| $\begin{aligned} & 336321 \\ & 336322 \end{aligned}$ | Other motor vehicle electrical \& electronic equipment mfg | 99 | 3336152 | 58.3 | 76.5 | 92.7 | 99.1 | 1164.4 |
|  |  | 890 | 18297239 | 53.4 | 64.2 | 75.9 | 87.1 | 1615.3 |
| 33633 | Motor vehicle steering \& suspension component (except spring) mfg Motor vehicle steering \& suspension component (except spring) mfg | 183 | 10632673 | 60.1 | 72.3 | 85.6 | 97.1 | 1415.6 |
| 336330 |  | 183 | 10632673 | 60.1 | 72.3 | 85.6 | 97.1 | 1415.6 |
| 33634 | Motor vehicle brake system mfg Motor vehicle brake system mfg | 203 | 10981044 | 59.2 | 77.2 | 89.2 | 96.5 |  |
| 336340 |  | 203 | 10981044 | 59.2 | 77.2 | 89.2 | 96.5 | 1101.0 |
| 33635 | Motor vehicle transmission \& power train parts mfg. Motor vehicle transmission \& power train parts mfg $\qquad$ | 427 | 30105923 | 60.0 | 79.1 | 90.9 | 96.2 | 1056.6 |
| 336350 |  | 427 | 30105923 | 60.0 | 79.1 | 90.9 | 96.2 | 1056.6 |
| 33636 | Motor vehicle seating \& interior trim $\mathrm{mfg} . . . . . .$. Motor vehicle seating \& interior trim mfg ......... | 280 | 11869070 | 62.2 | 74.6 | 87.2 | 96.5 | 1449.2 |
| 336360 |  | 280 | 11869070 | 62.2 | 74.6 | 87.2 | 96.5 | 1449.2 |
| 33637 | Motor vehicle metal stamping ...................... Motor vehicle metal stamping | 662 | 23633912 | 45.1 | 50.7 | 59.1 | 71.0 | 693.4 |
| 336370 |  | 662 | 23633912 | 45.1 | 50.7 | 59.1 | 71.0 | 693.4 |
| 33639 | Other motor vehicle parts mfg Motor vehicle air-conditioning mfg All other motor vehicle parts mfg | 1321 | 41137329 | 31.7 | 41.4 | 56.7 | 71.7 | 364.0 |
| 336391 |  | 58 | 5626596 | 76.1 | 89.0 | 98.7 | 99.9 | 2227.1 |
| 336399 |  | 1271 | 35510733 | 27.2 | 38.3 | 54.8 | 70.6 | 266.4 |
| 3364 | Aerospace product \& parts mfg Aerospace product \& parts mfg <br> Aircraft mfg Aircraft engine \& engine parts mfg Other aircraft part \& auxiliary equipment mfg Guided missile \& space vehicle mfg Guided missile \& space vehicle propulsion unit \& parts mfg <br> Other guided missile \& space vehicle parts \& auxiliary equip mfg. | 1530 | 120438212 | 62.3 | 78.1 | 88.0 | 92.8 | 1636.9 |
| 33641 |  | 1530 | 120438212 | 62.3 | 78.1 | 88.0 | 92.8 | 1636.9 |
| 336411 |  | 172 | 57893242 | 84.8 | 96.0 | 98.7 | 99.7 | D |
| 336412 |  | 281 | 22859270 | 77.2 | 82.3 | 88.6 | 94.7 | 2057.5 |
| 336413 |  | 1049 | 19373554 | 53.3 | 66.6 | 75.5 | 84.1 |  |
| 336414 |  | 15 | 16247363 | 89.2 | 99.7 | 100.0 | N | D |
| 336415 |  | 19 | 3101378 | 78.5 | 97.5 | 100.0 | N | 1978.2 |
| 336419 |  |  |  |  |  |  |  |  |
|  |  | 48 | 963405 | 73.0 | 85.4 | 97.0 | 100.0 | 2341.2 |
| 3365 | Railroad rolling stock mfg | 173 | 8263395 | 57.2 | 71.9 | 87.9 | 96.2 | 1029.3 |
| 33651 | Railroad rolling stock mfg Railroad rolling stock mfg | 173 | 8263395 | 57.2 | 71.9 | 87.9 | 96.2 | 1029.3 |
| 336510 |  | 173 | 8263395 | 57.2 | 71.9 | 87.9 | 96.2 | 1029.3 |
| 3366 | Ship \& boat building . <br> Ship \& boat building <br> Ship building \& repairing <br> Boat building | 1630 | 16150259 | 38.4 | 50.7 | 63.3 | 74.4 | 449.5 |
| 33661 |  | 1630 | 16150259 | 38.4 | 50.7 | 63.3 | 74.4 | 449.5 |
| 336611 |  | 649 | 10542961 | 52.6 | 64.5 | 76.5 | 86.5 | 872.7 |
| 336612 |  | 984 | 5607298 | 41.4 | 48.9 | 61.0 | 75.4 | 644.5 |

Table 2. Share of Value of Shipments Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997-Con.
[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value of shipments$(\$ 1000)$ | Percent of value of shipments accounted for by the- |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 336 | Transportation equipment mfg-Con. |  |  |  |  |  |  |  |
| 3369 | Other transportation equipment mfg .... | 758 | 8883036 | 37.9 | 55.7 | 77.3 | 86.0 | 563.3 |
| 33699 | Other transportation equipment mfg | 758 | 8883036 | 37.9 | 55.7 | 77.3 | 86.0 | 563.3 |
| 336991 336992 | Motorcycle, bicycle, \& parts mfg ................ Military armored vehicle, tank, \& tank component | 373 | 3382689 | 67.5 | 76.7 | 85.9 | 92.3 | 2036.5 |
|  | mfg ...................................... | 37 | 1063668 | 85.0 | 92.4 | 99.0 | 100.0 | D |
| 336999 | All other transportation equipment mfg............ | 349 | 4436679 | 50.7 | 75.3 | 83.0 | 90.6 | 885.2 |
| 337 | Furniture \& related product mfg .................. | 19838 | 64299098 | 11.2 | 17.6 | 27.5 | 37.2 | 55.5 |
| 3371 | Household \& institutional furniture \& kitchen cabinet mfg | 14732 | 36418307 | 13.8 | 19.5 | 28.8 | 40.0 | 73.3 |
| 33711 | Wood kitchen cabinet \& counter top mfg .......... | 7872 | 9029834 | 18.2 | 25.7 | 36.5 | 45.0 | 133.1 |
| 337110 | Wood kitchen cabinet \& counter top mfg ........ | 7872 | 9029834 | 18.2 | 25.7 | 36.5 | 45.0 | 133.1 |
| 33712 | Household \& institutional furniture mfg . . . . . . . . . . . | 6867 | 27388473 | 17.7 | 24.6 | 34.7 | 47.2 | 117.3 |
| 337121 | Upholstered household furniture mfg ........... | 1566 | 8232635 | 31.5 | 39.1 | 53.7 | 68.7 | 301.0 |
| 337122 | Nonupholstered wood household furniture mfg... | 3677 | 11318807 | 25.7 | 36.5 | 50.5 | 64.3 | 237.5 |
| 337124 | Metal household furniture $\mathrm{mfg} . . . \ldots \ldots \ldots \ldots .$. | 389 | 2417293 | 26.2 | 41.0 | 63.4 | 82.2 | 288.9 |
| 337125 | Household furniture (except wood \& metal) mfg . . | 211 | +547227 | 45.2 | 60.1 | 78.5 | 91.2 | 635.0 |
| $\begin{aligned} & 337127 \\ & 337129 \end{aligned}$ |  | 977 | 4554577 | 18.8 | 27.0 | 41.2 | 58.7 | 147.3 |
|  | $\mathrm{mfg} \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots .$. | 99 | 317934 | 45.8 | 63.0 | 85.6 | 96.6 | 752.0 |
| 3372 33721 | Office furniture (incluaing fixtures) mfg ......... Office furniture (including fixtures) mfg | 4086 4086 | 21517554 21517554 a | 28.7 28.7 | 35.9 35.9 | 42.8 42.8 | 51.4 51.4 | 252.5 25.5 |
| 337211 |  | 4086 639 | $\begin{array}{r}21517554 \\ 3021800 \\ \hline 8\end{array}$ | 34.9 | 35.9 42.2 | 42.8 54.8 | 70.0 | 399.4 |
| 337212 | Custom architectural woodwork \& millwork mfg .. | 1094 | 2205019 | 7.8 | 11.7 | 19.9 | 34.5 | 34.4 |
| 337214 | Office furniture (except wood) mfg . ............ | 303 | 8341389 | 64.7 | 78.7 | 87.0 | 93.7 | 1272.2 |
| 337215 | Showcase, partition, shelving, \& locker mfg ..... | 2073 | 7949346 | 9.9 | 15.5 | 26.2 | 41.1 | 53.7 |
| 3379 | Other furniture related product mfg ............... | 1071 | 6363237 | 34.4 | 44.5 | 55.5 | 66.8 | 355.6 |
| 33791 337910 |  | 628 | 3936972 3936972 | 38.6 38.6 | 44.8 44.8 | 55.3 55.3 | 68.3 | 561.0 561.0 |
|  |  |  |  |  |  |  |  |  |
| $\begin{aligned} & 33792 \\ & 337920 \end{aligned}$ | Blind \& shade mfg <br> Blind \& shade mfg | 443 443 | 2426265 2426265 | 54.1 54.1 | 65.9 65.9 | 76.0 76.0 | 86.7 86.7 | 979.5 979.5 |
| 339 | Miscellaneous mfg . | 30335 | 99729798 | 7.4 | 11.4 | 19.4 | 30.2 | 33.2 |
| 3391 | Medical equipment \& supplies mfg ................ | 12123 | 44893840 | 16.3 | 24.0 | 37.4 | 54.4 | 137.5 |
| 33911 |  | $\begin{array}{r}12123 \\ 371 \\ \hline\end{array}$ | 44893840 2220507 | 16.3 19.0 | 24.0 33.3 | 37.4 55.1 | 54.4 74.4 | 137.5 202.5 |
| 339111 | Laboratory apparatus \& furniture mfg . . . . . . . . . . | 371 | 2220507 | 19.0 | 33.3 | 55.1 | 74.4 | 202.5 |
| 339112 | Surgical \& medical instrument mfg . . . . . . . . . . . . | 1456 | 18292919 | 31.4 | 44.0 | 61.6 | 76.7 | 366.8 |
| 339113 | Surgical appliance \& supplies mfg............... | 1511 | 15233098 | 17.0 | 29.3 | 51.3 | 68.9 | 166.8 |
| 339114 | Dental equipment \& supplies $\mathrm{mfg} . . . . . . . . . . . . .$. | 849 | 2666147 | 34.5 | 46.1 | 64.7 | 78.8 | 400.0 |
| 339115 | Ophthalmic goods mfg ......... | 520 | 3497595 | 43.3 | 59.0 | 78.3 | 88.2 | 645.2 |
| 339116 | Dental laboratories ........................... | 7490 | 2983574 | 5.1 | 6.6 | 9.2 | 13.9 | 8.8 |
| 3399 | Other miscellaneous mfg ....................... | 18232 | 54835958 | 5.7 | 10.0 | 17.8 | 27.1 | 21.2 |
| 33991 | Jewelry \& silverware mfg ....................... | 3737 | 8303714 | 11.1 | 17.0 | 28.7 | 45.1 | 65.2 |
| 339911 | Jewelry (except costume) mfg . . . . . . . . . . . . . | 2278 | 5320508 | 12.5 | 19.6 | 34.2 | 50.2 | 81.4 |
| 339912 | Silverware \& plated ware mfg. ................... | 158 | 892378 | 68.4 | 77.0 | 88.2 | 95.9 | 2134.3 |
| 339913 | Jewelers' material \& lapidary work mfg .......... | 391 | 802515 | 27.3 | 41.9 | 62.5 | 79.3 | 296.8 |
| 339914 | Costume jewelry \& novelty mfg ............... | 917 | 1288313 | 25.2 | 41.2 | 55.3 | 69.0 | 256.3 |
| 33992 | Sporting \& athletic goods mfg . ................. | 2477 | 10633528 | 21.4 | 29.2 | 43.6 | 59.7 | 161.1 |
| 339920 | Sporting \& athletic goods mfg ................. | 2477 | 10633528 | 21.4 | 29.2 | 43.6 | 59.7 | 161.1 |
| 33993 | Doll, toy, \& game mfg . ......................... | 995 | 4763522 | 40.0 | 49.8 | 61.9 | 76.2 | 495.9 |
| 339931 | Doll \& stuffed toy mfg, | 239 | 300678 | 31.1 | 51.1 | 72.2 | 89.6 | 403.9 |
| 339932 | Game, toy, \& children's vehicle mfg ............ | 756 | 4462844 | 42.7 | 53.1 | 66.0 | 80.1 | 564.0 |
| 33994 | Office supplies (except paper) mfg ............... | 999 | 4329053 | 31.2 | 41.4 | 56.9 | 74.3 | 342.3 |
| 339941 | Pen \& mechanical pencil mfg . . . . . . . . . . . . . . . . | 106 | 1538812 | 65.4 | 77.7 | 89.6 | 98.0 | 1374.8 |
| 339942 | Lead pencil \& art good mfg... | 171 | 1278701 | 52.4 | 65.6 | 83.7 | 94.6 | 1047.9 |
| 339943 339944 | Marking device mgg ${ }_{\text {cher }}$ Carbon paper $\&$ inked ribon mo.............. | 617 106 | 661173 850367 | 25.5 40.3 | 37.8 58.6 | 53.6 81.8 | 68.0 95.1 | 233.6 572.6 |
| 339944 | Carbon paper \& inked ribbon mfg ............. | 106 | 850367 | 40.3 | 58.6 | 81.8 | 95.1 | 572.6 |
| 33995 | Sign mfg.................................... | 5580 | 7997974 | 7.9 | 12.2 | 19.5 | 30.9 | 34.5 |
| 339950 | Sign mfg............................... | 5580 | 7997974 | 7.9 | 12.2 | 19.5 | 30.9 | 34.5 |
| 33999 | All other miscellaneous mfg .................... | 4475 | 18808167 | 9.5 | 16.3 | 27.5 | 42.6 | 54.9 |
| 339991 | Gasket, packing, \& sealing device mfg......... | 561 | 5243005 1 | 23.5 | 35.7 | 54.7 | 72.2 | 223.5 |
| 339992 | Musical instrument mfg ...................... | 552 | 1324529 | 32.6 | 45.5 | 68.1 | 83.3 | 420.8 |
| 339993 | Fastener, button, needle, \& pin mfg | 240 | 838928 | 46.3 | 56.2 | 70.8 | 88.6 | 952.2 |
| 339994 | Broom, brush, \& mop mfg . . . . . . . . . . . . . . . . . . . . | 306 | 2083585 | 25.9 | 38.2 | 60.5 | 79.7 | 286.2 |
| 339995 33999 | Burial casket mfg $\ldots$........................ | 161 2660 | 1219943 8098177 | 74.2 | 80.2 23.3 | 88.4 378 | 95.4 51.4 | 2964.6 |
| 339999 | All other miscellaneous mfg ................. | 2660 | 8098177 | 15.1 | 23.3 | 37.8 | 51.4 | 100.5 |

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

${ }^{3}$ The Herfindahl-Herschmann index is calculated by summing the squares of the individual company percentages for the 50 largest companies or the universe, whichever is lower.

Table 3. Share of Value Added Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997
[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]


Table 3. Share of Value Added Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997-Con.
[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value added by manufacture (\$1000) | Percent of value added accounted for by the ${ }^{2}$ - |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 312 | Beverage \& tobacco product mfg .................. | 2237 | 56433891 | 53.3 | 66.3 | 78.7 | 87.5 | 1166.4 |
| 3121 | Beverage mfg | 2169 | 29743502 | 41.9 | 54.8 | 69.8 | 81.0 | 673.8 |
| 31211 | Soft drink \& ice mfg | 1008 | 13131224 | 44.7 | 55.6 | 70.1 | 83.0 | 663.4 |
| 312111 | Soft drink mfg ... | 388 | 12422141 | 47.2 | 58.8 | 73.1 | 86.3 | 738.0 |
| 312112 | Bottled water mfg . . . . . . . . . . . . . . . . . . . . . | 109 | 412997 | 58.9 | 71.3 | 85.4 | 96.5 | 1363.6 |
| 312113 | Ice mfg ........................................ | 514 | 296086 | 27.2 | 34.4 | 47.0 | 64.4 | 391.0 |
| $\begin{aligned} & 31212 \\ & 312120 \end{aligned}$ | Breweries. <br> Breweries. | 494 494 | $\begin{array}{lll} 11 & 234 & 126 \\ 11 & 234 & 126 \end{array}$ | 90.7 90.7 | 93.9 93.9 | 95.7 95.7 | 97.0 97.0 | D |
| $\begin{aligned} & 31213 \\ & 312130 \end{aligned}$ | Wineries <br> Wineries | 637 | 3161416 <br> 3 61416 | 37.8 37.8 | 52.3 52.3 | 70.9 70.9 | 82.1 82.1 | 565.4 565.4 |
| $\begin{aligned} & 31214 \\ & 312140 \end{aligned}$ | Distilleries Distilleries | 44 | $\begin{aligned} & 2216736 \\ & 2216736 \end{aligned}$ | 64.8 64.8 | 82.5 82.5 | 98.1 98.1 | 100.0 100.0 | $\begin{array}{r} 1335.1 \\ 1335.1 \end{array}$ |
| 3122 | Tobacco mfg | 70 | 26690389 | 87.5 | 95.0 | 99.4 | 99.9 | D |
| 31221 | Tobacco stemming \& redrying | 13 | 619176 | 77.0 | D | 100.0 | N | 2332.5 |
| 312210 | Tobacco stemming \& redrying ................. | 13 | 619176 | 77.0 | D | 100.0 | N | 2332.5 |
| $\begin{aligned} & 31222 \\ & 312221 \end{aligned}$ |  | 63 9 | 26 23 23 3 371213 | 89.0 98.9 | 96.4 D | $\begin{array}{r}99.8 \\ 100.0 \\ \hline 18.8\end{array}$ | 99.9 N | D |
| 312229 | Other tobacco product mfg ...................... | 56 | 2732521 | 69.4 | 86.7 | 98.8 | 99.9 | 2381.1 |
| 313 | Textile mills | 3863 | 23696948 | 11.2 | 17.9 | 30.9 | 48.4 | 69.6 |
| 3131 31311 | Fiber, yarn, \& thread mills.......................... Fiber, yarn, \& thread mills .............. | 358 358 | 4202226 4202226 | 25.7 25.7 | 39.6 <br> 39.6 | 59.8 59.8 | 79.8 79.8 | 280.2 280.2 |
| 313111 | Yarn spinning mills ... | 229 | 2964156 | 26.1 | 38.9 | 61.3 | 85.8 | 280.1 |
| 313112 | Yarn texturing, throwing, \& twisting mills | 101 | 1096088 | 57.9 | 67.5 | 84.4 | 97.3 | 1478.0 |
| 313113 | Thread mills. | 44 | 141982 | 63.1 | 80.3 | 95.3 | 100.0 | 1213.6 |
| 3132 | Fabric mills | 1796 | 12598396 | 12.8 | 21.3 | 37.6 | 57.1 | 97.5 |
| 31321 | Broadwoven fabric mills | 734 | 7505926 | 19.7 | 32.5 | 54.4 | 78.6 | 208.6 |
| 313210 | Broadwoven fabric mills | 734 | 7505926 | 19.7 | 32.5 | 54.4 | 78.6 | 208.6 |
| 31322 | Narrow fabric mills \& schiffli machine embroidery .. | 478 | 949913 | 16.7 | 26.9 | 47.9 | 74.3 | 164.5 |
| 313221 | Narrow fabric mills | 243 | 786758 | 20.2 | 32.5 | 57.4 | 84.3 | 229.7 |
| 313222 | Schiffli machine embroidery | 235 | 163155 | 28.0 | 45.2 | 66.7 | 84.7 | 338.0 |
| 31323 | Nonwoven fabric mills | 212 | 1751967 | 32.9 | 47.3 | 70.2 | 87.1 | 465.1 |
| 313230 | Nonwoven fabric mills | 212 | 1751967 | 32.9 | 47.3 | 70.2 | 87.1 | 465.1 |
| 31324 | Knit fabric mills | 407 | 2390590 | 24.8 | 35.0 | 50.7 | 68.7 | 248.5 |
| 313241 | Weft knit fabric mills. | 236 | 1150044 | 24.8 | 34.3 | 52.5 | 75.5 | 296.5 |
| 313249 | Other knit fabric \& lace mills | 181 | 1240546 | 38.5 | 52.8 | 71.2 | 87.8 | 624.8 |
| 3133 | Textile \& fabric finishing \& fabric coating mills. | 1827 | 6896326 | 13.4 | 21.8 | 36.1 | 51.4 | 93.3 |
| 31331 | Textile \& fabric finishing mills . . . . . . . . . . . | 1589 | 6006310 | 15.4 | 24.9 | 40.9 | 56.7 | 119.3 |
| 313311 | Broadwoven fabric finishing mills. | 1255 | 4032378 | 19.7 | 31.6 | 47.2 | 61.5 | 179.4 |
| 313312 | Textile \& fabric finishing mills . . . . . . . . . . . . . . . . | 346 | 1973932 | 29.2 | 39.8 | 57.8 | 77.5 | 303.6 |
| 31332 | Fabric coating mills | 246 | 890016 | 17.2 | 29.3 | 50.4 | 75.2 | 173.2 |
| 313320 | Fabric coating mills | 246 | 890016 | 17.2 | 29.3 | 50.4 | 75.2 | 173.2 |
| 314 | Textile product mills . | 7516 | 13613111 | 20.3 | 28.3 | 41.3 | 52.9 | 145.9 |
| 3141 | Textile furnishings mills | 3080 | 8588430 | 31.6 | 44.3 | 61.4 | 75.0 | 338.8 |
| 31411 | Carpet \& rug mills... | 413 | 4513421 | 47.9 | 63.0 | 80.6 | 92.6 | 825.1 |
| 314110 | Carpet \& rug mills. | 413 | 4513421 | 47.9 | 63.0 | 80.6 | 92.6 | 825.1 |
| 31412 | Curtain \& linen mills . . . . . . . . . . . . . . . . . . . . . . . . | 2670 | 4075009 | 38.7 | 48.5 | 60.5 | 72.3 | 472.1 |
| 314121 314129 | Curtain \& drapery mills . ....................... | 2012 668 | 943162 3131847 | 27.2 | 35.9 | 49.7 | 63.7 82.5 | 388.7 |
| 314129 | Other household textile product mills ........... | 668 | 3131847 | 50.0 | 59.3 | 71.5 | 82.5 | 747.1 |
| 3149 | Other textile product mills ......................... | 4455 | 5024681 | 9.3 | 14.8 | 23.3 | 36.1 | 42.9 |
| 31491 | Textile bag \& canvas mills | 2094 | 1307070 | 8.7 | 14.8 | 25.1 | 39.9 | 46.1 |
| 314911 | Textile bag mills . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 423 | 497914 | 21.7 | 31.4 | 50.4 | 70.5 | 196.9 |
| 314912 | Canvas \& related product mills | 1673 | 809156 | 10.5 | 16.5 | 26.9 | 42.1 | 54.5 |
| 31499 | All other textile product mills. | 2366 | 3717611 | 12.5 | 20.0 | 31.1 | 46.9 | 76.0 |
| 314991 | Rope, cordage, \& twine mills | 189 | 377878 | 34.1 | 49.8 | 70.3 | 88.7 | 420.5 |
| 314992 | Tire cord \& tire fabric mills | 15 | 414831 | 66.9 | 92.2 | 100.0 | N | 1498.4 |
| 314999 | All other miscellaneous textile product mills ..... | 2164 | 2924902 | 14.9 | 21.1 | 31.2 | 46.6 | 89.5 |
| 315 | Apparel mfg . | 15839 | 33780193 | 17.8 | 23.2 | 29.9 | 39.3 | 104.4 |
| 3151 | Apparel knitting mills | 1209 | 4630556 | 22.7 | 33.4 | 49.7 | 66.3 | 221.9 |
| 31511 | Hosiery \& sock mills. | 532 | 2196914 | 31.1 | 42.5 | 59.6 | 80.4 | 343.3 |
| 315111 | Sheer hosiery mills............................ | 136 | 797444 | 50.4 | 64.1 | 88.2 | 97.3 | 928.8 |
| 315119 | Other hosiery \& sock mills . . . . . . . . . . . . . . . . . . | 399 | 1399470 | 30.8 | 43.7 | 66.2 | 82.9 | 347.2 |
| 31519 | Other apparel knitting mills . . . . . . . . . . . . . . . . . . . | 683 | 2433642 | 34.4 | 47.7 | 61.4 | 74.0 |  |
| 315191 | Outerwear knitting mills ........................ | 645 | 2054507 | 38.6 | 49.0 | 61.8 | 73.1 | 647.4 |
| 315192 | Underwear \& nightwear knitting mills ........... | 43 | 379135 | 73.1 | 86.5 | 98.9 | 100.0 | 1967.2 |
| 3152 | Cut \& sew apparel mfg | 12487 | 26800066 | 21.2 | 26.6 | 33.9 | 43.3 | 146.9 |
| 31521 | Cut \& sew apparel contractors................... | 7677 | 4439438 | 8.2 | 11.9 | 18.4 | 26.8 | 27.3 |
| 315211 | Men's \& boys' cut \& sew apparel contractors . . . | 636 | 1241538 | 22.1 | 30.2 | 43.8 | 60.2 | 183.8 |
| 315212 | Women's, girls', \& infants cut \& sew apparel contractors. | 7056 | 3197900 | 6.5 | 9.9 | 16.0 | 23.4 | 20.4 |
| $\begin{aligned} & 31522 \\ & 315221 \end{aligned}$ | Men's \& boys' cut \& sew apparel mfg . Men's \& boys' cut \& sew underwear \& nightwear | 1362 | 10513890 | 40.0 | 47.5 | 59.6 | 71.7 | 495.2 |
|  | mfg ...................................... | 62 | 815424 | 74.0 | 86.8 | 96.5 | 99.9 | 1918.1 |
| 315222 | Men's \& boys' cut \& sew suit, coat, \& overcoat mfg $\qquad$ | 193 | 1110598 | 45.1 | 56.9 | 75.9 | 91.6 | 1103.6 |
| 315223 | Men's \& boys' cut \& sew shirt (exc work shirt) mfg $\qquad$ | 387 | 3306989 | 44.8 | 57.4 | 73.4 | 85.9 | 851.8 |
| 315224 | Men's \& boys' cut \& sew trouser, slack, \& jean |  |  |  |  |  |  |  |
|  |  | 199 | 3392475 | 70.1 | 76.5 | 86.5 | 94.6 | 2376.1 |
| 315225 | Men's \& boys' cut \& sew work clothing mfg...... | 149 | 999393 | 55.0 | 66.6 | 83.0 | 95.3 | 1048.4 |
| 315228 | Men's \& boys' cut \& sew other outerwear mfg ... | 430 | 889011 | 24.3 | 34.8 | 52.8 | 72.8 | 232.6 |

[^2]Table 3. Share of Value Added Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997-Con.
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| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 315 | Apparel mfg-Con. |  |  |  |  |  |  |  |
| $\begin{aligned} & 3152 \\ & 31523 \\ & 315231 \end{aligned}$ | Women's \& girls' cut \& sew apparel mfg ........... Women's \& girls' cut/sew lingerie \& nightwear mfg | 2927 | 10670675 | 14.7 | 21.7 | 33.2 | 46.4 | 90.9 |
|  |  | 249 | 1705803 | 49.3 | 61.4 | 75.4 | 89.8 | 716.0 |
| 315232 | Women's \& girls' cut \& sew blouse \& shirt mfg ... | 714 | 1667037 | 15.7 | 25.5 | 44.8 | 66.3 | 139.5 |
| 315233 | Women's \& girls' cut \& sew dress mfg . . . . . . . . . | 747 | 2011924 | 13.3 | 22.9 | 38.8 | 58.9 | 105.9 |
| 315234 | Women's \& girls' cut \& sew suit, coat, skirt mfg . | 428 | 1656257 | 32.9 | 45.3 | 61.3 | 77.8 | 381.9 |
| 315239 | Women's \& girls' cut \& sew other outerwear mfg . | 818 | 3629654 | 24.5 | 37.4 | 55.8 | 74.2 | 244.2 |
| 31529 | Other cut \& sew apparel mfg | 665 | 1176063 | 30.0 | 40.0 | 56.7 | 73.6 | 361.3 |
| 315291 | Infants' cut \& sew apparel mfg | 39 | 487099 | 68.1 | 82.2 | 97.8 | 100.0 | 1771.3 |
| 315292 | Fur \& leather apparel mfg ..... | 224 | 115965 | 25.0 | 38.2 | 56.1 | 75.4 | 256.7 |
| 315299 | All other cut \& sew apparel mfg ................ | 402 | 572999 | 23.2 | 38.5 | 56.7 | 75.0 | 241.6 |
| 3159 | Apparel accessories \& other apparel mfg | 2201 | 2349571 | 16.0 | 24.4 | 38.6 | 52.3 | 118.2 |
| 31599 | Apparel accessories \& other apparel mfg ....... | 2201 | 2349571 | 16.0 | 24.4 | 38.6 | 52.3 | 118.2 |
| 315991 | Hat, cap, \& millinery mfg . | 363 | 570346 | 36.5 | 46.5 | 60.2 | 77.5 | 426.0 |
| 315992 | Glove \& mitten mfg .... | 98 | 337930 | 66.9 | 74.8 | 86.5 | 97.2 | 2195.6 |
| 315993 | Men's \& boys' neckwear mfg | 119 | 330533 | 46.4 | 60.0 | 78.2 | 93.8 | 685.0 |
| 315999 | Other apparel accessories \& other apparel mfg .. | 1626 | 1110762 | 17.3 | 26.2 | 40.3 | 54.9 | 131.8 |
| 316 | Leather \& allied product mfg . | 1727 | 5407999 | 21.8 | 33.2 | 48.9 | 65.8 | 186.9 |
| 3161 | Leather \& hide tanning \& finishing. | 327 | 1372896 | 51.9 | 66.4 | 79.4 | 91.3 | 921.3 |
| 31611 | Leather \& hide tanning \& finishing. | 327 | 1372896 | 51.9 | 66.4 | 79.4 | 91.3 | 921.3 |
| 316110 | Leather \& hide tanning \& finishing.............. | 327 | 1372896 | 51.9 | 66.4 | 79.4 | 91.3 | 921.3 |
| 3162 | Footwear mfg | 366 | 2219507 | 31.4 | 45.8 | 67.5 | 85.6 | 383.9 |
| 31621 | Footwear mfg | 366 | 2219507 | 31.4 | 45.8 | 67.5 | 85.6 | 383.9 |
| 316211 | Rubber \& plastics footwear mfg | 50 | 519953 | 57.0 | 73.3 | 93.6 | 100.0 | 1158.7 |
| 316212 | House slipper mfg | 22 | 147572 | 81.8 | 96.4 | D | 100.0 | 1959.2 |
| 316213 | Men's footwear (except athletic) mfg | 123 | 1065698 | 55.0 | 72.0 | 90.9 | 99.0 | 1117.7 |
| 316214 | Women's footwear (except athletic) mfg ........ | 97 | 373803 | 51.5 | 68.1 | 89.1 | 98.7 | 924.4 |
| 316219 | Other footwear mfg ................... | 87 | 112481 | 29.6 | 50.5 | 80.0 | 96.6 | 424.8 |
| 3169 | Other leather \& allied product mfg. | 1045 | 1815596 | 29.2 | 38.4 | 52.9 | 68.9 | 439.8 |
| 31699 | Other leather \& allied product mfg | 1045 | 1815596 | 29.2 | 38.4 | 52.9 | 68.9 | 439.8 |
| 316991 | Luggage mfg. ........ | 270 | 858991 | 55.3 | 65.2 | 76.5 | 87.6 | 1704.2 |
| 316992 | Women's handbag \& purse mfg ......... | 136 | 162276 | 61.0 | 73.9 | 87.9 | 96.6 | 1641.4 |
| 316993 | Personal leather good (except women's handbag \& purse) mfg | 178 | 279219 | 45.4 | 58.5 | 80.4 | 93.3 | 946.9 |
| 316999 | All other leather good mfg..................... | 464 | 515110 | 28.8 | 42.6 | 65.1 | 80.7 | 323.2 |
| 321 | Wood product mfg | 15621 | 33493004 | 10.2 | 16.0 | 25.1 | 35.8 | 47.8 |
| 3211 | Sawmills \& wood preservation. | 4372 | 9481550 | 14.2 | 19.9 | 29.2 | 40.9 | 79.5 |
| 32111 | Sawmills \& wood preservation. | 4372 | 9481550 | 14.2 | 19.9 | 29.2 | 40.9 | 79.5 |
| 321113 | Sawmills........ | 4024 | 8521097 | 15.7 | 21.9 | 32.2 | 44.0 | 95.8 |
| 321114 | Wood preservation | 361 | 960453 | 16.3 | 26.6 | 48.4 | 70.8 | 157.7 |
| 3212 | Veneer, plywood, \& engineered wood product mfg . | 1491 | 7208798 | 26.2 | 38.1 | 51.2 | 61.8 | 260.2 |
| 32121 | Veneer, plywood, \& engineered wood product mfg . | 1491 | 7208798 | 26.2 | 38.1 | 51.2 | 61.8 | 260.2 |
| 321211 | Hardwood veneer \& plywood mfg .............. | 303 | 1121661 | 26.5 | 35.3 | 50.8 | 72.6 | 326.6 |
| 321212 | Softwood veneer \& plywood mfg. | 88 | 1713341 | 50.2 | 68.6 | 87.9 | 98.7 | 1034.3 |
| 321213 | Engineered wood member (except truss) mfg | 32 | 476346 | 79.1 | 86.8 | 96.5 | 100.0 | D |
| 321214 | Truss mfg................................. | 886 | 1584826 | 8.2 | 12.1 | 22.2 | 38.3 | 40.0 |
| 321219 | Reconstituted wood product mfg | 212 | 2312624 | 44.8 | 62.4 | 77.6 | 91.8 | 669.9 |
| 3219 | Other wood product mfg | 9923 | 16802656 | 12.5 | 18.7 | 28.8 | 38.9 | 66.1 |
| 32191 | Millwork ............. | 3985 | 7463664 | 16.5 | 23.7 | 33.7 | 44.1 | 96.8 |
| 321911 | Wood window \& door mfg. | 1311 | 3687713 | 32.7 | 43.9 | 56.7 | 68.9 | 334.0 |
| 321912 | Cut stock, resawing lumber, \& planing . | 1296 | 1940712 | 11.8 | 16.7 | 27.5 | 44.1 | 69.1 |
| 321918 | Other millwork (including flooring) . . . . . . . . . | 1416 | 1835239 | 16.9 | 22.7 | 34.2 | 49.4 | 119.6 |
| 32192 | Wood container \& pallet mfg | 2870 | 1999828 | 4.8 | 7.6 | 13.4 | 22.0 | 13.5 |
| 321920 | Wood container \& pallet mfg .................. | 2870 | 1999828 | 4.8 | 7.6 | 13.4 | 22.0 | 13.5 |
| 32199 | All other wood product mfg. | 3103 | 7339164 | 25.9 | 36.1 | 48.9 | 59.8 | 250.6 |
| 321991 | Manufactured home (mobile home) mfg . ........ | 145 | 4009319 | 45.4 | 62.1 | 82.0 | 92.8 | 774.7 |
| 321992 | Prefabricated wood building mfg .............. | 652 | 1274863 | 13.8 | 21.6 | 36.1 | 57.8 | 99.1 |
| 321999 | All other miscellaneous wood product mfg....... | 2309 | 2054982 | 21.6 | 26.6 | 34.6 | 46.0 | 233.0 |
| 322 | Paper mfg | 3808 | 70300235 | 21.9 | 33.4 | 52.3 | 67.7 | 196.6 |
| 3221 | Pulp, paper, \& paperboard mills................... | 217 | 35230199 | 31.5 | 48.8 | 72.4 | 90.2 | 392.2 |
| 32211 | Pulp mills | 24 | 1507468 | 61.2 | 88.5 | 99.7 | 100.0 | 1230.9 |
| 322110 | Pulp mills . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 24 | 1507468 | 61.2 | 88.5 | 99.7 | 100.0 | 1230.9 |
| 32212 | Paper mills. . . . . . . . . . . . . . . . . . . . . . . . . . . . | 139 | 24681603 | 39.0 | 57.7 | 81.0 | 94.7 | 537.3 |
| 322121 | Paper (except newsprint) mills ................ | 121 | 22128898 | 43.5 | 62.7 | 85.2 | 96.7 | 631.6 |
| 322122 | Newsprint mills ............................... | 24 | 2552705 | 43.9 | 66.9 | D | 100.0 | 759.1 |
| 32213 | Paperboard mills.. | 81 | 9041128 | 35.5 | 54.3 | 82.6 | 98.1 | 522.3 |
| 322130 | Paperboard mills. | 81 | 9041128 | 35.5 | 54.3 | 82.6 | 98.1 | 522.3 |
| 3222 | Converted paper product mfg | 3674 | 35070036 | 15.4 | 24.8 | 40.1 | 54.2 | 110.0 |
| 32221 | Paperboard container mfg ....................... | 1705 | 16169581 | 17.1 | 28.6 | 46.0 | 61.1 | 144.9 |
| 322211 | Corrugated \& solid fiber box mfg . . . . . . . . . . . . . . . | 995 | 9627993 | 23.5 | 37.5 | 54.6 | 67.4 | 231.9 |
| 322212 | Folding paperboard box mfg.................... | 434 | 4118767 | 20.9 | 32.2 | 51.7 | 69.8 | 193.0 |
| 322213 | Setup paperboard box mfg.................... | 142 | 299516 | 17.0 | 27.5 | 46.8 | 76.0 | 165.1 |
| 322214 | Fiber can, tube, drum, \& similar products mfg.... | 138 | 952629 | 64.3 | 73.0 | 83.8 | 93.3 | 2188.9 |
| 322215 | Nonfolding sanitary food container mfg ......... | 46 | 1170676 | 66.3 | 83.1 | 98.3 | 100.0 | 1342.3 |
| 32222 | Paper bag \& coated \& treated paper mfg . . . . . . . . | 764 | 8708660 | 33.6 | 41.0 | 53.3 | 69.7 | 445.4 |
| 322221 | Coated \& laminated packaging paper \& plastics film mfg | 73 | 541684 | 37.2 | 55.5 | 84.4 | 99.2 | 535.7 |
| 322222 | Coated \& laminated paper mfg . ................. | 509 | 5843950 | 47.3 | 53.9 | 65.4 | 80.8 | 918.5 |
| 322223 | Plastics, foil, \& coated paper bag mfg .......... | 40 | +240445 | 43.4 | 67.5 | 95.1 | 100.0 | 724.6 |
| 322224 | Uncoated paper \& multiwall bag mfg ........... | 93 | 1124247 | 53.9 | 69.2 | 87.1 | 97.7 | 1007.1 |
| 322225 | Laminated aluminum foil mfg for flexible packaging uses . | 34 | 603535 | 57.6 | 78.2 | 94.9 | 100.0 |  |
| 322226 | Surface-coated paperboard mfg ................. | 42 | 354799 | 57.0 | 73.0 | 94.9 | 100.0 | 1122.9 |

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|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 322 | Paper mfg-Con. |  |  |  |  |  |  |  |
| 3222 | Converted paper product mfg-Con. Stationery product mfg |  |  |  |  |  |  |  |
| 32223 |  | 674 | 3736501 | 28.8 | 42.7 | 60.2 | 75.8 | 311.3 |
| 322231 | Die-cut paper \& paperboard office supplies mfg.. | 337 | 1992306 | 44.1 | 56.8 | 70.6 | 82.6 | 655.2 |
| 322232 | Envelope mfg <br> Stationery, tablet, \& related product mfg .......... | 188 | 1744897 | 38.9 | 55.0 | 70.7 | 87.1 | 540.0 |
| 322233 |  | 158 | 999298 | 59.5 | 74.0 | 89.3 | 96.9 | 1309.9 |
| 32229 | Other converted paper product mfg Sanitary paper product mfg All other converted paper product mfg | 623 | 6455294 | 50.5 | 60.4 | 73.9 | 83.2 | 980.4 |
| 322291 |  | 99 | 4463242 | 72.0 | 83.2 | 94.2 | 99.2 | 1990.0 |
| 322299 |  | 529 | 1992052 | 30.2 | 38.2 | 49.0 | 63.8 | 291.0 |
| 323 | Printing \& related support activities . . . . . . . . . . . . . . . | 40987 | 58392618 | 9.0 | 13.6 | 20.8 | 27.5 | 35.1 |
| 3231 |  | 40987 | 58392618 | 9.0 | 13.6 | 20.8 | 27.5 | 35.1 |
| 32311 |  | 36617 | 52916516 | 9.8 | 14.6 | 22.5 | 29.5 | 41.0 |
| 323110 | Printing Commercial lithographic printing | 18015 | 29460988 | 10.3 | 15.3 | 22.2 | 29.2 | 41.8 |
| 323111 |  | 419 | 1911486 | 55.7 | 67.2 | 82.4 | 93.6 | 1308.6 |
| 323112 | Commercial gravure printing .................. | 864 | ${ }_{3}^{2} 521146$ | 15.2 | 23.7 | 39.3 | 54.3 | 111.2 |
| 323113 | Commercial screen printing . | 4096 | 3708959 | 7.1 | 12.2 | 20.9 | 32.3 | 30.5 |
| 323114 | Quick printing $\ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots$. | 7990 | 2674764 | 9.8 | 12.3 | 15.9 | 21.3 54 | 30.9 |
| 323115 |  | 386 | 5 270928 | 10.3 | 17.4 | 33.1 | 54.7 | 79.6 |
| 323116 |  | 719 | 5631433 | 37.8 | 53.5 | 67.5 | 79.5 | 518.1 |
| 323117 |  | 690 | 3300926 | 32.3 | 45.2 | 58.9 | 73.2 | 367.3 |
| 323118 | Book printing................................ | 283 3 | 1530134 1905752 | 43.1 | 55.4 | 68.1 28.3 | 80.9 39.0 | 678.6 77.4 |
| 323119 |  | 3387 | 1905752 | 13.6 | 19.1 | 28.3 | 39.0 | 77.4 |
| 32312 | Support activities for printing | 4448 | 5476102 | 6.6 | 11.5 | 19.8 | 29.7 | 26.3 |
| 323121 | Tradebinding \& related work. Prepress services. | 1260 | 1487276 | 12.1 | 16.9 | 25.7 | 38.9 | 58.5 |
| 323122 |  | 3191 | 3988826 | 9.0 | 15.2 | 24.6 | 36.6 | 43.0 |
| 324 | Petroleum \& coal products mfg ..................... | 1166 | 37610773 | 34.1 | 48.4 | 71.1 | 85.1 | 438.9 |
| 3241 | Petroleum \& coal products mfg Petroleum refineries. Petroleum refineries. | 1166 | 37610773 | 34.1 | 48.4 | 71.1 | 85.1 | 438.9 |
| 32411 |  | 122 | 30878456 | 41.1 | 57.4 | 84.1 | 97.7 | 625.2 |
| 324110 |  | 122 | 30878456 | 41.1 | 57.4 | 84.1 | 97.7 | 625.2 |
| 32412 | Asphalt paving, roofing, \& saturated materials mfg Asphalt paving mixture \& block mfg Asphalt shingle \& coating materials mfg. | 674 | 4007042 | 25.7 | 36.1 | 50.2 | 66.4 | 250.8 |
| 324121 |  | 531 | 1974057 | 16.9 | 25.2 | 39.2 | 56.6 | 132.3 |
| 324122 |  | 151 | 2032985 | 49.9 | 64.4 | 83.9 | 95.8 | 850.7 |
| 32419 | Other petroleum \& coal products mfg . | 403 | 2725275 | 23.5 | 34.5 | 56.2 | 77.4 | 255.3 |
| 324191 | Petroleum lubricating oil \& grease mfg. All other petroleum \& coal products mfg ......... | 344 | 2068913 | 30.6 | 42.3 | 63.5 | 81.1 | 371.7 |
| 324199 |  | 61 | 656362 | 41.3 | 65.3 | 90.7 | 99.8 | 685.3 |
| 325 | Chemical mfg | 9626 | 224684500 | 13.8 | 21.3 | 36.0 | 54.6 | 94.7 |
| 3251 |  | 1203 | 53736421 | 17.8 | 30.2 | 49.2 | 70.1 | 168.3 |
| 32511 |  | 42 | 8359545 | 71.5 | 88.0 | 98.1 | 100.0 | 1969.5 |
| 325110 | Petrochemical mfg . Petrochemical mfg | 42 | 8359545 | 71.5 | 88.0 | 98.1 | 100.0 | 1969.5 |
| 32512 | Industrial gas mfg..Industrial gas mfg | 119 | 3485572 | 67.5 | 85.1 | 95.6 | 98.8 | 1312.7 |
| 325120 |  | 119 | 3485572 | 67.5 | 85.1 | 95.6 | 98.8 | 1312.7 |
| 32513 | Dye \& pigment mfg Inorganic dye \& pigment mfg Synthetic organic dye \& pigment mfg | 152 | 3361633 | 46.8 | 58.4 | 79.5 | 94.9 | 986.5 |
| 325131 |  | 59 | 2030987 | 68.1 | 80.5 | 95.4 | 99.9 | 2381.6 |
| 325132 |  | 95 | 1330646 | 43.6 | 64.0 | 87.1 | 98.3 | 742.8 |
| 32518 | Other basic inorganic chemical mfg ............. | 409 | 12729040 | 36.9 | 46.9 | 66.8 | 84.5 | 517.1 |
| 325181 | Alkalies \& chlorine mfg Carbon black mfg | 26 | 1421798 | 81.2 | 93.5 | 99.8 |  | 2558.5 |
| 325182 |  | 8 | 547537 | D | 100.0 | N | N | 2271.5 |
| 325188 | Carbon black mfg <br> All other basic inorganic chemical mfg | 385 | 10759705 | 39.3 | 49.8 | 69.1 | 85.9 | 654.0 |
| 32519 |  | 581 | 25800631 | 20.2 | 33.3 | 54.4 | 77.2 | 212.5 |
| 325191 |  | 45 | 469629 | 77.2 | 93.0 | 98.6 | 100.0 | 2216.3 |
| 325192 | Cyclic crude \& intermediate mfg ................Ethyl alcohol mfg ....................... | 36 | 2807384 | 61.6 | 79.2 | 97.8 | 100.0 | 1422.7 |
| 325193 |  | 31 | 226520 | 61.6 | 87.3 | 99.9 | 100.0 | 1410.0 |
| 325199 | All other basic organic chemical mfg........... | 487 | 22297098 | 22.5 | 34.8 | 55.6 | 78.9 | 237.1 |
| 3252 | Resin, syn rubber, \& artificial \& syn fibers \& filamentsmfg ............................... |  |  |  |  |  |  |  |
|  |  | 469 | 27307501 | 31.5 | 45.4 | 65.1 | 86.1 | 458.0 |
| 32521 | Resin \& synthetic rubber mfg. Plastics material \& resin mfg | 406 | 20399243 | 28.5 | 42.6 | 63.2 | 86.2 | 319.7 |
| 325211 |  | 299 | 17625910 | 29.2 | 43.3 | 65.6 | 87.9 | 332.9 |
| 325212 | Synthetic rubber mfg . . . . . . . . . . . . . . . . . . . | 122 | 2773333 | 45.5 | 67.7 | 94.2 | 99.0 | 725.4 |
| 32522 | Artificial \& synthetic fibers \& filaments mfg Cellulosic organic fiber mfg. Noncellulosic organic fiber mfg | 70 | 6908258 | 76.8 | 88.1 | 97.4 | 99.9 | 2144.6 |
| 325221 |  | 4 | 603753 | 100.0 | N | N | N | ${ }^{\text {D }}$ |
| 325222 |  | 67 | 6304505 | 77.4 | 89.8 | 98.0 | 99.9 | 2386.7 |
| 3253 |  | 692 | 12576259 | 33.0 | 52.9 | 76.8 | 89.4 | 437.3 |
| 325311 |  | 477 | 4990041 | 37.2 | 57.3 | 78.2 | 89.4 | 538.1 |
| 325311 | Nitrogenous fertilizer mfg Phosphatic fertilizer mfg | 116 | 1814299 | 57.1 | 76.6 | 93.8 | 98.4 | + 997.1 |
| 325312 |  | 43 | 2062571 | 67.4 | 87.5 | 99.1 | 100.0 | 1380.3 |
| 325314 | Fertilizer (mixing only) mfg | 334 | 1023171 | 34.1 | 44.4 | 60.3 | 77.4 | 428.1 |
| 32532 | Pesticide \& other agricultural chemical mfg . Pesticide \& other agricultural chemical mfg...... | 222 | 7676218 | 54.0 | 77.3 | 91.7 | 96.9 | 939.4 |
| 325320 |  | 222 | 7676218 | 54.0 | 77.3 | 91.7 | 96.9 | 939.4 |
| 3254 | Pharmaceutical \& medicine mfg .. | 1428 | 64108002 | 32.9 | 49.5 | 69.7 | 84.7 | 441.5 |
| 32541 | Pharmaceutical \& medicine mfgMedicinal \& botanical mfg ... | 1428 | 64108002 | 32.9 | 49.5 | 69.7 | 84.7 | 441.5 |
| 325411 |  | 312 | 6297660 | 65.2 | 76.1 | 87.5 | 94.3 | 1962.3 |
| 325412 | Pharmaceutical preparation mfg In-vitro diagnostic substance mfg | 707 | 47864824 | 37.1 | 52.7 | 74.1 | 90.2 | 489.1 |
| 325413 |  | 203 | 6253818 | 63.5 | 76.5 | 86.7 | 94.7 | 1823.3 |
| 325414 | Biological product (except diagnostic) mfg........ | 267 | 3691700 | 46.4 | 65.9 | 85.5 | 94.3 | 771.4 |
| 3255 | Paint, coating, \& adhesive mfg ................... | 1724 | 12618013 | 24.5 | 36.7 | 54.7 | 68.5 | 233.9 |
| 32551 | Paint \& coating mfg $\ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots$. | 1205 | 9234712 | 32.8 | 48.9 | 66.2 | 77.3 | 387.2 |
| 325510 |  | 1205 | 9234712 | 32.8 | 48.9 | 66.2 | 77.3 | 387.2 |
| 32552 | Adhesive mfg . Adhesive mfg | 540 | 3383301 | 23.5 | 34.2 | 53.2 | 74.5 | 227.6 |
| 325520 |  | 540 | 3383301 | 23.5 | 34.2 | 53.2 | 74.5 | 227.6 |

[^3]Table 3. Share of Value Added Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997-Con.
[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value added by manufacture (\$1000) | Percent of value added accounted for by the ${ }^{2}$ - |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 325 | Chemical mfg-Con. |  |  |  |  |  |  |  |
| 3256 | Soap, cleaning compound, \& toilet preparation mfg ... | 2251 | 34359408 | 35.7 | 48.9 | 68.3 | 79.1 | 574.4 |
| 32561 | Soap \& cleaning compound mfg ................. | 1583 | 17755669 | 44.0 | 60.4 | 72.7 | 81.3 | 728.9 |
| 325611 | Soap \& other detergent mfg.. | 738 | 10478562 | 68.8 | 79.6 | 86.9 | 91.6 | 1744.1 |
| 325612 | Polish \& other sanitation good mfg | 675 | 5149717 | 60.9 | 66.7 | 76.2 | 86.1 | 1318.4 |
| 325613 | Surface active agent mfg ......... | 183 | 2127390 | 42.0 | 54.1 | 74.1 | 91.7 | 643.1 |
| $\begin{aligned} & 32562 \\ & 325620 \end{aligned}$ | Toilet preparation mfg . . Toilet preparation mfg | 681 | $\begin{aligned} & 16603739 \\ & 16603739 \end{aligned}$ | 41.4 41.4 | 61.2 61.2 | 78.9 78.9 | 88.8 88.8 | 652.9 652.9 |
| 3259 | Other chemical product mfg . | 2287 | 19978896 | 29.7 | 37.9 | 49.5 | 63.8 | 546.9 |
| 32591 | Printing ink mfg . . . . . . . . | 255 | 1627402 | 49.8 | 58.0 | 72.2 | 87.3 | 851.3 |
| 325910 | Printing ink mfg........................... | 255 | 1627402 | 49.8 | 58.0 | 72.2 | 87.3 | 851.3 |
| $\begin{aligned} & 32592 \\ & 325920 \end{aligned}$ | Explosives mfg . . Explosives mfg | 66 66 | $\begin{aligned} & 789782 \\ & 789782 \end{aligned}$ | 50.9 50.9 | 70.6 70.6 | 92.0 92.0 | 99.8 99.8 | 811.7 811.7 |
| 32599 | All other chemical product \& preparation mfg | 1973 | 17561712 | 33.8 | 42.6 | 53.9 | 68.1 | 699.4 |
| 325991 | Custom compounding of purchased resin ..... | 728 | 3092396 | 16.0 | 27.0 | 47.7 | 65.7 | 152.0 |
| 325992 | Photographic film, paper, plate, \& chemical mfg. . | 276 | 7673452 | 75.9 | 86.1 | 94.0 | 98.5 | D |
| 325998 | All other miscellaneous chemical product \& preparation mfg | 985 | 6795864 | 21.6 | 30.8 | 49.2 | 65.3 | 188.4 |
| 326 | Plastics \& rubber products mfg | 13798 | 81349082 | 8.0 | 11.7 | 18.8 | 28.6 | 31.3 |
| 3261 | Plastics product mfg | 11613 | 63280786 | 4.4 | 7.7 | 14.4 | 24.2 | 14.8 |
| 32611 | Unsupported plastics film, sheet, \& bag mfg | 1250 | 11591673 | 15.3 | 25.4 | 42.2 | 59.7 | 120.0 |
| 326111 | Unsupported plastics bag mfg .......... | 440 | 3402530 | 28.2 | 39.3 | 55.0 | 71.8 | 279.2 |
| 326112 | Unsupported plastics packaging film \& sheet mfg | 131 | 1606103 | 51.1 | 63.7 | 77.4 | 92.7 | 792.0 |
| 326113 | Unsupported plastics film \& sheet (except packaging) mfg | 713 | 6583040 | 21.1 | 31.4 | 49.6 | 69.5 | 192.6 |
| 32612 | Plastics pipe, pipe fitting, \& unsupported profile shape mfg | 1048 | 4066325 | 15.4 | 25.0 | 39.6 | 55.3 | 114.5 |
| 326121 | Unsupported plastics profile shape mfg...... | 733 | 2273968 | 25.1 | 34.3 | 48.2 | 63.4 | 114.5 228.1 |
| 326122 | Plastics pipe \& pipe fitting $\mathrm{mfg} . . . \ldots \ldots . . . . . . . .$. | 317 | 1792357 | 24.8 | 37.3 | 54.4 | 75.5 | 241.3 |
| $\begin{aligned} & 32613 \\ & 326130 \end{aligned}$ | Laminated plastics plate, sheet, \& shape $\mathrm{mfg} . . .$. Laminated plastics plate, sheet, \& shape mfg. . . . | $\begin{aligned} & 438 \\ & 438 \end{aligned}$ | $\begin{array}{ll} 1 & 624612 \\ 1 & 624612 \end{array}$ | 41.2 | 53.3 53.3 | 73.1 73.1 | 86.4 86.4 | $\begin{aligned} & 639.2 \\ & 639.2 \end{aligned}$ |
| $\begin{aligned} & 32614 \\ & 326140 \end{aligned}$ | Polystyrene foam product mfg . . . . . . . . . . . . . . . . . . . Polystyrene foam product mfg . . . . . . . . . . . . . . . . . . | 379 379 | $\begin{aligned} & 2420515 \\ & 2420515 \end{aligned}$ | 41.3 41.3 | 50.3 50.3 | 65.2 65.2 | 83.5 83.5 | $\begin{aligned} & 668.7 \\ & 668.7 \end{aligned}$ |
| 32615 | Urethane \& other foam product (except polystyrene) mfg . | 447 | 2822544 | 32.0 | 42.3 | 60.5 | 77.4 | 410.9 |
| 326150 | Urethane \& other foam product (except polystyrene) mfg . | 447 | 2822544 | 32.0 | 42.3 | 60.5 | 77.4 | 410.9 |
| $\begin{aligned} & 32616 \\ & 326160 \end{aligned}$ | Plastics bottle mfg <br> Plastics bottle mfg | 245 245 | $\begin{array}{lll} 3 & 097 & 170 \\ 3 & 097 & 170 \end{array}$ | 32.7 32.7 | 50.4 50.4 | 72.9 72.9 | 88.0 88.0 | 423.4 423.4 |
| 32619 | Other plastics product mfg | 8077 | 37659947 | 5.4 | 8.5 | 14.5 | 24.1 | 16.3 |
| 326191 | Plastics plumbing fixture mfg | 539 | 1239095 | 35.9 | 44.8 | 58.2 | 73.8 | 413.1 |
| 326192 | Resilient floor covering mfg | 28 | 946321 | 88.3 | 98.8 | 99.9 | 100.0 | D |
| 326199 | All other plastics product mfg. | 7522 | 35472531 | 5.1 | 8.2 | 13.7 | 23.3 | 15.1 |
| 3262 | Rubber product mfg.............................. | 2271 | 18068296 | 35.8 | 45.8 | 57.0 | 68.1 | 445.1 |
| 32621 | Tire mfg ........................................ | 736 | 7917563 | 69.4 | 87.4 | 94.0 | 96.9 | 1667.5 |
| 326211 | Tire mfg (except retreading) | 110 | 7521527 | 72.5 | 91.4 | 98.2 | 99.8 | 1813.5 |
| 326212 | Tire retreading.. | 628 | 396036 | 24.2 | 34.8 | 48.0 | 63.4 | 223.3 |
| 32622 | Rubber \& plastics hoses \& belting mfg . | 149 | 2162353 | 50.3 | 62.8 | 80.8 | 95.4 | 896.1 |
| 326220 | Rubber \& plastics hoses \& belting mfg ......... | 149 | 2162353 | 50.3 | 62.8 | 80.8 | 95.4 | 896.1 |
| 32629 | Other rubber product mfg | 1408 | 7988380 | 11.4 | 19.2 | 33.3 | 50.3 | 76.3 |
| 326291 | Rubber product mfg for mechanical use ......... | 608 | 3857118 | 20.7 | 30.0 | 45.6 | 67.3 | 172.4 |
| 326299 | All other rubber product mfg................... | 827 | 4131262 | 14.5 | 24.1 | 40.0 | 58.7 | 112.1 |
| 327 | Nonmetalic mineral product mfg | 11921 | 49425491 | 11.2 | 18.6 | 30.3 | 44.5 | 65.4 |
| 3271 | Clay product \& refractory mfg | 1715 | 5915703 | 14.0 | 23.4 | 41.6 | 61.5 | 115.4 |
| 32711 | Pottery, ceramics, \& plumbing fixture mfg ......... | 1204 | 2813867 | 23.6 | 35.6 | 54.2 | 72.2 | 232.2 |
| 327111 | Vitreous china plumbing fixture \& bathroom accessories mfg | 43 | 807165 | 65.9 | 89.2 | 99.1 | 100.0 | 1545.8 |
| 327112 | Vitreous china, fine earthenware, \& other pottery product mfg | 1034 | 1208102 | 26.5 | 37.7 | 53.7 | 70.2 | 266.6 |
| 327113 | Porcelain electrical supply mfg................... | 131 | 798600 | 35.5 | 51.3 | 74.1 | 93.7 | 563.7 |
| 32712 | Clay building material \& refractories mfg ........ | 519 | 3101836 | 21.7 | 34.3 | 57.1 | 75.9 | 224.9 |
| 327121 | Brick \& structural clay tile mfg .................. | 127 | 970014 | 42.2 | 59.8 | 75.2 | 92.7 | 583.8 |
| 327122 | Ceramic wall \& floor tile mfg.................... | 157 | 556920 | 61.1 | 76.5 | 91.1 | 97.4 | 1555.0 |
| 327123 | Other structural clay product mfg | 48 | 80941 | 47.7 | 73.6 | 96.9 | 100.0 | 872.6 |
| 327124 | Clay refractory mfg............................ | 115 | 564030 | 42.2 | 55.4 | 74.6 | 92.8 | 627.0 |
| 327125 | Nonclay refractory mfg ....................... | 91 | 929931 | 40.6 | 60.2 | 85.3 | 97.9 | 593.5 |
| 3272 | Glass \& glass product mfg ... | 1996 | 14052256 | 33.5 | 48.7 | 69.8 | 85.6 | 407.6 |
| 32721 | Glass \& glass product mfg .................... | 1996 | 14052256 | 33.5 | 48.7 | 69.8 | 85.6 | 407.6 |
| 327211 | Flat glass mfg .............................. | 13 | 1888714 | 76.3 | 99.5 | 100.0 | N | 1780.5 |
| 327212 | Other pressed \& blown glass \& glassware mfg ... | 465 | 4341468 | 47.7 | 69.3 | 91.3 | 96.6 | 779.0 |
| 327213 | Glass container mfg .......................... | 11 | 2557999 | 91.1 | D | 100.0 | N | 2989.2 |
| 327215 | Glass product mfg made of purchased glass .... | 1522 | 5264075 | 32.5 | 45.2 | 65.0 | 77.2 | 479.9 |
| 3273 | Cement \& concrete product mfg . $\ldots \ldots \ldots \ldots \ldots \ldots$. | 5930 | 17964132 | 9.2 | 15.5 | 27.2 | 38.1 | 48.1 |
| 32731 | Cement mfg................ | 176 | 4022503 | 34.5 | 54.5 | 81.4 | 97.3 | 501.4 |
| 327310 | Cement mfg. | 176 | 4022503 | 34.5 | 54.5 | 81.4 | 97.3 | 501.4 |
| 32732 | Ready-mix concrete mfg . . . . . . . . . . . . . . . . . . . . . | 2888 | $7780774$ | 6.2 | 10.2 | 18.4 | 31.6 | 25.6 |
| 327320 | Ready-mix concrete mfg ....................... | 2888 | 7780774 | 6.2 | 10.2 | 18.4 | 31.6 | 25.6 |
| 32733 | Concrete pipe, brick, \& block mfg . . . . . . . . . . . . | 955 | 2655107 | 17.9 | 24.0 | 34.1 | 47.9 | 114.9 |
| 327331 | Concrete block \& brick mfg..................... | 708 | 1463652 | 12.6 | 18.2 | 29.3 | 44.5 | 73.7 |
| 327332 | Concrete pipe mfg ........................... | 264 | 1191455 | 28.9 | 39.6 | 57.6 | 76.2 | 331.4 |
| $\begin{aligned} & 32739 \\ & 327390 \end{aligned}$ | Other concrete product mfg Other concrete product mfg | 2079 2079 | $\begin{array}{ll} 3 & 505748 \\ 3 & 505748 \end{array}$ | $\begin{aligned} & 10.4 \\ & 10.4 \end{aligned}$ | 16.6 16.6 | 27.7 27.7 | 42.9 | 57.0 57.0 |

Table 3. Share of Value Added Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997-Con.
[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value added by manufacture (\$1000) | Percent of value added accounted for by the ${ }^{2}$ - |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 327 | Nonmetallic mineral product mfg-Con. |  |  |  |  |  |  |  |
| 3274 | Lime \& gypsum product mfg. | 230 | 2816807 | 56.8 | 67.5 | 84.2 | 95.7 | 1077.3 |
| 32741 | Lime mfg ...................................... | 46 | 614959 | 48.0 | 67.5 | 89.8 | 100.0 | 758.5 |
| 327410 |  | 46 | 614959 | 48.0 | 67.5 | 89.8 | 100.0 | 758.5 |
| 32742 | Gypsum product mfg . | 185 | 2201848 | 71.8 | 83.3 | 94.4 | 98.1 | 1704.3 |
| 327420 | Gypsum product mfg | 185 | 2201848 | 71.8 | 83.3 | 94.4 | 98.1 | 1704.3 |
| 3279 | Other nonmetallic mineral product mfg. | 2159 | 8676593 | 36.5 | 46.0 | 54.2 | 64.4 | 412.2 |
| 32791 | Abrasive product mfg.......................... | 319 | 2918902 | 63.9 | 68.6 | 77.2 | 85.5 | 2061.1 |
| 327910 | Abrasive product mfg........................ | 319 | 2918902 | 63.9 | 68.6 | 77.2 | 85.5 | 2061.1 |
| 32799 327991 | All other nonmetallic mineral product mfg ......... | $\begin{array}{ll}1 & 849 \\ 1 & 004\end{array}$ | 5757691 | 31.8 | 40.6 | 50.9 | 63.8 | 341.4 |
| 327992 | Ground or treated mineral \& earth mfg. | 261 | 1427108 | 31.9 | 43.0 | 63.6 | 82.4 | 517.2 |
| 327993 | Mineral wool mfg .................... | 201 | 2601843 | 66.8 | 77.6 | 87.7 | 95.9 | 1441.3 |
| 327999 | All other miscellaneous nonmetallic mineral product mfg | 404 | 937979 | 16.9 | 28.4 | 46.0 | 66.6 | 151.5 |
| 331 | Primary metal mfg .................................. | 4076 | 68749487 | 16.4 | 25.1 | 36.8 | 52.2 | 107.7 |
| 3311 | Iron \& steel mills \& ferroalloy mfg | 209 | 25432010 | 38.3 | 58.6 | 76.9 | 92.8 | 536.2 |
| 33111 | Iron \& steel mills \& ferroalloy mfg | 209 | 25432010 | 38.3 | 58.6 | 76.9 | 92.8 | 536.2 |
| 331111 | Iron \& steel mills .. | 191 | 24868550 | 39.1 | 59.9 | 78.6 | 94.3 | 560.3 |
| 331112 | Electrometallurgical ferroalloy product mfg ...... | 19 | 563460 | 62.5 | 81.2 | 100.0 | N | 1244.1 |
| 3312 | Steel product mfg from purchased steel......... | 503 | 6762383 | 15.7 | 24.3 | 38.7 | 60.7 | 115.6 |
| 33121 | Iron \& steel pipes \& tubes mfg from purchased steel | 166 | 2784745 | 19.8 | 30.4 | 53.2 | 82.4 | 208.5 |
| 331210 | Iron \& steel pipes \& tubes mfg from purchased steel | 166 | 2784745 | 19.8 | 30.4 | 53.2 | 82.4 | 208.5 |
| 33122 | Rolling \& drawing of purchased steel . . . . . . . . . . . | 346 | 3977638 | 23.8 | 33.3 | 52.0 | 74.4 | 214.7 |
| 331221 331222 | Cold-rolled steel shape mfg . . . . . . . . . . . . . . . . . . . <br> Steel wire drawing | 153 199 | 2 1 930226812 | 46.6 19.4 | 60.2 32.6 | 80.9 55.2 | 96.2 79.4 | 646.0 205.8 |
| 3313 | Alumina \& aluminum production \& processing .. . | 248 | 10063942 | 48.6 | 63.1 | 77.2 | 87.8 | 1023.3 |
| 33131 | Alumina \& aluminum production \& processing ..... | 248 | 10063942 | 48.6 | 63.1 | 77.2 | 87.8 | 1023.3 |
| 331311 | Alumina refining ......................... | 5 | 329432 | D | 100.0 | N | N |  |
| 331312 | Primary aluminum production. | 13 | 2432972 | 63.6 | 83.9 | 100.0 | N | 1313.4 |
| 331314 | Secondary smelting \& alloying of aluminum | 87 | 796535 | 32.8 | 47.4 | 68.6 | 93.1 | 420.4 |
| 331315 | Aluminum sheet, plate, \& foil mfg . | 41 | 3546870 | 65.8 | 84.2 | 97.9 | 100.0 | 2406.8 |
| 331316 | Aluminum extruded product mfg . | 105 | 2476351 | 41.8 | 55.9 | 73.3 | 91.1 | 666.2 |
| 331319 | Other aluminum rolling \& drawing | 30 | 481782 | 56.0 | 76.6 | 99.7 | 100.0 | 1045.2 |
| 3314 | Nonferrous metal (except aluminum) production \& processing | 698 | 9598600 | 19.4 | 29.8 | 48.0 | 69.5 | 167.5 |
| 33141 | Nonferrous metal (except aluminum) smelting \& refining |  |  |  |  |  |  |  |
| 331411 | refining Primary smelting \& refining of copper . | 134 9 | 2455517 1029440 | 41.2 91.5 | 60.8 D | 84.6 100.0 | 97.2 | 683.7 2826.8 |
| 331419 | Other nonferrous metal primary smelting \& refining | 127 | 1426077 | 36.8 | 54.6 | 80.5 | 96.5 | 493.9 |
| 33142 | Copper rolling, drawing, extruding, \& alloying . . . | 154 | 2951706 | 41.0 | 53.8 | 73.8 | 92.2 | 574.5 |
| 331421 | Copper rolling, drawing, \& extruding........... | 91 | 2303999 | 50.2 | 66.6 | 87.3 | 99.1 | 850.2 |
| 331422 | Copper wire (except mechanical) drawing....... | 33 | 324392 | 53.5 | 75.1 | 97.2 | 100.0 | 948.0 |
| 331423 | Secondary smelting, refining, \& alloying of copper | 34 | 323315 | 53.0 | 70.2 | 91.2 | 100.0 | 904.5 |
| 33149 | Other nonferrous metal rolling, drawing, extruding, \& alloying | 440 | 4191377 | 25.6 | 36.6 | 58.0 | 77.3 | 267.5 |
| 331491 | Other nonferrous metal rolling, drawing, \& extruding | 220 | 2982604 | 34.8 | 49.1 | 71.9 | 88.5 | 443.7 |
| 331492 | Other nonferrous metal secondary smelting, refining, \& alloying | 233 | 1208773 | 29.7 | 42.9 | 63.3 | 83.6 | 329.1 |
| 3315 | Foundries. | 2521 | 16892552 | 12.8 | 21.0 | 34.2 | 48.3 | 83.4 |
| 33151 | Ferrous metal foundries ....................... | 986 | 10449320 | 17.2 | 29.6 | 47.6 | 64.5 | 159.5 |
| 331511 | Iron foundries . . . . . . . . . . . . . . . . . . . . . . . . . . | 602 | 7043449 | 24.3 | 39.3 | 58.1 | 74.3 | 262.2 |
| 331512 | Steel investment foundries . . . . . . . . . . . . . . . . . | 145 | 1656130 | 48.0 | 62.1 | 78.1 | 91.3 | 811.9 |
| 331513 | Steel foundries (except investment) . . . . . . . . . . | 263 | 1749741 | 27.2 | 38.4 | 61.8 | 84.2 | 359.5 |
| 33152 | Nonferrous metal foundries . . . . . . . . . . . . . . . . | 1559 | 6443232 | 12.2 | 18.2 | 30.1 | 47.1 | 70.3 |
| 331521 | Aluminum die-casting foundries................ | 291 | 1967631 | 21.0 | 33.3 | 53.9 | 75.4 | 212.1 |
| 331522 | Nonferrous (except aluminum) die-casting foundries | 267 | 1128064 | 17.9 | 28.6 | 50.1 | 74.5 | 172.4 |
| 331524 | Aluminum foundries (except die-casting) ........ | 592 | 2195343 | 16.0 | 26.9 | 47.0 | 68.2 | 152.8 |
| 331525 | Copper foundries (except die-casting) .......... | 301 | 511783 | 13.5 | 23.2 | 42.5 | 67.8 | 128.6 |
| 331528 | Other nonferrous foundries (except die-casting). . | 136 | 640411 | 74.9 | 82.4 | 90.1 | 97.1 | 2369.4 |
| 332 | Fabricated metal product mfg . ..................... | 58516 | 133493077 | 3.0 | 5.1 | 9.8 | 16.3 | 6.8 |
| 3321 | Forging \& stamping . . . . . . . . . . . . . . . . . . . . . . . . | 3026 | 12458562 | 6.9 | 10.7 | 18.0 | 28.7 | 24.4 |
| 33211 |  | 3026 | 12458562 | 6.9 | 10.7 | 18.0 | 28.7 | 24.4 |
| 332111 | Iron \& steel forging . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 390 | 2423265 | 24.3 | 34.3 | 51.8 | 73.4 | 230.2 |
| 332112 | Nonferrous forging . . . . . . . . . . . . . . . . . . . . . . . . . | 75 | 991288 | 46.6 | 65.0 | 88.7 | 99.1 | 910.0 |
| 332114 | Custom roll forming . . . . . . . . . . . . . . . . . . . . . . | 360 | 1343729 | 25.1 | 34.4 | 52.1 | 70.4 | 337.3 |
| 332115 | Crown \& closure mfg . . . . . . . . . . . . . . . . . . . . . . . . | 55 | 430618 | 52.5 | 77.3 | 93.1 | 99.9 | 973.6 |
| 332116 | Metal stamping . . . . . . . . . . . . . . . . . . . . . . . . | 2051 | 6471538 | 7.1 | 10.1 | 16.5 | 27.4 | 23.0 |
| 332117 | Powder metallurgy part mfg .................. | 114 | 798124 | 31.9 | 47.1 | 69.5 | 91.3 | 385.1 |
| 3322 | Cutlery \& handtool mfg . . . . . . . . . . . . . . . . . . . . . | 1545 | 7483422 | 20.9 | 30.8 | 48.3 | 65.3 | 201.1 |
| 332211 | Cutlery \& handtool mfg . ........................... | 1545 | 7483422 | 20.9 | 30.8 | 48.3 | 65.3 | 201.1 |
| 332211 | Cutlery \& flatware (except precious) mfg ........ | 163 | 1565685 | 69.6 | 79.0 | 90.2 | 97.2 | 2500.2 |
| 332212 | Hand \& edge tool mfg ....................... | 1164 | 4296327 | 20.8 | 32.3 | 49.3 | 65.9 | 183.8 |
| 332213 | Saw blade \& handsaw mfg .................... | 166 | 878749 | 39.8 | 54.3 | 79.4 | 93.6 | 659.4 |
| 332214 | Kitchen utensil, pot, \& pan mfg . ................ | 69 | 742661 | 61.5 | 81.7 | 94.3 | 99.9 | 1460.1 |

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| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value added by manufacture (\$1000) | Percent of value added accounted for by the ${ }^{2}$ - |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 334 | Computer \& electronic product mfg-Con. |  |  |  |  |  |  |  |
| 3344 | Semiconductor \& other electronic component mfg . Semiconductor \& other electronic component mfg . . Electron tube mfg Bare printed circuit board mfg Semiconductor \& related device mfg Electronic capacitor mfg Electronic resistor mfg . Electronic coil, transformer, \& other inductor mfg. Electronic connector mfg Printed circuit assembly (electronic assembly) mfg <br> Other electronic component mfg | 5652 | 94354658 | 41.7 | 50.7 | 62.1 | 71.6 | 688.7 |
| 33441 |  | 5652 | 94354658 | 41.7 | 50.7 | 62.1 | 71.6 | 688.7 |
| 334411 |  | 147 | 1568417 | 52.0 | 71.5 | 88.4 | 97.5 | 1012.0 |
| 334412 |  | 1319 | 5062300 | 18.2 | 26.7 | 41.6 | 59.5 | 136.9 |
| 334413 |  | 993 | 64135313 | 59.9 | 70.3 | 83.2 | 91.7 | 1407.3 |
| 334414 |  | 112 | 1444666 | 63.6 | 74.7 | 87.7 | 97.2 | 1251.6 |
| 334415 |  | 90 | 801153 | 36.2 | 53.4 | 79.8 | 96.6 | 577.2 |
| 334416 |  | 426 | 936268 | 11.5 | 19.4 | 35.1 | 54.4 | 88.1 |
| 334417 |  | 281 | 3788056 | 51.0 | 63.1 | 77.7 | 89.2 | 1536.7 |
| 334418 |  | 673 | 10592734 | 39.1 | 52.5 | 65.6 | 76.8 | 487.3 |
| 334419 |  | 1781 | 6025751 | 9.4 | 14.9 | 27.6 | 45.1 | 55.3 |
| 3345 | avigational, measuring, medical, \& control | 4845 | 58284906 | 26.8 | 36.0 | 49.8 | 63.6 | 249.2 |
| 33451 | Navigational, measuring, medical, \& control instruments mfg |  |  |  |  |  |  |  |
|  |  | 4845 | 58284906 | 26.8 | 36.0 | 49.8 | 63.6 | 249.2 |
| 334510 334511 | Electromedical \& electrotherapeutic apparatus mfg | 490 | 7619290 | 25.1 | 41.6 | 64.4 | 83.9 | 293.2 |
| 334511 | Search, detection, navigation, \& guidance instrument mfg | 579 | 23155326 | 59.1 | 77.1 | 88.9 | 95.3 | 1234.5 |
| 334512 | Automatic environmental control $\mathrm{mfg} \ldots . . . . . .$. .Industrial process control instrument mfg . . . . . | 297 | 1737147 | 55.5 | 66.8 | 79.2 | 88.8 | 1001.3 |
| 334513 |  | 919 | 4914894 | 33.8 | 42.3 | 55.5 | 68.9 | 424.8 |
| 334514 | Totalizing fluid meter \& counting device mfg .....Electricity measuring \& testing instrument mfg. . | 210 | 1996360 | 50.9 | 68.4 | 85.5 | 94.1 | 954.2 |
| 334515 |  | 762 | 8991807 | 44.7 | 55.0 | 66.7 | 79.8 | 658.8 |
| 334516 | Electricity measuring \& testing instrument mfg ... Analytical laboratory instrument mfg.......... | 637 | 4111184 | 33.5 | 47.6 | 62.0 | 76.3 | 373.2 |
| 334517 | Analytical laboratory instrument mfg.......... | 134 | 2075258 | 59.1 | 75.1 | 90.7 | 97.3 | 1244.0 |
| 334518 | Watch, clock, \& part mfg . <br> Other measuring \& controlling device $\mathrm{mfg} . . . .$. | 145 | - 550979 | 51.6 | 66.5 | 88.2 | 97.3 | 854.5 |
| 334519 |  | 826 | 3132661 | 16.4 | 27.3 | 41.7 | 59.3 | 130.1 |
| 3346 | Mfg \& reproducing magnetic \& optical media Mfg \& reproducing magnetic \& optical media Software reproducing. Prerecorded CD (except software), tape, \& record reproducing. <br> Magnetic \& optical recording media mfg | 843 | 5465519 | 26.3 | 42.0 | 64.3 | 81.1 | 297.0 |
| 33461 |  | 843 | 5465519 | 26.3 | 42.0 | 64.3 | 81.1 | 297.0 |
| 334611 334612 |  | 112 | 786164 | 65.6 | 74.2 | 86.5 | 96.4 | D |
|  |  | 492 | 2379126 | 38.7 | 54.3 | 73.4 | 84.9 | 519.1 |
| 334613 |  | 241 | 2300229 | 39.1 | 60.7 | 88.4 | 96.5 | 599.2 |
| 335 | Electrical equipment, appliance, \& component mfg ..... | 5839 | 57215610 | 15.1 | 24.5 | 38.0 | 51.7 | 114.2 |
| 3351 | Electric lighting equipment mfg Electric lamp bulb \& part mfg <br> Electric lamp bulb \& part mfg | 1211 | 7038950 | 36.3 | 49.1 | 61.5 | 72.5 | 465.7 |
| 33511 |  | 54 | 2119597 | 89.7 | 94.1 | 98.7 | 99.9 | D |
| 335110 |  | 54 | 2119597 | 89.7 | 94.1 | 98.7 | 99.9 | D |
| 33512 | Lighting fixture mfg. <br> Residential electric lighting fixture mfg Commercial/industrial/institutional electric lighting fixture mfg <br> Other lighting equipment mfg . . . . . . . . . . . . . . . . . . | 1160 | 4919353 | 25.7 | 36.5 | 50.5 | 64.9 | 226.6 |
| 335121 |  | 543 | 1166774 | 23.3 | 35.3 | 54.5 | 72.6 | 259.1 |
| 335122 |  | 326 | 2070729 | 37.5 | 54.3 | 68.8 | 82.8 | 511.6 |
| 335129 |  | 310 | 1681850 | 25.5 | 40.0 | 62.0 | 82.4 | 280.5 |
| 3352 | Household appliance mfg . <br> Small electrical appliance mfg Electric housewares \& household fan ......... Household vacuum cleaner mfg | 265 | 10082604 | 53.2 | 65.5 | 82.7 | 96.8 | 839.8 |
| 33521 |  | 144 | 2869205 | 36.4 | 55.7 | 87.9 | 98.7 | 559.0 |
| 335211 |  | 119 | 1666523 | 47.6 | 69.3 | 92.9 | 99.1 | 790.3 |
| 335212 |  | 25 | 1202682 | 67.0 | 94.4 | 99.9 | 100.0 | 1664.8 |
| 33522 | Major appliance mfg. Household cooking appliance mfg. Household refrigerator \& home freezer mfg Household laundry equipment mfg Other major household appliance mfg | 126 | 7213399 | 66.1 | 81.3 | 95.5 | 99.9 | 1319.6 |
| 335221 |  | 77 | 1704606 | 64.7 | 84.0 | 98.3 | 99.9 | 1334.0 |
| 335222 |  | 21 | 1941186 | 82.8 | 97.6 | D | 100.0 | 2161.6 |
| 335224 |  | 10 | 1792070 | 92.7 | D | 100.0 | N | D |
| 335228 |  | 32 | 1775537 | 68.1 | 95.2 | 99.9 | 100.0 | 1429.7 |
| 3353 | Electrical equipment mfg . <br> Electrical equipment mfg <br> Power, distribution, \& specialty transformer mfg. <br> Motor \& generator mfg <br> Switchgear \& switchboard apparatus mfg <br> Relay \& industrial control mfg. | 2517 | 19241142 | 26.8 | 41.8 | 56.6 | 68.1 | 271.5 |
| 33531 |  | 2517 | 19241142 | 26.8 | 41.8 | 56.6 | 68.1 | 271.5 |
| 335311 |  | 275 | 2566056 | 44.0 | 61.7 | 79.3 | 91.8 | 646.1 |
| 335312 |  | 559 | 6123289 | 39.3 | 51.7 | 69.9 | 85.2 | 580.9 |
| 335313 |  | 496 | 4322599 | 52.7 | 65.6 | 77.9 | 86.4 | 912.3 |
| 335314 |  | 1241 | 6229198 | 34.1 | 44.7 | 55.7 | 68.5 | 465.2 |
| 3359 | Other electrical equipment \& component mfg . Battery mfg <br> Storage battery mfg $\qquad$ <br> Primary battery mfg $\qquad$ | 1939 | 20852914 | 11.3 | 17.8 | 33.1 | 54.3 | 82.4 |
| 33591 |  | 127 | 3560826 | 48.1 | 74.4 | 93.1 | 99.1 | 910.1 |
| 335911 |  | 96 | 2169833 | 55.8 | 76.0 | 93.2 | 99.5 | 931.9 |
| 335912 |  | 35 | 1390993 | 89.1 | 97.8 | 99.9 | 100.0 | D |
| 33592 | Communication \& energy wire \& cable mfg Fiber optic cable mfg Other communication \& energy wire mfg | 219 | 6229721 | 30.2 | 43.0 | 68.4 | 86.8 | 390.3 |
| 335921 |  | 36 | 1373769 | 70.6 | 85.1 | 97.5 | 100.0 | 2353.5 |
| 335929 |  | 193 | 4855952 | 26.0 | 41.3 | 68.7 | 87.3 | 312.1 |
| 33593 | Wiring device mfg Current-carrying wiring device mfg Noncurrent-carrying wiring device mfg ........... | 604 | 6008044 | 19.8 | 33.3 | 56.2 | 78.9 | 210.5 |
| 335931 |  | 446 | 3553666 | 23.4 | 36.8 | 61.8 | 81.8 | 259.4 |
| 335932 |  | 168 | 2454378 | 35.7 | 57.6 | 82.8 | 95.9 | 516.8 |
| 33599 | All other electrical equipment \& component mfg . Carbon \& graphite product mfg All other miscellaneous electrical equipment \& component mfg | 1026 | 5054323 | 12.2 | 21.7 | 37.4 | 55.4 | 93.7 |
| 335991 |  | 99 | 1267908 | 48.5 | 70.7 | 88.9 | 97.7 | 769.8 |
| 335999 |  | 928 | 3786415 | 12.7 | 20.4 | 34.9 | 53.0 | 85.0 |
| 336 | Transportation equipment mfg..................... | 10979 | 227510551 | 44.7 | 54.0 | 66.0 | 74.8 | 708.7 |
| 3361 |  | 325 | 72574976 | 87.3 | 93.8 | 98.8 | 99.7 | D |
| 33611 |  | 253 | 68314274 | 92.8 | 98.1 | 99.6 | 99.9 | D |
| 336111 | Automobile mfg . <br> Light truck \& utility vehicle mfg | 173 | 28937270 | 87.4 | 97.0 | 99.4 | 99.9 | 2725.0 |
| 336112 |  | 84 | 39377004 | 99.5 | 99.9 | 99.9 | 99.9 | D |
| 33612 | Heavy duty truck mfg Heavy duty truck mfg | 75 | 4260702 | 79.2 | 90.2 | 98.3 | 99.8 | 1683.6 |
| 336120 |  | 75 | 4260702 | 79.2 | 90.2 | 98.3 | 99.8 | 1683.6 |
| 3362 | Motor vehicle body \& trailer mfg Motor vehicle body \& trailer mfg Motor vehicle body mfg Truck trailer mfg Motor home mfg Travel trailer \& camper mfg | 1922 | 7693717 | 18.4 | 26.7 | 41.1 | 57.0 | 140.9 |
| 33621 |  | 1922 | 7693717 | 18.4 | 26.7 | 41.1 | 57.0 | 140.9 |
| 336211 |  | 747 | 2995537 | 27.6 | 36.4 | 53.1 | 72.0 | 364.5 |
| 336212 |  | 355 | 1788126 | 39.8 | 50.6 | 68.1 | 84.7 | 521.8 |
| 336213 |  | 75 | 1178051 | 53.4 | 76.8 | 94.3 | 99.9 | 1005.3 |
| 336214 |  | 761 | 1732003 | 24.4 | 32.2 | 46.7 | 66.3 | 261.9 |

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| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value added by manufacture (\$1000) | Percent of value added accounted for by the ${ }^{2}$ - |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 336 | Transportation equipment mfg-Con. |  |  |  |  |  |  |  |
| 3363 | Motor vehicle parts mfg. | 4767 | 73797867 | 38.3 | 45.6 | 57.6 | 68.3 | 531.4 |
| 33631 | Motor vehicle gasoline engine \& engine parts mfg.. | 924 | 9597585 | 47.8 | 61.3 | 74.3 | 86.8 | 777.6 |
| 336311 | Carburetor, piston, piston ring, \& valve mfg...... | 122 | 1587949 | 57.3 | 77.9 | 92.9 | 98.6 | 1246.7 |
| 336312 | Gasoline engine \& engine parts mfg . . . . . . . . . | 810 | 8009636 | 51.6 | 64.2 | 76.7 | 89.0 | 817.4 |
| 33632 | Motor vehicle electrical \& electronic equipment |  |  |  |  |  |  |  |
|  | mfg ................................. | 981 | 9574476 | 51.6 | 59.2 | 73.0 | 84.8 | 1398.4 |
| $\begin{aligned} & 336321 \\ & 336322 \end{aligned}$ | Vehicular lighting equipment mfg............... | 99 | 1612341 | 57.8 | 76.8 | 92.6 | 99.4 | 1136.8 |
|  | equipment mfg | 890 | 7962135 | 53.5 | 62.5 | 75.2 | 85.7 | 1594.5 |
| 33633 | Motor vehicle steering \& suspension component (except spring) mfg $\square$ | 183 | 5234835 | 63.4 | 76.6 | 87.6 | 97.4 | 1801.2 |
| 336330 | Motor vehicle steering \& suspension component (except spring) mfg | 183 | 5234835 | 63.4 | 76.6 | 87.6 | 97.4 | 1801.2 |
| $\begin{aligned} & 33634 \\ & 336340 \end{aligned}$ | Motor vehicle brake system mfg Motor vehicle brake system mfg | 203 203 | 4046472 <br> 4046472 | 51.6 51.6 | 72.7 72.7 | 87.6 87.6 | 96.7 96.7 | $\begin{array}{ll}1 & 011.4 \\ 1 & 011.4\end{array}$ |
| $\begin{aligned} & 33635 \\ & 336350 \end{aligned}$ | Motor vehicle transmission \& power train parts mfg. Motor vehicle transmission \& power train parts | 427 | 11916802 | 55.4 | 78.1 | 89.8 | 95.6 | 952.1 |
|  | mfg ....................................... | 427 | 11916802 | 55.4 | 78.1 | 89.8 | 95.6 | 952.1 |
| $\begin{aligned} & 33636 \\ & 336360 \end{aligned}$ | Motor vehicle seating \& interior trim $\mathrm{mfg} . . . . . .$. Motor vehicle seating \& interior trim mfg | $\begin{aligned} & 280 \\ & 280 \end{aligned}$ | $\begin{aligned} & 4272286 \\ & 4272286 \end{aligned}$ | 61.2 61.2 | 73.4 73.4 | 85.7 85.7 | 95.5 95.5 | $\begin{aligned} & 1355.3 \\ & 1355.3 \end{aligned}$ |
| $\begin{aligned} & 33637 \\ & 336370 \end{aligned}$ | Motor vehicle metal stamping <br> Motor vehicle metal stamping | 662 | 10915335 10915335 | 45.0 45.0 | 50.1 50.1 | 58.4 58.4 | 70.3 70.3 | 663.4 663.4 |
| 33639 | Other motor vehicle parts mfg | 1321 | 18240076 | 31.7 | 41.6 | 56.6 | 71.3 | 337.0 |
| 336391 | Motor vehicle air-conditioning mfg | 58 | 2701288 | 82.4 | 91.7 | 98.6 | 99.9 | D |
| 336399 | All other motor vehicle parts mfg ................ | 1271 | 15538788 | 24.7 | 36.1 | 53.3 | 69.4 | 228.5 |
| 3364 | Aerospace product \& parts mfg . | 1530 | 57688592 | 55.6 | 75.0 | 85.2 | 90.8 | 1030.8 |
| 33641 | Aerospace product \& parts mfg ................... | 1530 | 57688592 | 55.6 | 75.0 | 85.2 | 90.8 | 1030.8 |
| 336411 | Aircraft mfg .................................. | 172 | 20767608 | 80.9 | 94.6 | 98.0 | 99.6 | 2526.2 |
| 336412 | Aircraft engine \& engine parts mfg . . . . . . . . . . . | 281 | 11679669 | 74.2 | 79.9 | 86.2 | 93.4 | 1753.7 |
| 336413 | Other aircraft part \& auxiliary equipment mfg .... | 1049 | 13110835 | 55.2 | 68.6 | 77.2 | 85.6 | 1126.2 |
| 336414 | Guided missile \& space vehicle mfg ............ | 15 | 9492504 | 91.6 | 99.6 | 100.0 | N | D |
| 336415 | Guided missile \& space vehicle propulsion unit \& parts mfg | 19 | 2062154 | 78.6 | 97.2 | 100.0 | N | 2055.5 |
| 336419 | Other guided missile \& space vehicle parts \& auxiliary equip mfg | 48 | 575822 | 71.6 | 85.7 | 97.1 | 100.0 | 2327.4 |
| 3365 | Railroad rolling stock mfg . | 173 | 3345283 | 52.9 | 71.3 | 89.3 | 97.3 | 1219.9 |
| 33651 | Railroad rolling stock mfg ...................... | 173 | 3345283 | 52.9 | 71.3 | 89.3 | 97.3 | 1219.9 |
| 336510 | Railroad rolling stock mfg ...................... | 173 | 3345283 | 52.9 | 71.3 | 89.3 | 97.3 | 1219.9 |
| ${ }_{3}^{3366}$ | Ship \& boat building ............................ | 1630 1630 | $\begin{array}{ll}8 & 602771 \\ 8602771\end{array}$ | 43.1 | 53.7 53.7 | 65.4 65.4 | 75.5 75.5 | 578.7 578.7 |
| 336611 | Ship building \& repairing | 649 | 6202797 | 56.1 | 66.1 | 77.2 | 86.9 | 1020.2 |
| 336612 | Boat building ................................. | 984 | 2399974 | 38.9 | 47.2 | 58.3 | 72.4 | 620.1 |
| 3369 | Other transportation equipment mfg ............... | 758 | 3807345 | 40.4 | 56.6 | 75.8 | 84.8 | 610.1 |
| 336999 | Other transportation equipment mfg .............. | 758 | 3807345 | 40.4 | 56.6 | 75.8 | 84.8 | 610.1 |
| 336991 33692 | Motorcycle, bicycle \& parts mfg . .................. | 373 | 1605782 | 63.9 | 74.7 | 84.2 | 91.5 | 2104.3 |
|  | Mitfary armored venicle, tank, \& tank compone....................... | 37 | 543119 | 86.1 | 92.6 | 98.9 | 100.0 | D |
| 336999 | All other transportation equipment mfg........... | 349 | 1658444 | 50.3 | 71.7 | 81.6 | 90.4 | 807.3 |
| 337 | Furniture \& related product mfg . . . . . . . . . . . . . . . | 19838 | 34839134 | 12.6 | 19.2 | 28.6 | 38.8 | 67.7 |
| 3371 | Household \& institutional furniture \& kitchen cabinet mfg | 14732 | 19152783 | 14.3 | 19.6 | 29.5 | 40.9 | 77.4 |
| 33711 | Wood kitchen cabinet \& counter top mfg ........... | 7872 | 5155365 | 19.2 | 27.0 | 37.3 | 45.5 | 129.2 |
| 337110 | Wood kitchen cabinet \& counter top mfg ........ | 7872 | 5155365 | 19.2 | 27.0 | 37.3 | 45.5 | 129.2 |
| 33712 | Household \& institutional furniture $\mathrm{mfg} . . . . . . . . .$. . | 6867 | 13997418 | 18.9 | 25.1 | 35.7 | 48.3 | 129.7 |
| 337121 | Upholstered household furniture mfg .......... |  | 3978674 | 34.0 | 41.7 | 55.8 | 69.4 | 356.1 |
| 337122 | Nonupholstered wood household furniture mfg... | 3677 | 5905184 | 26.2 | 36.9 | 51.8 | 65.3 | 256.8 |
| 337124 | Metal household furniture mfg ................. | 389 | 1235159 | 24.7 | 37.8 | 62.8 | 82.3 | 270.9 |
| 337125 | Household furniture (except wood \& metal) mfg... | 211 | 271862 | 47.8 | 64.3 | 81.0 | 93.2 | 745.1 |
| 337127 337129 | Institutional furniture mfg . . . . . . . . . . . . . . . . . | 977 | 2456703 | 19.4 | 28.3 | 42.1 | 58.8 | 159.0 |
| 337129 | Wood television, radio, \& sewing machine cabinet mfg | 99 | 149836 | 45.5 | 61.3 | 84.3 | 96.8 | 742.2 |
| 3372 | Office furniture (including fixtures) $\mathrm{mfg} . . . . \ldots \ldots \ldots$. | 4086 | 12559656 | 30.8 | 38.2 | 45.0 | 53.3 | 315.8 |
| 33721 | Office furniture (including fixtures) mfg . . . . . . . . . . . | 4086 | 12559656 | 30.8 | 38.2 | 45.0 | 53.3 | 315.8 |
| 337211 | Wood office furniture mfg ......... | 639 | 1744454 | 35.9 | 43.8 | 55.8 | 70.7 | 433.4 |
| 337212 | Custom architectural woodwork \& millwork mfg .. | 1094 | 1352631 | 8.6 | 12.8 | 21.5 | 36.2 | 39.3 |
| 337214 | Office furniture (except wood) mfg . ............ | 303 | 5018286 | 67.2 | 81.3 | 88.9 | 94.8 | 1505.3 |
| 337215 | Showcase, partition, shelving, \& locker mfg ..... | 2073 | 4444285 | 11.3 | 16.7 | 27.5 | 42.0 | 63.1 |
| 3379 | Other furniture related product mfg . . . . . . . . . . . . . . | 1071 | 3126695 | 36.2 | 46.6 | 57.8 | 69.3 | 400.7 |
| 33791 | Mattress mfg ................................... | 628 | 1977231 | 41.6 | 48.6 | 58.9 | 71.9 | 658.1 |
| 337910 | Mattress mfg ................................. | 628 | 1977231 | 41.6 | 48.6 | 58.9 | 71.9 | 658.1 |
| $\begin{aligned} & 33792 \\ & 337920 \end{aligned}$ | Blind \& shade mfg .......................... Blind \& shade mfg $\ldots$................ | 443 443 | $\begin{array}{lll}1 & 149 \\ 1 & 149 \\ 1464\end{array}$ | 55.2 55.2 | 66.6 66.6 | 76.9 76.9 | 87.3 87.3 | 1029.3 1029.3 |

[^4]Table 3. Share of Value Added Accounted for by the 4, 8, 20, and 50 Largest Companies in Each of the 3-, 4-, 5-, and 6-Digit NAICS Industries: 1997-Con.
[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| NACIS code | Industry group and industry | Companies ${ }^{1}$ | Value added by manufacture (\$1000) | Percent of value added accounted for by the ${ }^{2}$ - |  |  |  | HerfindahlHerschmann index for 50 largest companies ${ }^{3}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 4 largest companies | 8 largest companies | 20 largest companies | 50 largest companies |  |
| 339 | Miscellaneous mfg . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 30335 | 61452548 | 9.4 | 14.1 | 22.6 | 34.1 | 47.2 |
| 3391 | Medical equipment \& supplies mfg | 12123 | 30613184 | 18.6 | 27.0 | 40.4 | 57.2 | 166.6 |
| 33911 | Medical equipment \& supplies mfg | 12123 | 30613184 | 18.6 | 27.0 | 40.4 | 57.2 | 166.6 |
| 339111 | Laboratory apparatus \& furniture mfg | 371 | 1344180 | 18.7 | 32.4 | 54.7 | 75.2 | 195.4 |
| 339112 | Surgical \& medical instrument mfg .. | 1456 | 13148075 | 35.0 | 48.1 | 65.2 | 78.8 | 435.5 |
| 339113 | Surgical appliance \& supplies mfg. | 1511 | 9863213 | 18.5 | 30.7 | 52.9 | 70.5 | 180.3 |
| 339114 | Dental equipment \& supplies mfg . | 849 | 1717856 | 38.4 | 47.2 | 64.2 | 78.6 | 459.7 |
| 339115 | Ophthalmic goods mfg . . | + 520 | 2387162 | 49.4 | 62.9 | 80.3 | 89.3 | 794.7 |
| 339116 | Dental laboratories.... | 7490 | 2152698 | 5.6 | 7.3 | 10.1 | 15.1 | 10.4 |
| 3399 | Other miscellaneous mfg . . . . . . . . . . . . . . . . . . . . . . | 18232 | 30839364 | 6.7 | 11.4 | 19.8 | 29.1 | 26.2 |
| 33991 | Jewelry \& silverware mfg | 3737 | 3991201 | 14.4 | 19.8 | 30.3 | 45.2 | 90.6 |
| 339911 | Jewelry (except costume) mfg | 2278 | 2376932 | 13.5 | 20.2 | 33.1 | 48.0 | 84.7 |
| 339912 | Silverware \& plated ware mfg. | 158 | 529984 | 68.0 | 76.9 | 87.5 | 95.6 | 2780.9 |
| 339913 | Jewelers' material \& lapidary work mfg | 391 | 275984 | 26.7 | 39.7 | 60.4 | 77.4 | 293.2 |
| 339914 | Costume jewelry \& novelty mfg . . . . . . | 917 | 808301 | 26.9 | 41.3 | 55.8 | 69.5 | 279.7 |
| 33992 | Sporting \& athletic goods mfg | 2477 | 5866075 | 24.1 | 31.2 | 45.0 | 61.3 | 191.6 |
| 339920 | Sporting \& athletic goods mfg | 2477 | 5866075 | 24.1 | 31.2 | 45.0 | 61.3 | 191.6 |
| 33993 | Doll, toy, \& game mfg . . . . . . . . . . . . . . . . . . . . . . | 995 | 2816422 | 41.6 | 51.7 | 63.4 | 77.7 | 555.4 |
| 339931 | Doll \& stuffed toy mfg, . . . . . . . . . . . . . . . . . . . | 239 | 194644 | 33.0 | 55.6 | 75.5 | 90.5 | 452.5 |
| 339932 | Game, toy, \& children's vehicle mfg . . . . . . . . . . . | 756 | 2621778 | 44.7 | 55.5 | 68.2 | 81.6 | 639.3 |
| 33994 | Office supplies (except paper) mfg . . . . . . . . . . . | 999 | 2590428 | 32.8 | 43.6 | 58.3 | 74.3 | 379.4 |
| 339941 | Pen \& mechanical pencil mfg . . . . . . . . . . . . . . . . . | 106 | 916161 | 64.0 | 77.6 | 89.4 | 97.9 | 1297.2 |
| 339942 | Lead pencil \& art good mfg. | 171 | 810183 | 59.1 | 71.0 | 84.5 | 94.9 | 1352.6 |
| 339943 | Marking device mfg | 617 | 423895 | 22.3 | 34.3 | 50.6 | 66.6 | 197.8 |
| 339944 | Carbon paper \& inked ribbon mfg | 106 | 440189 | 41.3 | 61.2 | 83.9 | 95.2 | 615.2 |
| 33995 | Sign mfg. | 5580 | 4637205 | 8.8 | 12.6 | 19.9 | 30.5 | 36.6 |
| 339950 | Sign mfg. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 5580 | 4637205 | 8.8 | 12.6 | 19.9 | 30.5 | 36.6 |
| 33999 | All other miscellaneous mfg . . . . . . . . . . . . . . . . . | 4475 | 10938033 | 11.3 | 17.9 | 29.2 | 43.6 | 66.6 |
| 339991 | Gasket, packing, \& sealing device mfg.......... | 561 | 3132922 | 25.0 | 37.7 | 56.1 | 74.1 | 248.8 |
| 339992 | Musical instrument mfg . . . . . . . . . . . . . . . . . . . . | 552 | 836529 | 32.3 | 46.4 | 67.0 | 82.3 | 462.1 |
| 339993 | Fastener, button, needle, \& pin mfg | 240 | 503706 | 49.1 | 59.0 | 73.7 | 90.6 | 1049.3 |
| 339994 | Broom, brush, \& mop mfg. . | 306 | 1157593 | 25.9 | 39.5 | 63.1 | 81.2 | 296.3 |
| 339995 | Burial casket mfg . | 161 | 857988 | 80.1 | 84.2 | 91.0 | 96.0 | D |
| 339999 | All other miscellaneous mfg . . . . . . . . . . . . . . . . | 2660 | 4449295 | 14.2 | 22.5 | 35.8 | 48.9 | 93.8 |

${ }^{1}$ For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
Value added concentration ratios are presented as an alternative to the traditional value of shipments concentration ratios because value of shipments typically include an immeasurable amount of duplication. However, eliminating duplication can both raise and lower the concentration ratios. Also, use of value added results in more differences than those associated with eliminating duplication and frequently results in the inclusion of different companies in the company groups.
${ }^{3}$ The Herfindahl-Herschmann index is calculated by summing the squares of the individual company percentages for the 50 largest companies or the universe, whichever is lower.

## Appendix A. <br> Explanation of Terms

## 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.

## 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 12 th 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 12 th of March, May, August, and November.

## Production Workers

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

## All Other Employees

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

## 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).

## 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.

## TOTAL CAPITAL EXPENDITURES (NEW AND USED)

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

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

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

## VALUE ADDED

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

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.
"Value added" avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

## VALUE OF SHIPMENTS

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

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

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

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

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

1. Primary products value of shipments.
2. Secondary product value of shipments.

## 3. Total miscellaneous receipts.

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

## DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENT

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

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

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

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

## Appendix B. NAICS Codes, Titles, and Descriptions

Not applicable for this report.

## Appendix C. <br> Coverage and Methodology

## MAIL/NONMAIL UNIVERSE

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

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

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

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these
establishments but were included in the product and material "not specified by kind" (nsk) categories.

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

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

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

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

The establishments covered in the mail canvass were divided into three groups:
a. ASM sample establishments.

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

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

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

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

A wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.
b. Large and medium establishments (non-ASM).

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

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

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

## INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

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

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

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

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

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

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

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

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

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

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

## ESTABLISHMENT BASIS OF REPORTING

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

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

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

## DESCRIPTION OF THE ASM SURVEY SAMPLE

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

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

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

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

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

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

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00 . The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class $(1,755)$ and four-digit industry $(459)$, a desired reliability
constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

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

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

## DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

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

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference
estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

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

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

## QUALIFICATIONS OF THE ASM DATA

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

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

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

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

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

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

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

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

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

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

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

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

## DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

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

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


[^0]:    See footnotes at end of table.

[^1]:    See footnotes at end of table.

[^2]:    See footnotes at end of table.

[^3]:    See footnotes at end of table.

[^4]:    See footnotes at end of table.

