Characteristics of Foreign-Owned U.S. Manufacturing Establishments

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THIS ARTICLE examines the characteristics of **I** foreign-owned U.S. manufacturing establishments on the basis of newly released data from a joint project of the Bureau of Economic Analysis (BEA) and the Bureau of the Census. The data greatly expand the establishment-level information available on the manufacturing operations of U.S. affiliates of foreign companies.¹ Because the establishment data provide more detailed and more precise information on the industrial composition of affiliates' operations than BEA's enterprise data (see the box on page 35), they can significantly enhance and extend the analysis of key questions about foreign direct investment in the United States (FDIUS), such as whether foreign-owned plants account for significant shares of total U.S. production in specific manufacturing industries and whether the wage rates and productivity of foreign-owned U.S. plants differ from those of U.S.-owned plants.

The new data on foreign-owned manufacturing establishments indicate the following:

- The average plant size, or scale, of foreignowned establishments is much larger than that of U.S.-owned establishments, mostly reflecting the tendency for foreign-owned establishments to be larger than U.S.-owned establishments within specific industries. Less important is the tendency of foreignowned establishments to be concentrated in industries with larger-than-average plant size.
- The capital intensity of foreign-owned establishments is higher than that of U.S.-

owned establishments, almost entirely reflecting foreign-owned establishments' relatively greater concentration in the industries that are the most capital intensive; the overall effect of within-industry differences is negligible. In many industries, the capital intensity of foreign-owned establishments differs from that of U.S.-owned establishments, but there is no systematic tendency for this difference to be in one direction or the other.

- The hourly wages paid to production workers are higher for foreign-owned establishments than for U.S.-owned establishments. Foreign-owned establishments tend to be in higher wage industries, and their production is more concentrated in large plants, which generally have higher wage rates than small plants. Foreign ownership per se does not appear to influence wage rates.
- The labor productivity of foreign-owned establishments is higher than that of U.S.owned establishments, largely reflecting the tendency for foreign-owned establishments to be concentrated in industries in which

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^{1.} A U.S. affiliate is a U.S. business enterprise that is owned 10 percent or more, directly or indirectly, by a foreign person. "Person" is broadly defined to include any individual, corporation, branch, partnership, associated group, association, estate, trust, or other organization and any government (including any corporation, institution, or other entity or instrumentality of a government). The data are not adjusted for percentage of foreign ownership. Thus, for example, the employment data shown here include all employees at the manufacturing establishments of each U.S. affiliate, even though the foreign investor may own as little as 10 percent of the affiliate. However, most affiliates are majority owned; based on BEA data, U.S affiliates that are majority owned (that is, affiliates that are owned more than 50 percent by direct investors) accounted for 85 percent of all manufacturing employment by U.S. affiliates.

productivity is high. There are also withinindustry differences in productivity, but they appear to be attributable largely to factors that have frequently been found to influence productivity—namely, plant size, capital intensity, and employee skill level—rather than to foreign ownership per se.

The new data on foreign-owned manufacturing establishments, which cover 1989 and 1990, were released last fall as part of an ongoing effort to augment and improve U.S. Government data on fdius. The data were obtained by linking bea enterprise, or company, data on fdius with more detailed Census Bureau establishment, or plant, data for all U.S. companies.² For the linked establishments (hereafter referred to as "foreignowned establishments"), data from the Census Bureau's annual survey of manufactures (ASM) were then extracted.

The new data on foreign-owned manufacturing establishments cover most of the ASM items, including value added, shipments, employment, total employee compensation, employee benefits, hourly wage rates of production workers, cost of materials and energy used, inventories by stage of fabrication, and expenditures for new plant and equipment. Data are also included on the number of foreign-owned establishments. Totals for 1989 and 1990 for each of these items are shown in table 1. The data are also available by highly detailed industry, by State, and by country of investor. Summary data for 1990 appear in tables 2-13; data by detailed industry for 1990 covering selected items for foreign-owned and all U.S. establishments are shown in table 14, at the end of the article. (The box on page 51 provides information on the availability of the data in full detail for 1989 and 1990.)

The new ASM data update and extend the link project's initial results, published in 1992, which were for 1987—a benchmark, or census, year for both BEA and the Census Bureau. The 1987 data covered both manufacturing and nonmanufacturing establishments, but presented fewer measures of their operations than are available from the new ASM-based series. ³ Later this year,

Establishment and Enterprise Data for U.S. Affiliates Compared

The establishment data presented in this article complement BEA's enterprise data for U.S. affiliates. BEA's enterprise data are needed for analyzing the overall significance of, and trends in, direct investment and for compiling the U.S. international transactions accounts, the international investment position of the United States, and the U.S. national income and product accounts. The data on positions and transactions between U.S. affiliates and their foreign parents used in compiling the national and international accounts exist only at the enterprise level. Analyses of some topics, such as profits and taxes, are meaningful only at that level. Furthermore, balance sheets and income statements containing the critical, nonduplicative financial and operating data needed for examining these topics exist only at the enterprise level.

The establishment data facilitate analysis of the activities and importance of foreign-owned U.S. companies in specific industries because they provide more detailed and more precise information on the industrial composition of U.S. affiliates' operations than BEA's enterprise data. Whereas BEA's enterprise data classify each company, however diversified, in a single industry, the establishment data permit each plant or location of a company to be classified separately. Furthermore, the

level of industry classification can be much more detailed for individual establishments than is appropriate for consolidated enterprises, whose operations may span many narrowly defined industries. As a result, foreign-owned establishments can be classified into 459 manufacturing industries, whereas BEA's foreign-owned enterprises can be classified into only 55 manufacturing industries.

The establishment data also provide more detailed State-by-industry data than are available from the enterprise data, and the ASM data introduced in this article include the first available State-level measures of manufacturing production (value added) by foreign-owned firms.

Finally, the establishment-level data for foreign-owned and U.S.-owned companies presented in this article are closely comparable because they are from the same source. In contrast, the enterprise-level data for foreign-owned U.S. companies collected by BEA are frequently not comparable, except at highly aggregated levels, with data for all U.S. companies collected by other Government agencies. Because the other agencies' data are collected for different purposes, they often differ significantly in concept, definitions, consolidation, and industry classification from BEA's data for foreign-owned companies.

^{2.} A parallel project has linked Bea's fdius data to Bureau of Labor Statistics (Bls) data on all U.S. businesses. The initial results of that link, released in 1992 by Bls, provided data for 1989 and 1990 on the number, employment, and payroll of foreign-owned establishments for both manufacturing and nonmanufacturing industries. In October 1993, Bls released information on the occupational structure of foreign-owned manufacturing establishments in 1989. Data from the two link projects differ, particularly at the most detailed industry levels, because of differences in coverage, classification, timing, and definitions. Both projects were authorized by Congress under the Foreign Direct Investment and International Financial Data Improvements Act of 1990.

^{3.} For summary data for 1987, see "Foreign Direct Investment in the United States: Establishment Data for 1987," SURVEY OF CURRENT BUSINESS

BEA and the Census Bureau will publish ASM data for foreign-owned manufacturing establishments for 1991 and for 1988.

This article analyzes the operations of foreignowned manufacturing establishments on the basis of the 1990 ASM data. Although the data are for the year 1990, most of the findings probably also apply to more recent years, because both the overall level and the industry and country composition of foreign direct investment in U.S. manufacturing have changed little since then.⁴

Table 1.—Data for Foreign-Owned Manufacturing Establishments, 1989 and 1990

[Millions of dollars, except as noted]

	1989	1990
Number of establishments	10,458	11,934
Value added by manufacture	161,929.2	177,360.7
Value of shipments	371,911.9	417,539.4
Employment and employee compensation: Total employment (number of employees)	1,815,311 1,082,983 732,328	2,004,235 1,188,140 816,095
Production worker hours (millions of hours)	2,203.2	2,411.7
Employee compensation, total Payroll Production worker wages Other workers Benefits Legally required Other	67,769.1 55,562.5 26,616.4 28,946.1 12,206.6 4,751.2 7,455.4	78,128.8 63,495.9 30,304.8 33,191.1 14,632.9 5,591.4 9,041.5
Production worker wages per hour (dollars)	12.08	12.57
Expenditures for new plant and equipment: Total Buildings and other structures Machinery and equipment	16,070.6 2,799.6 13,271.0	19,748.4 3,246.5 16,502.0
Materials: Cost of materials, total Of which: Purchased fuels and electric energy Fuels Electric energy	211,706.8 8,993.6 3,697.4 5,296.1	241,548.4 10,106.3 4,238.1 5,868.2
Quantity of electric energy used (billion kWh)	121,950.3	135,204.9
Inventories: End of year, total Finished products Work-in-process Materials, supplies, fuels, etc.	49,926.9 20,151.9 12,954.2 16,820.9	55,487.3 23,167.3 13,650.3 18,669.7
Beginning of year, total Finished products Work-in-process Materials, supplies, fuels, etc.	47,212.3 18,701.2 12,424.6 16,077.4	53,768.3 21,736.4 13,635.7 18,396.2

kWh Kilowatthours

The remainder of this article consists of two sections and a technical note. The first section provides an overview of the operations of foreign-owned manufacturing establishments by industry, country, and State. The second compares the following key aspects of the operations of foreign-owned establishments with those of U.S.-owned establishments: Plant size, capital intensity, employee compensation, hourly wage rates of production workers, and labor productivity. The technical note describes the statistical decomposition method used in the article to separate industry-mix effects from within-industry differences and discusses how the estimation of data for foreign-owned establishments and the inclusion of residual industries, which cover establishments not elsewhere classified, affect the findings of the article.

Overview of Operations

In 1990, there were 11,900 foreign-owned manufacturing establishments in the United States. They employed 2 million workers and had shipments of \$418 billion. Their value added, an approximate measure of production, was \$177 billion, 13 percent of the value added by all U.S. manufacturing establishments (table 2).5

More than one-half of the value added by foreign-owned manufacturing establishments in 1990 was accounted for by four Standard Industrial Classification (sic) two-digit industries: Chemicals and allied products (\$49 billion), food and kindred products (\$20 billion), electronic and other electric equipment (\$17 billion), and industrial machinery and equipment (\$14 billion). Production in the chemicals industry alone accounted for more than one-fourth of the value added by foreign-owned manufacturing establishments.

Among sic two-digit industries, the share of total U.S. production accounted for by foreign-owned establishments was largest in chemicals (32 percent), followed by stone, clay, and glass products (25 percent) and primary metals (19 percent). The share was less than 5 percent in four industries: Apparel and other textile products, lumber and wood products, furniture and fixtures, and transportation equipment.

^{72 (}October 1992): 44–78. For a slightly expanded version of that article, see Office of the Chief Economist, Economics and Statistics Administration, U.S. Department of Commerce, Foreign Direct Investment in the United States: An Update (Washington, DC: U.S. Government Printing Office, June 1993). The detailed 1987 data are available in a separate volume (see inside back cover for order information).

^{4.} Although foreign direct investment in manufacturing grew rapidly between 1987 and 1990, data from Bea's enterprise surveys indicate that there was little growth in the industry in 1991 and 1992. According to Bea's annual survey of Fddus, total manufacturing employment of U.S. affiliates in 1991 was almost the same as that in 1990, and changes in the composition of employment among subindustries of manufacturing and among investing countries were small. Moreover, data from Bea's latest survey of U.S. businesses acquired or established by foreign direct investors indicate that in 1992, new investment in manufacturing was at the lowest level in 8 years and was less than one-half that in 1991. In the May 1993 Survey, see "U.S. Affiliates

of Foreign Companies: Operations in 1991" and "U.S. Business Enterprises Acquired or Established by Foreign Direct Investors in 1992."

^{5.} Value added measured by the Census Bureau's ASM differs from BEA'S national income and product accounts measure of gross product because it includes purchased services but excludes indirect taxes and because it reflects inventory change valued at book value rather than at replacement cost.

Within a given two-digit industry, the shares for the component subindustries may vary considerably. In transportation equipment, for example, where foreign-owned establishments' share of value added was just under 5 percent, shares for sic three-digit subindustries ranged from less than 1 percent for "guided missiles, space vehicles, and parts" to 12 percent for railroad equipment. The share for motor vehicles and equipment was 8 percent.

At the SIC four-digit level, foreign-owned establishments had operations in 429 of the 459 manufacturing industries. They accounted for less than 5 percent of total industry production in 149 industries and for more than 30 percent in 45 industries (table 3). Of the latter group, 13 industries were in chemicals, 6 in stone, clay, and glass products, and 6 in electronic and other electric equipment.

In nine industries, foreign-owned establishments accounted for more than one-half of total U.S. production. Their shares were highest in three chemicals industries: Inorganic pigments (71 percent), biological products except diagnostic (69 percent), and noncellulosic organic fibers (67 percent) (table 14). Among the industries outside chemicals, the share was highest in hydraulic cement (62 percent).

By country

In 1990, more than 80 percent of the employment, shipments, and value added by all foreign-

owned manufacturing establishments were accounted for by establishments with ultimate beneficial owners (UBO'S) in seven countries: Canada, France, Germany, Japan, the Netherlands, Switzerland, and the United Kingdom (table 4).⁶ The establishments of these seven countries accounted for 86 percent of the value added by all foreign-owned manufacturing establishments and for 11 percent of the value added by all U.S. manufacturing establishments.

Table 3.—Distribution of Manufacturing Industries According to Foreign-Owned Establishments' Share of Value Added, 1990

Percentage of an industry's value added accounted for by foreign-owned establishments	Number of industries		
0 1	30		
Less than 5.0 ²	119		
5.0-9.9	89		
10.0–14.9	73		
15.0–19.9	43		
20.0–24.9	33		
25.0–29.9	27		
30.0–34.9	10		
35.0–39.9	13		
40.0–44.9	6		
45.0–49.9	7		
50.0 or more	9		

^{1.} Industries with no foreign-owned establishments.

Table 2.—Selected Data for Foreign-Owned Manufacturing Establishments, by Industry, 1990

			Foreign-owne	Foreign-owned establishments as a percentage of all U.S. establish-					
SIC code	Industry	Number	Number of	Millions o	of dollars	ments			
code	,	of estab- lishments	employees	Value added Shipments		Employ- ment	Value added	Ship- ments	
	Manufacturing	11,934	2,004,235	177,360.7	417,539.4	10.6	13.4	14.5	
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36	Food and kindred products Tobacco products Textile mill products Apparel and other textile products Lumber and wood products Furniture and fixtures Paper and allied products Printing and publishing Chemicals and allied products Petroleum and coal products Rubber and miscellaneous plastics products Leather and leather products Stone, clay, and glass products Primary metal industries Fabricated metal products Industrial machinery and equipment Electronic and other electric equipment Transportation equipment	983 5 183 116 116 184 83 328 834 1,520 319 29 1,421 402 402 593 945 760 274	159,386 H 47,363 23,085 17,043 J 48,644 103,983 242,392 25,638 120,951 6,362 105,578 119,087 93,300 191,440 228,237 104,147	19,501.2 (P)) 2,283.1 850.2 842.5 (P)) 4,709.2 10,408.8 48,835.7 4,106.8 8,757.9 287.3 8,450.2 10,297.6 6,350.2 13,561.7 16,703.2 7,170.6	46,842.8 (P) 5,693.6 1,727.5 2,304.0 (P) 11,395.2 16,499.9 87,678.9 46,372.6 17,790.6 608.1 16,407.5 31,902.9 13,973.6 31,010.6 34,601.8 28,834.9	10.8 (P) 7.5 2.3 2.5 (P) 7.7 6.8 28.4 22.9 13.9 5.4 20.7 16.7 16.7 16.5 10.2 15.2	13.8 (P) 8.6 2.6 2.9 (P) 7.9 10.1 31.9 15.1 17.6 6.3 24.8 19.3 7.9 10.3 15.6	12.2 (P) 8.6 2.7 3.1 (P) 8.7 10.5 30.4 26.9 17.5 6.2 25.9 21.8 8.6 12.1 17.8 7.8	
38 39	Instruments and related products	467 128	121,520 26,087	9,722.1 1,929.3	15,840.7 3,553.2	12.8 6.8	11.9 9.6	12.8 9.6	
	Administrative and auxiliary	1,702	200,064	n.a.	n.a.	15.9	n.a.	n.a.	

D Suppressed to avoid disclosure of data of individual companies.

^{6.} The ubo is that person, proceeding up a U.S. affiliate's ownership chain, beginning with and including the foreign parent, that is not owned more than 50 percent by another person. The foreign parent is the first foreign person in the affiliate's ownership chain. Unlike the foreign parent, the ubo of an affiliate may be located in the United States. The ubo of each U.S. affiliate is identified to ascertain the person that ultimately owns or controls and that, therefore, ultimately derives the benefits from owning or controlling the U.S. affiliate.

Includes three industries for which value added by foreign-owned establishments was negative in 1990.

Note.—The distribution is across the 459 industries defined at the four-digit level of the Standard Industrial Classification.

n.a. Not available

NOTE.—Size ranges are given in employment cells that are suppressed. The size ranges are:

A—0 to 19; B—20 to 99; C—100 to 249; E—250 to 499; F—500 to 999; G—1,000 to 2,499; H—2,500 to 4,999; I—5,000 to 9,999; J—10,000 to 24,999; K—25,000 to 49,999; L—50,000 to 99,999; M—100,000 or more.

SIC Standard Industrial Classification

Among establishments of individual investing countries, British-owned establishments accounted for the largest share of production by foreign-owned manufacturing establishments (23 percent), followed by Canadian-owned establishments (15 percent) and Japanese-owned establishments (13 percent). The share of total U.S. manufacturing production accounted for by British-owned establishments was 3 percent.

British-owned establishments also accounted for the largest share of production by foreignowned establishments in 10 of the 20 SIC twodigit manufacturing industries. Among these 10 industries, their share of total U.S. manufacturing production was largest in tobacco products, petroleum and coal products, food and kindred products, and instruments and related products (table 5).

Japanese-owned establishments accounted for the largest share of production by foreign-owned establishments in four industries: Primary metals, industrial machinery and equipment, electronic and other electric equipment, and transportation equipment. Their share of total U.S.

Table 4.—Selected Data for Foreign-Owned Manufacturing Establishments, by Country of UBO, 1990

Table 4.—Selected Data for For				of dollars		of all-countri		rcent)
•	Number of	Number of	IVIIIIIVI	JI UUIIAIS			62 Iorai (heir	
Country	establish- ments	employees	Value added	Value of shipments	Number of estab- lishments	Number of em- ployees	Value added	Value of ship- ments
All countries	11,934	2,004,235	177,360.7	417,539.4	100.0	100.0	100.0	100.0
Canada	1,538	269,362	26,869.2	58,983.3	12.9	13.4	15.1	14.1
Europe	8,007	1,297,424	115,466.1	251,039.0	67.1	64.7	65.1	60.1
Austria Belgium Denmark Finland France	27 95 39 123 1,217	5,035 14,633 7,159 18,112 178,324	417.1 1,626.7 377.4 1,194.5 15,390.3	816.2 4,975.5 916.6 2,891.2 36,168.0	.2 .8 .3 1.0 10.2	.3 .7 .4 .9 8.9	.2 .9 .2 .7 8.7	.2 1.2 .2 .7 8.7
Germany Ireland Italy Liechtenstein Luxembourg Netherlands	1,045 243 141 9 25 618	229,007 26,534 17,307 917 5,003 123,424	20,442.5 2,090.1 1,260.1 50.9 307.2 11,648.1	40,568.9 5,227.6 3,755.4 120.7 664.3 34,800.9	8.8 2.0 1.2 .1 .2 5.2	11.4 1.3 .9 (*) .2 6.2	11.5 1.2 .7 (*) .2 6.6	9.7 1.3 .9 (*) .2 8.3
Norway Spain Sweden Switzerland United Kingdom Other	53 20 347 697 3,291 17	5,771 399 73,818 133,934 456,618 1,429	463.9 26.5 4,969.9 14,829.4 40,325.9 45.5	933.8 65.7 10,760.5 27,440.4 80,610.2 323.0	.4 .2 2.9 5.8 27.6	.3 (*) 3.7 6.7 22.8 .1	.3 (*) 2.8 8.4 22.7 (*)	.2 (*) 2.6 6.6 19.3 .1
Latin America and Other Western Hemisphere	238	56,017	4,624.6	14,068.4	2.0	2.8	2.6	3.4
South and Central America Brazil Mexico Panama Venezuela Other	143 9 64 35 31 4	38,737 358 J J 6,684 174	3,614.5 22.9 (^D) (^D) 1,123.1 15.5	11,999.7 77.3 (P) (P) 7,532.0 27.4	1.2 .1 .5 .3 .3	1.9 (*) .5–1.2 .5–1.2 .3 (*)	2.0 (*) (D) (D) (D) .6 (*)	2.9 (*) (D) (D) 1.8 (*)
Other Western Hemisphere	95	17,280	1,010.1	2,068.7	.8	.9	.6	.5
Africa	46	6,869	475.1	1,374.4	.4	.3	.3	.3
Middle East	67	1	(D)	(D)	.6	.2–.5	(D)	(D)
Asia and Pacific Australia Hong Kong Japan Korea, Republic of Malaysia New Zealand Philippines Singapore Taiwan Other	2,005 497 3 1,356 20 1 51 13 8 37 19	362,948 36,448 C 291,415 3,988 C 17,489 H 1,184 5,840 G	29,384.5 3,785.0 (P) 22,814.6 253.8 (P) 1,352.6 (P) 106.1 501.1 (P)	83,833.6 10,446.8 (P) 65,760.0 1,145.0 (P) 3,549.5 (P) 283.2 1,327.6 (P)	16.8 4.2 (*) 11.4 .2 (*) 4 .1 .1 .3 .2	18.1 1.8 (*) 14.5 .2 (*) .9 .1–.2 .1 .3 0–.1	16.6 2.1 (P) 12.9 .1 (P) .8 (P) .1 .3 (P)	20.1 2.5 (P) 15.7 .3 (P) .9 (P) .1 .3 (P)
United States	33	Н	(D)	(D)	.3	.2	(D)	(D)
Addenda: European Communities (12) ¹ OPEC ²	6,735 77	L J	(D) (D)	(D) (D)	56.4 .6	2.5–5.0 .5–1.2	(D) (D)	(D) (D)

^D Suppressed to avoid disclosure of data of individual companies.

D Suppressed to avoid disclosure of data of individual companies.
* Less than 0.05 percent.
1. The European Communities (12) comprises Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, and the United Kingdom.
2. OPEC is the Organization of Petroleum Exporting Countries. Through 1992, its members were Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.
NOTES.—The columns for number of establishments and for number of employees cover both

operating establishments and administrative and auxiliary establishments; the other columns cover

operating establishments and administrative and administrative stabilishments, the other columns cover operating establishments only.

Size ranges are given in employment cells that are suppressed. The size ranges are: A—0 to 19; B—20 to 99; C—100 to 249; E—250 to 499; F—500 to 999; G—1,000 to 2,499; H—25,000 to 9,999; D—10,000 to 24,999; K—25,000 to 49,999; L—50,000 to 99,999; M—100,000 or more.

UBO Ultimate beneficial owne

manufacturing production was largest in primary metals and in electronic and other electric equipment.

Table 6 presents, for each of the seven major investing countries, ratios of the country's share of U.S. value added in each sic two-digit industry to the country's share of value added in manufacturing as a whole. These ratios can be interpreted as indexes of relative intensity of investment by a country, taking into account both the size of the industry and the overall level of manufacturing production by the country's U.S. establishments.

Because these ratios allow for variations in both industry size and production levels, the ratios, unlike simple distributions of value added, can be compared across countries as well as among industries. A value greater than 1.0 indicates that production by the investing country's establishments was more intense in the given industry than in manufacturing as a whole. For example, Japanese-owned establishments accounted for 1.7 percent of total U.S. manufacturing production but for 3.5 percent of U.S. production in rubber products; thus, the value of the index for

Table 5.—Value Added in Manufacturing Industries by All U.S. Establishments and by Foreign-Owned Establishments of Major Investing Countries, 1990

Investing Countries, 1990														
SIC		All U.S.			Foreign-	owned esta	blishments I	by country o	of UBO			U.Sowned		
code	Industry	establishments	All countries	Canada	France	Germany	Nether- lands	Switzer- land	United Kingdom	Japan	Other countries	establish- ments		
		Millions of dollars												
	Manufacturing	1,326,361.7	177,360.7	26,869.2	15,390.3	20,442.5	11,648.1	14,829.4	40,325.9	22,814.6	25,040.8	1,149,001.0		
20 21 22 23 24 25 26 27 28 30 31 32 33 34 35 36 37 38	Food and kindred products Tobacco products Textile mill products Apparel and other textile products Lumber and wood products Furniture and fixtures Paper and allied products Printing and publishing Chemicals and allied products Petroleum and coal products Rubber and miscellaneous plastics products Leather and leather products Stone, clay, and glass products Primary metal industries Fabricated metal products Industrial machinery and equipment Electronic and other electric equipment Transportation equipment Instruments and related products Miscellaneous manufacturing industries	140,972.8 22,561.3 26,541.6 33,034.0 28,597.2 21,644.7 59,823.3 103,179.0 153,032.4 27,214.1 49,889.0 4,586.6 79,951.9 132,165.8 106,983.9 146,916.3 81,665.6 20,095.6	19,501.2 (P) 2,283.1 850.2 842.5 (P) 4,709.2 10,408.8 48,835.7 4,106.8 8,757.9 287.3 8,450.2 10,297.6 6,350.2 7,170.6 9,722.1 1,929.3	2,108.1 0 507.6 (D) (D) 749.8 3,143.4 (P) 1,032.1 996.1 (P) 154.5 1,522.7 877.0 501.8 2,399.1 801.0 1,355.6 64.6	1,175.4 0 195.2 (P) 18.0 (P) 129.7 465.6 2,944.8 (P) 2,153.6 (P) 2,256.9 1,342.3 (P) 799.3 901.9 723.5 390.6 279.6	445.6 (P) 264.9 129.4 62.0 (P) 119.1 1.248.1 9,316.9 (P) 610.6 655.5 685.9 1,739.4 2,273.6 330.2 1,271.3 (P)	2,949.6 0 0.7.7 (P) (P) (P) 5,034.2 (P) 174.1 62.9 (P) 26.9 (P)	3,913.7 0 48.1 0 (P) (P) 68.7 (P) 117.8 (P) 117.8 (P) 515.2 231.0 689.8 714.8 (P) 1,068.3 (P)	5,821.8 (P) 693.1 186.8 281.2 (P) 2,856.1 8,760.1 1,952.4 1,731.5 (P) 1,747.3 956.9 1,917.2 2,612.0 2,549.6 1,131.1 3,314.1 3,314.9 612.4	786.0 0 246.9 (P) 76.1 (P) 477.4 386.4 2,438.7 (P) 1,722.4 0 774.7 3,874.2 426.4 2,947.5 4,333.1 3,183.2 780.1 235.1	2,301.0 0 289.8 (P) (P) (P) 1,670.8 (P) 446.1 (P) (2,216.8 1,505.0 962.3 4,084.0 (P) (P) (P) (P) (P) (P) (P) (P)	121,471.6 (P) 24,258.5 32,183.8 27,754.7 (P) 55,114.1 92,770.2 104,196.7 23,107.3 41,131.1 4,299.3 25,690.0 43,069.0 73,601.7 71,943.5 18,166.3		
					P	ercent of all	U.S. establ	ishments						
	Manufacturing	100.0	13.4	2.0	1.2	1.5	0.9	1.1	3.0	1.7	1.9	86.6		
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39	Food and kindred products Tobacco products Textile mill products Apparel and other textile products Lumber and wood products Furniture and fixtures Paper and allied products Printing and publishing Chemicals and allied products Petroleum and coal products Rubber and miscellaneous plastics products Leather and leather products Stone, clay, and glass products Primary metal industries Fabricated metal products Industrial machinery and equipment Electronic and other electric equipment Transportation equipment Instruments and related products Miscellaneous manufacturing industries Addendum:	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0	13.8 (P) 8.6 2.9 (P) 7.9 10.1 31.9 15.1 17.6 6.3 7.9 10.3 15.6 4.9 11.9 9.6	1.5 0 1.9 (D) (D) (D) 1.3 3.0 (P) 5.5 2.9 1.1 4.2.2 5.5 1.7	.8 0 .7 (P) .1 (P) .2 .5 .5 .1.9 (P) .6 6 .2.5 (P) .6 6 .8 .5 .5 .1.4	.3 (P) 1.00 .4 .2 (P) .2 .1.2 6.1 (P) 2.3 0 1.8 1.2 .9 1.2 1.6 (P)	2.1 0 1. (P) (P) (P) 3.3 (P) (P) 5.5 1. (P) (P) (P) (P) (P) (P) (P) (P) (P) (P)	2.8 0 .2 0 .2 0 .2 0 .5 .7 .7 .3 5 .7 .7 (P) .1.3 (P)	4.1 (P) 6.6 1.0 (P) 1.5 2.8 5.7 7.2 3.5 (P) 5.1 1.8 2.4 2.0 2.4 8.3	.6 0 .9 (P) .3 (P) .8 .4 1.6 (P) .3.5 0 .2.3 7.33 .5 2.2 .2.4.1 2.2 1.0.0 1.2	1.6 0 1.1 (D) (D) (D) 1.6 (D) (D) 9 (D) 6.5 2.8 1.2 3.1.1 (D)	86.2 (P) 91.4 97.4 97.1 (P) 92.1 88.9 68.1 84.9 82.4 93.7 75.2 80.7 92.1 88.1 90.4		
	Total number of industries in which the UBO country's establishments have the highest share of value added amoung investing countries			2	3	0	0	0	10	4	1			

Less than 0.05 percent

^D Suppressed to avoid disclosure of data of individual companies.

UBO Ultimate beneficial owner SIC Standard Industrial Classification

Japanese-owned establishments in rubber products was 2.0, indicating a relatively high intensity of investment in the industry.

In the table, France stands out because of the relatively high intensity of its investment in stone, clay, and glass products: In 1990, French-owned establishments' share of U.S. production in this industry was nearly six times as large as their share in total manufacturing. France also shows relatively intense investment in the rubber products industry, where French-owned establishments' share of production was nearly four times as large as their share in total manufacturing.

Japan shows relatively intense investment in the primary metals industry; Japanese-owned establishments' share of production in this industry was more than four times as large as that in total manufacturing. In contrast, their share of production in transportation equipment was only slightly higher than their share in total manufacturing.

Germany shows relatively intense investment in chemicals, as do Switzerland and the Netherlands. The establishments of each of these three countries had shares of production in chemicals that were nearly four times as large as their shares in total manufacturing.

By State

The States with the largest production by foreignowned manufacturing establishments were California, Texas, New Jersey, North Carolina, Ohio, and New York (table 7). These six States accounted for 41 percent of the total production by foreign-owned manufacturing establishments in the United States. By two-digit industry, California accounted for a particularly large share of the production in electronic and other electric equipment (23 percent), and New York accounted for a very large share in printing and publishing (26 percent) (table 8). Texas, New Jersey, and North Carolina together accounted for nearly 40 percent of the production by foreign-owned establishments in chemicals, and Ohio accounted for nearly 20 percent in transportation equipment.

Among two-digit industries, chemicals accounted for the largest share of production by foreign-owned manufacturing establishments in 20 States, and food products accounted for the largest share in 11 States. The chemicals industry accounted for more than one-half of foreign-owned production in five States: Delaware, West Virginia, New Jersey, Texas, and Virginia.

The States in which foreign-owned establishments accounted for the largest share of manufacturing production were Delaware (37 percent), West Virginia (36 percent), New Jersey (24 percent), Georgia (19 percent), South Carolina (19 percent), and North Carolina (19 percent). In several of these States, foreign-owned establishments accounted for very large shares of chemicals production—74 percent in Delaware, 56 percent in West Virginia, 47 percent in New Jersey, and 60 percent in North Carolina (table 9). In North Carolina, foreign-owned establishments also accounted for large shares of production

Table 6.—Index of Relative Intensity of Production in Manufacturing for All Foreign-Owned Establishments and for Establishments of Major Investing Countries, 1990

SIC code	Industry	All countries	Canada	France	Germa- ny	Nether- lands	Switzer- land	United Kingdom	Japan	Other countries
	Manufacturing	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37	Food and kindred products Tobacco products Textille mill products Apparel and other textile products Lumber and wood products Lumber and wood products Furniture and fixtures Paper and allied products Printing and publishing Chemicals and allied products Petroleum and coal products Rubber and miscellaneous plastics products Leather and leather products Stone, clay, and glass products Primary metal industries Fabricated metal products Industrial machinery and equipment Electronic and other electric equipment Transportation equipment Instruments and related products Miscellaneous manufacturing industries	1.034 (P) .643 .192 .220 (P) .589 .754 2.386 1.129 1.313 .468 1.851 1.443 .594 .767 1.168 .365 .890 .718	.738 0 .944 (P) .619 1.504 (P) .223 1.408 .541 1.187 .223 1.408 .541 1.187 1.107 .269 .819	.719 0 .634 (P) .054 (P) .187 .389 1.658 (P) .3.720 (D) .5.697 2.168 (P) .521 .727 .424 .412 1.199	.205 (P) .648 .254 .141 (P) .129 .785 3.950 (P) .1.463 0 .1.160 .797 .557 .854 1.379 .146 1.010 (P)	2.382 0.162 (P) (P) (P) 3.746 (P) 1.062 (P) 5.81 1.134 (P) .162 (P) .021 (P)	2.483 0 .162 0 (P) (P) 3.786 (P) .211 (P) 1.350 .634 .258 .467 .598 (P) 1.170 (P)	1.358 (P) .859 .186 .323 (P) .487 .910 1.883 2.360 1.142 (P) 1.683 .590 .789 .650 .784 .253 1.335	.324 0 .541 (P) .155 (P) .464 .218 .926 (P) .2.007 0 .310 1.297 2.355 1.260 .555 680	.865 0.578 (D) (D) (D) (D) (D) (D) (D) (D) (D) (D)

D Suppressed to avoid disclosure of data of individual companies.

NOTE.—The index is the share of total U.S. value added in the given manufacturing industry accounted for by establishments of the given UBO country divided by the share of total U.S. value added in total manufacturing accounted for by establishments of the UBO country. This

index is similar in form to the export index of revealed comparative advantage introduced in Bela Balassa, "Trade Liberalization and 'Revealed' Comparative Advantage," *Manchester School* 33 (May 1965): 99–123.

SIC Standard Industrial Classification

in both the electronics and the instruments industries (40 percent in each). In South Carolina, foreign-owned establishments accounted for more than 50 percent of the State's production in the rubber products industry.

Comparison of Foreign-Owned and U.S.-Owned Establishments

This section compares the operations of foreignowned manufacturing establishments with those of U.S.-owned ones in terms of plant size (or scale), capital intensity, compensation per employee, production-worker wage rates, and labor productivity.⁷ The section also examines whether differences between the hourly wage rates of production workers in foreign-owned and U.S.-owned establishments reflect differences in their

Table 7.—Selected Data for Foreign-Owned Manufacturing Establishments, by State, 1990

		Foreign-owne		ed establishm f all U.S. esta			
State	Number of	Number of em-	Millions of	f dollars	l		DIISTITIETIUS
	establish- ments	ployees	Value added	Shipments	Number of employees	Value added	Shipments
Total	11,934	2,004,235	177,360.7	417,539.4	10.6	13.4	14.5
Alabama	185	33,678	3,019.5	6,661.1	9.2	14.1	13.7
Alaska	24 115	3,092 10,998	182.8 747.2	658.6 2,002.9	22.7 6.1	13.1 6.3	17.9 8.8
Arizona Arkansas	106	17.881	1.225.5	3.262.6	8.2	9.8	10.7
California	1,361	205,024	18,533.9	42,051.9	9.7	12.4	14.3
Colorado	119	10,964	1,019.5	2,342.8	6.1	7.4	8.5
Connecticut	194	34,571	2,650.5	4,407.9	10.0	11.1	11.0
Delaware District of Columbia	69	30,386 215	1,658.0 17.4	4,339.9 37.4	46.2 1.5	36.7 1.1	33.6 1.7
Florida	504	44,688	3,091.7	7,342.6	9.0	10.4	12.1
Georgia	491	70,347	6,926.8	13,730.2	12.5	19.2	16.3
Hawaii	30	2,087	275.7	1,218.0	10.1	17.7	29.0
Idaho	25 649	3,414 110,468	269.4 8.684.1	509.8 25,260.4	5.6 11.0	6.9 12.3	5.6 16.1
IllinoisIndiana	317	86,378	7,683.9	16,766.2	14.0	17.1	17.0
lowa	106	22.359	1.863.0	3.631.8	9.7	9.6	7.9
Kansas	89	13,547	1,144.2	2,902.8	7.1	8.8	8.0
Kentucky	184	42,508	3,790.1	10,006.8	15.2	16.0	18.6
Louisiana Maine	127 59	17,136 7,384	4,179.7 554.9	18,892.9 1,406.8	10.0 7.2	18.5 9.4	28.7 11.3
Maryland	196	27,941	2,232.4	4.859.0	13.2	14.2	15.8
Massachusetts	313	57,078	4,900.7	8,828.3	10.8	14.0	13.8
Michigan	396	70,914	5,300.0	14,368.9	7.8	8.2	9.4
MinnesotaMississippi	174 110	31,983 13,706	1,813.5 1,109.5	4,009.6 2,582.0	8.1 5.9	7.0 8.7	7.3 8.5
Missouri	268	36.928	3.635.1	7.388.7	8.7	12.0	11.0
Montana	15	943	77.3	794.4	4.7	6.5	19.7
Nebraska	54	8,022	956.7	1,960.4	8.1	12.8	9.6
New Hampshire	27 91	1,501 11,915	123.6 690.1	244.7 1,375.0	5.9 12.9	8.4 12.4	8.4 14.1
New Jersey	590	98.905	11.023.0	19.989.2	15.8	24.4	22.8
New Mexico	34	2,640	183.6	369.7	6.6	8.2	6.7
New York	650	104,499	9,528.6	18,845.2	9.1	11.1	12.2
North Carolina North Dakota	483 7	110,447 F	10,682.9 (^D)	21,147.8 (^D)	13.3 (D)	18.5 (^D)	18.2 (^D)
Ohio	644	118,364	9,888.5	26.449.0	10.9	12.3	14.9
Oklahoma	103	15,842	1,339.5	4,256.8	9.5	11.3	15.2
Oregon	119	15,269	1,071.7	3,313.9	7.1	8.1	10.7
Pennsylvania Rhode Island	667 51	119,688 6,628	9,511.1 390.4	20,216.7 909.7	11.9 6.6	14.8 7.6	14.8 9.3
		,					
South CarolinaSouth Dakota	229 21	59,626 2.947	3,996.1 141.6	9,724.6 338.2	16.2 9.9	19.0 8.7	20.8 7.5
Tennessee	308	72,779	5,252.6	14.102.1	14.4	17.4	20.9
Texas	783	101,890	12,849.7	35,184.0	10.8	15.4	16.7
Utah	51	7,049	588.7	1,302.2	6.9	9.6	9.3
Vermont	26	3,657	224.7	490.1	8.3	7.0	8.8
Virginia Washington	242 197	47,873 22,979	4,555.3 1,867.1	8,465.5 5,454.6	11.3	14.0 7.5	13.9 8.1
WashingtonWest Virginia	61	22,979 18,047	2,291.7	5,454.6 4,489.5	22.0	7.5 36.1	34.7
Wisconsin	249	46,016	3,551.0	8,520.9	8.4	9.6	10.3
Wyoming	8	C	(D)	(D)	(D)	(D)	(D)

D Suppressed to avoid disclosure of data of individual companies.

Size ranges are given in employment cells that are suppressed. The size ranges are: A=0 to 19; B=20 to 99; C=100 to 249; E=250 to 499; F=500 to 999; G=1,000 to 2,499; H= 2,500 to 4,999; I=5,000 to 9,999; J=10,000 to 24,999; K=25,000 to 49,999; L=50,000 to 99,999; M=100,000 or more.

^{7.} The analysis in this section is based on data for operating establishments only. Data for administrative and auxiliary establishments are not available by detailed industry for either foreign-owned or all U.S. establishments.

NOTES.—The columns for number of establishments and for number of employees cover both operating establishments and administrative and auxiliary establishments; the other columns cover operating establishments only.

Table 8.—Value Added by Foreign-Owned Manufacturing Establishments, State by Selected Industry, 1990 [Millions of dollars]

	[Millions of dollars]														
								Selected i	ndustries						
State	Total	Food and kindred products	Textile mill products	Paper and allied products	Printing and publishing	Chemi- cals and allied products	Petroleum and coal products	Rubber and miscel- laneous plastics products	Stone, clay, and glass products	Primary metal industries	Fabricat- ed metal products	Industrial machinery and equip- ment	Electronic and other electric equip- ment	Transpor- tation equip- ment	Instru- ments and related products
SIC code		20	22	26	27	28	29	30	32	33	34	35	36	37	38
Total	177,360.7	19,501.2	2,283.1	4,709.2	10,408.8	48,835.7	4,106.8	8,757.9	8,450.2	10,297.6	6,350.2	13,561.7	16,703.2	7,170.6	9,722.1
Alabama Alaska Arizona Arkansas California	3,019.5 182.8 747.2 1,225.5 18,533.9	(D) (D) 43.2 170.1 2,471.0	103.1 0 0 0 (^D)	348.4 (^D) 0 36.1 344.6	18.6 0 (D) (D) 936.4	896.6 (^D) 20.6 81.8 3,430.1	(D) 0 0 (D) (D)	634.0 0 52.7 (^D) 376.5	183.4 0 159.0 48.7 1,008.0	(^D) 0 147.6 56.7 475.7	(D) (D) 68.1 149.7 608.6	96.1 0 107.2 214.8 1,880.0	248.3 0 (^D) 214.5 3,920.9	(D) 0 (D) 54.6 880.1	(D) 0 (D) (D) 1,936.5
Colorado	1,019.5 2,650.5 1,658.0 17.4 3,091.7	210.3 163.2 (^D) 0 645.4	0 32.3 0 0 0	(D) 15.8 0 0 (D)	140.5 141.4 0 (^D) 164.5	107.8 973.5 1,316.3 0 225.5	(D) 10.6 (D) 0 (D)	(D) 18.8 (D) (D) 72.0	85.1 80.2 (^D) (D) 400.2	(D) 207.4 (D) 0 84.3	(D) 122.7 (D) 0 78.8	100.6 206.6 (^D) 0 300.4	64.1 102.0 0 0 497.4	0 (D) 0 0 147.3	57.1 248.0 (^D) 0 128.7
Georgia Hawaii Idaho Illinois Indiana	6,926.8 275.7 269.4 8,684.1 7,683.9	550.3 (^D) 125.4 1,435.7 1,025.4	(D) 0 0 0 (D)	355.5 (D) 0 220.8 (D)	144.0 (D) (D) 801.2 330.3	1,026.2 (^D) 6.3 1,660.1 893.5	(D) (D) 0 149.7 3.6	145.6 (^D) 0 645.5 534.8	407.3 (D) (D) 327.5 (D)	208.1 (^D) 0 572.8 1,758.2	111.8 0 0 310.4 335.8	241.2 0 (P) 880.2 780.9	823.1 0 (P) 790.5 634.5	10.1 (D) 0 (D) 224.8	262.7 0 0 489.1 654.7
lowa Kansas Kentucky Louisiana Maine	1,863.0 1,144.2 3,790.1 4,179.7 554.9	360.3 195.6 527.9 261.2 95.8	0 0 (D) (D) 0	42.2 (D) (D) (D) (D) 265.6	125.9 172.6 95.3 (D)	209.7 128.3 739.1 1,855.7 (^D)	(D) (D) (D) (D) (D)	371.9 (D) (D) 10.7 43.7	76.0 124.6 168.8 38.3 (^D)	(D) (D) 814.6 0 (D)	(D) 13.3 146.0 (D) 12.2	254.0 87.9 189.1 (^D) 23.8	(D) (D) 85.4 (D) (D)	(D) (D) (D) (D) (D)	(D) (D) 0 0 0
Maryland Massachusetts Michigan Minnesota Mississippi	2,232.4 4,900.7 5,300.0 1,813.5 1,109.5	460.3 218.3 550.5 421.1 39.4	(^D) 111.9 0 (^D) 0	(D) 141.1 83.6 (D) (D)	220.0 501.6 255.7 179.1 (^D)	570.2 446.5 837.1 91.5 363.7	(D) (D) (D) (D) (D)	89.6 151.1 261.8 86.7 115.4	183.1 (^D) 231.1 70.7 95.7	(D) 201.0 690.9 (D) 35.0	44.8 276.5 368.9 (^D) 133.4	99.1 827.5 649.1 213.7 (^D)	195.4 530.2 292.1 266.1 (^D)	(D) 78.0 713.5 (D) (D)	117.8 504.8 206.9 101.2 42.7
Missouri Montana Nebraska Nevada New Hampshire	3,635.1 77.3 956.7 123.6 690.1	900.9 (^D) 363.8 43.3 35.7	(D) 0 0 0 (D)	102.5 0 0 (^D) 40.1	81.9 0 (^D) 0 46.7	1,108.7 (P) 401.1 (D) (D)	(D) (D) (D) (D) 0 (D)	63.3 (D) (D) (D) (D) 96.7	187.3 (^D) (^D) 32.6 27.9	307.2 (D) (D) 19.5 (D)	200.8 (D) (D) 0 (D)	161.3 0 (^D) 0 209.8	149.5 0 (^D) 0 64.5	(D) 0 (D) 0 0	129.6 0 (^D) (^D) 76.9
New Jersey New Mexico New York North Carolina North Dakota	11,023.0 183.6 9,528.6 10,682.9 (^D)	1,156.4 (^D) 1,069.9 290.1 (^D)	(^D) 0 52.9 489.5 0	177.1 0 182.0 141.4 0	419.8 (^D) 2,707.7 160.2 (^D)	6,726.3 (^D) 1,813.4 4,886.5 0	76.6 (D) (D) (D) 0	209.6 (^D) 495.7 562.4 0	232.3 18.4 293.1 295.7 0	255.2 0 373.8 160.9 0	178.3 0 332.1 235.7 0	340.5 (^D) 595.3 525.6 0	357.5 (^D) 798.2 1,894.0 0	33.8 0 136.2 191.3 (^D)	787.7 (^D) 441.2 528.2 0
Ohio Oklahoma Oregon Pennsylvania Rhode Island	9,888.5 1,339.5 1,071.7 9,511.1 390.4	1,148.6 89.0 169.8 1,065.3 (^D)	(D) 0 (D) 95.7 (D)	229.1 (D) (D) 388.4 0	395.3 47.6 (^D) 794.3 45.5	1,609.1 195.5 117.5 1,505.4 (^D)	(D) (D) (D) (D) (D)	541.0 430.0 10.7 214.4 38.4	479.2 123.6 36.4 511.8 (^D)	1,035.5 (^D) 84.7 526.7 (^D)	491.1 102.3 (^D) 510.7 15.9	617.0 87.4 203.6 971.0 21.7	619.0 (^D) 168.7 765.4 46.8	1,338.6 (D) (D) 628.4 0	535.4 61.1 (^D) 868.5 83.5
South Carolina South Dakota Tennessee Texas Utah	3,996.1 141.6 5,252.6 12,849.7 588.7	273.7 73.7 228.0 509.1 25.1	328.7 0 155.0 0 (^D)	(D) 0 88.5 40.0 0	37.5 (^D) 144.3 303.0 (^D)	1,017.6 (^D) 1,585.5 7,594.0 20.2	(D) 0 (D) 458.5 0	771.1 (^D) 375.2 315.0 0	174.3 (^D) 227.7 625.4 24.1	(D) 0 213.6 505.3 (D)	85.8 (P) 267.4 330.6 (P)	558.6 32.1 551.9 477.2 (^D)	389.1 (^D) 392.7 1,114.6 32.6	(D) 0 564.2 84.3 (D)	(D) 0 188.2 381.9 (D)
Vermont Virginia Washington West Virginia Wisconsin Wyoming	224.7 4,555.3 1,867.1 2,291.7 3,551.0	406.1 0 1,038.2	0 (D) 0 (D) 0 (D)	(P) (P) 250.1 (P) 379.1 0	(P) 173.0 31.9 (P) 262.0 0	38.8 2,361.0 134.3 1,435.2 243.5 (^D)	0 0 (P) (P) 0 0	(D) 304.8 47.6 (D) 165.5 (D)	(D) 192.5 153.7 84.9 (D)	(P) (P) 71.3 485.6 136.3 0	0 33.0 (P) 109.8 166.4 0	30.4 295.8 23.8 (P) 579.0	(P) 282.2 177.2 (P) 236.1 0	(P) 201.0 (P) 0 (P) 0	0 80.3 (P) (P) 221.6 0

 $^{^{\}rm D}$ Suppressed to avoid disclosure of data of individual companies.

NOTE.—Administrative and auxiliary establishments are excluded. SIC Standard Industrial Classification

Table 9.—Value Added by Foreign-Owned Manufacturing Establishments as a Percentage of That by All U.S. Manufacturing Establishments, State by Selected Industry, 1990

								Selected	industries						
State	Total	Food and kindred products	Textile mill products	Paper and al- lied prod- ucts	Printing and publishing	Chemicals and allied products	Petrole- um and coal products	Rubber and miscel- laneous plastics products	Stone, clay, and glass products	Primary metal industries	Fabricat- ed metal products	Industrial machinery and equipment	Electronic and other electric equipment	Transpor- tation equip- ment	Instru- ments and related products
SIC code		20	22	26	27	28	29	30	32	33	34	35	36	37	38
Total	13.4	13.8	8.6	7.9	10.1	31.9	15.1	17.6	24.8	19.3	7.9	10.3	15.6	4.9	11.9
Alabama Alaska Arizona Arkansas California	14.1	(D)	6.5	11.0	2.7	43.6	(D)	52.5	39.4	(D)	(D)	7.2	26.1	(D)	(D)
	13.1	(D)	0	(^D)	0	(^D)	0	0	0	0	(D)	0	0	0	0
	6.3	5.9	0	0	(D)	3.9	0	23.5	45.3	22.1	19.0	13.3	(^D)	(D)	(D)
	9.8	7.0	0	2.2	(D)	11.3	(D)	(^D)	20.8	13.0	14.3	23.2	21.1	10.2	(P)
	12.4	13.5	(D)	11.5	7.9	49.8	(D)	8.2	27.2	23.5	7.9	10.1	21.6	3.8	12.9
Colorado	7.4	8.1	0	(D)	9.5	41.4	(D)	(D)	23.0	(D)	(D)	6.3	7.0	0	2.4
	11.1	18.5	14.6	1.4	8.8	41.7	(D)	3.6	25.3	26.4	5.2	7.3	5.8	(D)	11.8
	36.7	(P)	0	0	0	74.4	(D)	(D)	(^D)	(D)	(P)	(^D)	0	0	(^D)
	1.1	0	0	0	(P)	0	n.a.	(D)	(^D)	0	0	0	0	0	0
	10.4	14.6	0	(D)	4.8	8.8	(D)	8.0	35.2	31.5	5.8	19.6	11.1	6.3	4.4
Georgia	19.2	12.3	(D)	10.1	8.2	34.9	(P)	13.0	37.4	17.4	10.9	16.0	32.8	0.2	41.1
Hawaii	17.7	(^D)	0	(D)	(D)	(^D)	(D)	(^D)	(D)	(^D)	0	0	0	(D)	0
Idaho	6.9	13.4	0	0	(D)	1.2	0	0	(D)	0	0	(^D)	(^D)	0	0
Illinois	12.3	14.2	0	8.3	11.0	20.4	15.2	18.3	25.0	17.2	5.1	8.4	11.4	(D)	20.1
Indiana	17.1	28.7	(D)	(D)	16.2	13.5	0.6	22.9	(D)	28.3	10.9	19.7	19.7	3.5	36.8
lowa Kansas Kentucky Louisiana Maine	9.6 8.8 16.0 18.5 9.4	7.2 9.5 27.8 14.7 25.9	0 0 (D) (D)	10.5 (D) (D) (D) (D) 14.8	10.0 9.4 6.4 (D)	10.5 9.1 29.2 19.8 (^D)	(D) (D) (D) (D) (D)	43.7 (D) (D) 5.1 18.6	21.4 30.9 28.7 17.4 (^D)	(D) (D) 57.8 0 (D)	(D) 3.7 13.6 (D) 6.2	6.4 6.7 8.4 (^D) 10.5	(D) (D) 4.8 (D) (D)	(D) (D) (D) (D) (D)	(D) (D) 0 0
Maryland	14.2	19.9	(D)	(D)	12.1	28.3	(D)	20.1	45.1	(D)	7.1	10.6	27.3	(D)	5.5
	14.0	13.0	15.2	9.9	13.6	29.4	(D)	9.9	(^D)	22.5	12.5	16.0	10.5	4.6	8.7
	8.2	10.6	0	4.8	8.9	17.5	(D)	9.4	17.8	24.7	5.8	8.4	22.1	3.3	15.2
	7.0	11.4	(D)	(D)	6.3	9.0	(D)	10.6	8.0	(D)	(^D)	4.8	15.0	(D)	4.8
	8.7	3.5	0	(D)	(^D)	35.6	(D)	18.1	30.6	9.6	20.6	(^D)	(^D)	(D)	44.7
Missouri Montana Nebraska Nevada New Hampshire	12.0 6.5 12.8 8.4 12.4	19.3 (^D) 13.6 27.9 9.7	(D) 0 0 0 (D)	9.5 0 0 (^D) 10.6	3.6 0 (^D) 0 8.4	25.5 (D) 72.3 (D) (D)	(D) (D) (D) (D) (D)	7.8 (D) (D) (D) 27.2	25.1 (^D) (^D) 24.4 20.5	36.1 (D) (D) 22.3 (D)	9.0 (D) (D) 0 (D)	9.9 0 (P) 0 24.3	8.2 0 (^D) 0 10.2	(D) 0 (D) 0	18.1 0 (D) (D) 8.3
New Jersey New Mexico New York North Carolina North Dakota	24.4	25.2	(D)	11.5	9.4	46.7	10.4	12.6	19.2	23.8	7.7	13.2	12.5	4.6	22.3
	8.2	(D)	0	0	(D)	(^D)	(P)	(^D)	16.0	0	0	(^D)	(^D)	0	(^D)
	11.1	17.5	7.0	8.1	16.3	24.5	(P)	25.7	19.3	20.7	9.6	7.5	10.6	2.8	3.1
	18.5	8.8	6.6	6.7	11.6	59.2	(P)	23.8	21.0	22.5	14.1	11.6	41.1	14.9	45.7
	(^D)	(D)	0	0	(D)	0	(P)	0	0	0	0	0	0	(^D)	0
Ohio Oklahoma Oregon Pennsylvania Rhode Island	12.3	16.4	(D)	10.0	9.4	21.6	(D)	12.6	16.1	14.5	5.8	6.4	10.5	9.2	28.5
	11.3	9.6	0	(D)	7.7	42.7	(D)	37.2	18.3	(^D)	10.3	4.4	(^D)	(D)	10.7
	8.1	9.3	(D)	(D)	(P)	37.5	(D)	3.7	14.9	10.0	(^D)	15.9	20.2	(D)	(^D)
	14.8	14.1	11.2	12.2	13.5	21.0	(D)	9.9	18.0	9.4	9.9	16.4	15.8	16.8	30.6
	7.6	(^D)	(D)	0	13.4	(^D)	(D)	16.6	(^D)	(^D)	2.5	8.1	11.3	0	15.0
South Carolina	19.0	31.2	9.1	(D)	7.1	22.3	(D)	52.0	23.7	(D)	8.8	27.0	32.6	(D)	(P)
	8.7	17.6	0	0	(D)	(^D)	0	(^D)	(^D)	0	(D)	10.7	(^D)	0	0
	17.4	6.0	18.3	5.4	7.5	31.0	(D)	22.4	27.4	17.8	15.2	22.6	21.7	29.3	26.2
	15.4	6.2	0	1.8	7.5	36.9	5.3	11.2	30.4	23.6	8.8	7.4	14.4	1.4	9.0
	9.6	4.2	(^D)	0	(D)	9.1	0	0	14.9	(D)	(D)	(^D)	10.5	(D)	(P)
Vermont	7.0 14.0 7.5 36.1 9.6 (^D)	(P) 10.0 18.2 0 21.3 (P)	0 (P) (P) 0 (P) n.a.	(D) (D) 13.6 (D) 7.8 n.a.	(D) 8.0 3.0 (D) 10.5 0	(^D) 54.3 8.8 55.9 15.1 (^D)	0 0 (P) (P) 0	(D) 23.3 12.3 (D) 12.5 (P)	(P) 28.0 29.2 19.1 (P) (P)	(D) (D) 6.1 42.1 11.3 0	0 3.5 (^D) 30.7 5.3 0	15.4 20.3 1.7 (^D) 8.0 0	(D) 17.3 31.1 (D) 8.0 0	(P) 6.6 (P) 0 (P) 0	0 4.8 (D) (D) 11.4 0

 $^{^{\}rm D}$ Suppressed to avoid disclosure of data of individual companies. n.a. Not applicable.

NOTE.—Administrative and auxiliary establishments are excluded. SIC Standard Industrial Classification

plant scale and capital intensity or whether they can be attributed to foreign ownership per se. Finally, it examines whether differences between the productivity of foreign-owned and U.S.-owned establishments reflect differences in their plant scale, capital intensity, or employee skill levels or whether they can be attributed to foreign ownership per se.

Plant scale

For total manufacturing, average plant scale (measured as value added per establishment) of foreign-owned establishments was much larger than that of U.S.-owned establishments—\$17.3 million, compared with \$3.2 million, or a difference of \$14.1 million.⁸ A statistical decomposition of the difference indicated that 60 percent of it was attributable to a tendency in some industries for the plant scale of foreign-owned establishments to be larger than that of U.S.owned establishments, while only 27 percent was attributable to a tendency for foreign-owned establishments to be concentrated in industries with above-average plant scale.9 (The method used to decompose the difference in plant scale is described in the technical note.)

The importance of the within-industry differences can be seen by examining the distribution of industries on the basis of the relative plant scale of foreign-owned and U.S.-owned establishments. As the following tabulation indicates, the average plant scale of foreign-owned establishments was more than 10 percent larger than that of U.S.-owned establishments in 277 of the 312 industries with 6 or more foreign-owned establishments (hereafter referred to as "the 312 industries"). In 98 of these 277 industries, plant scale of foreign-owned establishments was more than four times as large. Moreover, there were only 20 industries in which the average plant scale of foreign-owned establishments was more

than 10 percent smaller than that of U.S.-owned establishments.¹⁰

Plant scale of foreign-owned establishments relative to that of U.Sowned establishments	Number of industries
All industries	312
At least 30 percent smallerBetween 10 and 30 percent smaller	8
Within 10 percent smaller or larger	12 15
Within 10 percent smaller or larger Between 10 and 30 percent larger At least 30 percent larger	12 265

Plant scale of foreign-owned establishments may be larger, on average, than that of U.S.owned establishments at least partly because the income and other benefits that normally accrue to large plants may be sought out to offset the inherent disadvantages foreign investors tend to face when investing in the United States and when subsequently operating their U.S. businesses. Foreign investors may be unfamiliar with the language and the general business environment in the United States, and their investments must, at least to some extent, be managed from a distance. Many of the added costs a foreign investor incurs when making a new U.S. investment and subsequently operating a business here tend to be fixed, and foreign investors may tend to concentrate their investments in relatively large establishments as a means of spreading these costs over a larger volume of output. In some cases, such a strategy may also benefit foreign direct investors by simplifying the organizational structure, reducing the number of units that must be managed, and lowering the number of local business environments to which they must become acclimated.

Most industries with direct investment have both large foreign-owned and large U.S.-owned plants. However, in many of these industries, there are substantial numbers of small U.S.-owned plants but relatively few small foreign-owned plants. This pattern can be seen in "motor vehicles and car bodies" manufacturing (SIC 3711), which includes both car and truck manufacturing. In 1990, the average plant scale of foreign-owned establishments in the industry was over 60 percent larger than that of U.S.-owned establishments. Of the 406 plants in the industry, 385 were U.S. owned and 21 were foreign owned. Both groups had a number of large plants: 52 of the U.S.-owned plants and 11

^{8.} Because the number of manufacturing establishments is not shown in the Census Bureau's ASM publications, average plant scale for U.S.-owned establishments was computed using the total value added from the ASM and the number of U.S. manufacturing establishments shown in the Census Bureau's County Business Patterns, 1990: United States (Washington DC: U.S. Government Printing Office, 1992). Because the County Business Patterns and ASM data are closely comparable, use of County Business Patterns establishment counts is unlikely to have significantly affected the findings of the article.

^{9.} The remaining difference was attributable to the interaction of the within-industry differences and industry-mix effects.

In industries with only a few foreign-owned establishments, value added per establishment and the other measures for foreign-owned establishments discussed in this section may be so affected by the special circumstances of individual establishments that they are not representative of foreign-owned establishments generally. Because of this possibility, the decomposition was limited to the 312 four-digit industries with at least 6 foreign-owned establishments. For these industries, value added per establishment was \$17.3 million for foreign-owned establishments and \$3.6 million for U.S.-owned establishments, a difference of \$13.7 million.

^{10.} Across the 312 industries, the mean difference between the foreignowned and U.S.-owned plant scale measures was \$11.0 million. Unlike the differences cited in the text and in footnote 9, which were computed using a method that gave heavier weight to the larger industries, this figure was computed without regard to industry size; a statistical test indicated that it was statistically significant at the 1-percent confidence level.

of the foreign-owned plants had at least 1,000 employees. However, there were many small U.S.-owned plants but few small foreign-owned plants in the industry: Over three-fourths of the U.S.-owned plants, but less than one-fifth of the foreign-owned plants, had fewer than 100 employees.

Capital intensity

For total manufacturing, capital intensity (indirectly measured as the non-employee-compensation share of value added) was higher for foreign-owned establishments than for U.S.-owned establishments—61 percent, compared with 55 percent. Virtually all of this difference was attributable to industry-mix effects; within-industry differences were negligible. 12

Although the capital intensity of foreign-owned establishments was not systematically higher or lower than that of U.S.-owned establishments within specific industries, ¹³ in a large number of industries, as the following tabulation indicates, the capital intensity of foreign-owned establishments differed substantially from that of U.S.-owned establishments. On the one hand, the capital intensity of foreign-owned establishments was more than 10 percent higher than that of U.S.-owned establishments in 98 of the 312 industries. On the other hand, it was more than 10 percent lower in 85 industries.

Capital intensity of foreign-owned establishments relative to that of U.Sowned establishments	Number of industries
All industries	312
At least 30 percent lower Between 10 and 30 percent lower Within 10 percent lower or higher Between 10 and 30 percent higher At least 30 percent higher	26 59 129 67 31

Compensation per employee

For total manufacturing, compensation per employee of foreign-owned establishments was \$5,300 higher than that of U.S.-owned establishments—\$38,300, compared with \$33,000. About 60 percent of this difference was attributable

to industry-mix effects, and 30 percent to within-industry differences.¹⁴

Although industry-mix effects dominate, with-in-industry differences are nonetheless significant. The positive contribution of these differences can be seen from the following tabulation. It shows that compensation per employee of foreign-owned establishments was more than 10 percent higher than that of U.S.-owned establishments in 131 of the 312 industries, whereas it was more than 10 percent lower in only 28 industries. ¹⁵

Compensation per employee of foreign-owned establishments relative to that of U.Sowned establishments	Number of industries
All industries	312
At least 30 percent lower	3 25 153 107 24

Compensation per employee may have been higher for foreign-owned establishments than for other establishments in the same industry because the occupational mix was weighted more heavily toward relatively high-skilled occupations, perhaps reflecting the use of different technologies. In addition, foreign-owned establishments may have paid higher wage rates at a given skill level than U.S.-owned establishments because, for example, they have a greater tendency to be located in high-wage areas.

^{11.} The data needed to measure capital intensity directly are not available.

^{12.} This statement is based on a decomposition similar to that used for plant scale (see technical note). The decomposition was based on data for the 312 industries. For these industries, the capital intensity measures for both foreign-owned and U.S.-owned establishments were almost the same as the corresponding measures for manufacturing as a whole.

^{13.} Across the 312 industries, the mean difference between the foreignowned and U.S.-owned capital-intensity measures was negligible.

^{14.} The remaining difference was attributable to the interaction of the within-industry differences and industry-mix effects. The decomposition was based on data for the 312 industries. For these industries, the difference in compensation per employee was \$4,600, somewhat smaller than the difference for manufacturing as a whole.

In "FDIUS: Establishment Data for 1987," differences between foreignowned and U.S.-owned establishments were examined using payroll per employee, which is a somewhat narrower measure than total employee compensation. (Payroll excludes employee benefits, whereas total employee compensation includes them.) Data on total employee compensation were not available from the 1987 link data.

Within-industry differences were somewhat less important in explaining the overall difference in compensation per employee in the 1990 data than in explaining the overall difference in payroll per employee in the 1987 data. This result appears to largely reflect a narrowing of within-industry differences in payroll per employee between 1987 and 1990. In light of the 1990 data, within-industry differences in benefits per employee appear to be larger than within-industry differences in payroll per employee.

^{15.} Across the $_{312}$ industries, the mean difference between foreign-owned and U.S.-owned establishments' compensation per employee was \$2,500. A statistical test indicated that this difference was significant at the 1-percent confidence level.

^{16.} As noted in footnote 2, BLS has released information on the occupational structure of foreign-owned manufacturing establishments for 1989. Based on this information, BLS concluded that while the distribution of occupations in foreign-owned manufacturing establishments in the United States was little different from that in all U.S. manufacturing establishments at the overall manufacturing level, there were major differences in the distribution of occupations within individual industries, at least at the SIC two-digit level.

Table 10.—Relative Plant Scale and Capital Intensity:
Averages for Industries Grouped by the Wage Rates
of Foreign-Owned Establishments Relative to Those
of U.S.-Owned Establishments, 1990

		Percent			
Range of relative wage rates (percent) ¹	Number of industries	Relative plant scale ²	Relative capital intensi- ty ³		
All industries	312	376	102		
At least 30 percent lower Between 10 and 30 percent lower Within 10 percent lower or higher Between 10 and 30 percent higher At least 30 percent higher	2 41 156 88 25	118 226 336 448 634	147 95 102 104 103		
Addendum: Coefficient of correlation between the measure in the column and the relative wage rate ratio for the 312 industries		.336*	.0348		

^{*}Statistically significant at the 1-percent confidence level.

Production-worker wage rates

In examining differences in employee compensation between foreign-owned and U.S.-owned establishments, differences in occupational mix can be partly controlled for by comparing the wages of production workers only. Restricting the comparison in this way eliminates variations in the ratio of production workers to other workers as a source of differences in rates of pay; in addition, production workers probably constitute a more homogeneous group than other workers, who may represent a wide variety of occupational groups (for example, sales and clerical as well as professional and managerial employees).

For total manufacturing, the average hourly wage rate (excluding benefits) of production workers was \$12.57 for foreign-owned establishments and \$11.04 for U.S.-owned establishments, a difference of \$1.53. About 70 percent of this difference was attributable to industry-

Table 11.—Production Worker Hourly Wage Rates for Foreign-Owned and U.S.-Owned Establishments, Selected Industries in Which Wage Rates of Foreign-Owned Establishments Were Relatively Low or High, 1990

SIC		Wages pe	er hour (dollars)	Relative wage	Addendum:
code	Industry	Foreign-owned establishments	U.Sowned establishments	rate (percent) 1	Relative plant scale (percent) ²
3647 3694 3721 2711 3714 3624 3592 2431 3711 3661 3663 2095 2631 2296 3255 3531 3951	Industries in which foreign-owned establishments had relatively low hourly wage rates: Vehicular lighting equipment Engine electrical equipment Aircraft Newspapers Motor vehicle parts and accessories Carbon and graphite products Carburetors, pistons, rings, valves Millwork Motor vehicles and car bodies Telephone and telegraph apparatus Radio and television communications equipment Roasted coffee Paperboard mills Tire cord and fabrics Clay refractories Construction machinery Pens and mechanical pencils Industries in which foreign-owned establishments had relatively high	10.38 8.30 12.07 8.93 11.60 10.53 11.56 7.96 16.74 12.07 9.94 10.76 14.03 8.43 10.70 12.88 8.32	15.85 11.86 17.17 12.52 16.14 14.27 14.83 9.92 20.84 14.93 12.10 13.01 16.88 10.12 12.77 15.26 9.86	65 70 70 71 72 74 78 80 80 81 82 83 83 83 84 84	109 127 26 96 113 170 385 161 297 175 162 76 39 225 219 222
3532 2064 3251 3082 2851 3398 2045 2836 2325 3651 2833 3087 2085 3295 3295 2816 3291 3645 3596 3596 3596 3596 3596	hourly wage rates: Mining machinery Candy and other confectionery products Brick and structural clay tile Unsupported plastics profile shapes Paints and allied products Metal heat treating Prepared flour mixes and doughs Biological products except diagnostic Men's and boys' trousers and slacks Household audio and video equipment Medicinals and botanicals Custom compound purchased resins Distilled and blended liquors Minerals, ground or treated Fasteners, buttons, needles, and pins Inorganic pigments Abrasive products Residential lighting fixtures Scales and balances, except laboratory Plastics plumbing fixtures	13.05 12.00 10.40 11.87 14.35 13.73 13.48 10.21 8.27 10.40 21.43 12.24 15.89 9.63 17.01 14.84 10.49 11.25	10.39 9.54 8.22 9.36 11.27 10.75 10.55 7.98 6.39 7.97 16.41 9.31 11.92 10.16 7.15 12.54 10.70 7.51 7.87	126 126 127 127 127 128 128 128 130 130 131 131 133 134 135 136 139 140	360 357 165 439 416 431 503 1,026 120 1,474 98 187 187 324 831 703 817 606 686 1,032

^{1.} Hourly wage rate for foreign-owned establishments divided by hourly wage rate for U.S.-owned establishments times 100.

Relative wage rates are foreign-owned establishments' wage rates divided by U.S.-owned establishments' wage rates times 100.

^{2.} Relative plant scale is foreign-owned establishments' value added per establishment divided by the corresponding measure for U.S.-owned establishments times 100. This column shows the unweighted averages of the relative scale measure for industries in the groups defined by the relative wage rates shown in the stub.

^{3.} Relative capital intensity is foreign-owned establishments' non-employee-compensation share of value added divided by the corresponding measure for U.S.-owned establishments times 100. This column shows the unweighted averages of the relative capital intensity measure for industries in the groups defined by the relative wage rates shown in the situs.

Value added per establishment for foreign-owned establishments divided by value added per establishment for U.S.-owned establishments times 100.

NOTE.—The list of industries in this table excludes industries for which the data for foreignowned establishments are suppressed. It also excludes residual industries, which cover establishments not elsewhere classified.

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mix effects, and 20 percent was attributable to within-industry differences.¹⁷

Although industry-mix effects dominate, the first two columns of table 10 show that within-industry differences are nonetheless significant. Hourly wages of production workers were more than 10 percent higher in foreign-owned establishments than in U.S.-owned establishments in 113 of the 312 industries, whereas they were at least 10 percent lower in only 43 industries. 18

Data for selected industries in which the wage rates of foreign-owned establishments differed substantially from those of U.S.-owned establishments are shown in table 11. Five of the industries in which wage rates of foreign-owned establishments were substantially lower than those of U.S.-owned establishments are motor-vehicle related: Vehicular lighting equipment; engine electrical equipment; motor vehicle parts and accessories; carburetors, pistons, rings, and valves; and motor vehicles and car bodies. The lower wage rates in these industries may have resulted because many of the foreign-owned establishments were established recently—within the last decade—and thus have a workforce with less accumulated job tenure than is typical of U.S.owned establishments. They may also reflect lower rates of unionization among foreign-owned establishments and differences in plant location.

Plant scale.—The within-industry differences in wage rates partly reflect differences in plant scale. Across the 312 industries, the ratio of the wage rates of foreign-owned establishments to those of U.S.-owned establishments is significantly correlated with the ratio of their average plant scales. In table 10, the relative plant-scale ratio for foreign- and U.S.-owned establishments increases steadily as the ratio of their wage rates increases: The average ratio is 118 percent for the 2 industries in which the wage rates are at least 30 percent lower for foreign-owned establishments than for U.S.-owned establishments, and it is 634 percent for the 25 industries in which the wage rates are at least 30 percent higher for foreign-owned establishments. This pattern is consistent with other research that shows that

production-worker wages tend to be higher at larger plants. 19

This pattern is further illustrated in table 11. Average plant scale of foreign-owned establishments was more than three times higher than that of U.S.-owned establishments in 15 of the 20 industries in which wage rates of foreign-owned establishments were substantially higher than those of U.S.-owned establishments. In contrast, it was more than three times that of U.S.-owned establishments in only 1 of the 17 industries in which wage rates of foreign-owned establishments were substantially lower than those of U.S.-owned establishments; in 4 of the 17 industries, average plant scale of foreign-owned establishments was smaller than that of U.S.-owned establishments.

Capital intensity.—Differences between the hourly wage rates of foreign-owned and U.S.-owned establishments were not associated with differences in their capital intensity. In table 10, no discernable relationship between the relative wage and capital-intensity measures is evident. Furthermore, a statistical test indicated that the relative wage and capital-intensity measures were not significantly correlated.

Effect of foreign-ownership.—Differences between the hourly wage rates of foreign-owned and U.S.-owned establishments do not appear to be the result of foreign ownership per se. A regression that controlled for the effects of plant scale and capital intensity on wage rates and that incorporated a variable for foreign ownership indicated that there is no statistically significant relationship between foreign ownership and wage rates.²⁰

$$W = 10.42 + 0.07SC + 0.59CI - 0.09FDMY \\ (11.35) \quad (0.90) \quad (-0.43)$$

$$R^2 = 0.21,$$

^{17.} The remaining difference was attributable to the interaction of the within-industry differences and industry-mix effects. The decomposition was based on data for the 312 industries. For these industries, the hourly wage rate for foreign-owned establishments was \$1.26 higher than that for U.S.-owned establishments—\$12.69, compared with \$11.43.

^{18.} Across the \mathfrak{z}_{12} industries, the mean difference between foreign-owned and U.S.-owned establishments' hourly wage rates was $\mathfrak{s}_{0.63}$. A statistical test indicated that this difference was significant at the 1-percent confidence level.

^{19.} See, for example, Steve J. Davis and John Haltiwanger, "Wage Dispersion Between and Within U.S. Manufacturing Plants, 1963–1986," *Brookings Papers on Economic Activity*, Special Issue (1991): 115–80.

^{20.} A linear regression equation was estimated in which there were 624 observations (consisting of separate observations for foreign-owned and U.S.-owned establishments for each of the $_{312}$ industries). This estimation yielded the following:

where W is hourly wages, SC is plant scale, CI is capital intensity, and FDMY is a dummy variable for foreign ownership. The t-statistics for the independent variables, which appear in parentheses, indicate that the coefficient of the scale variable was significant at the 1-percent confidence level and that the coefficients of both the capital intensity variable and the foreign-ownership dummy variable were insignificant.

Labor productivity

For total manufacturing, labor productivity (measured as value added per production-worker hour) of foreign-owned establishments was significantly higher than that of U.S.-owned establishments—\$74 per hour, compared with \$52 per hour. About 70 percent of the difference was attributable to industry-mix effects, and 20 percent to within-industry differences.

Examination of the distribution of industries on the basis of the relative productivity of foreign- and U.S.-owned establishments confirms that, although industry-mix effects dominate, within-industry differences are nonetheless im-

Table 12.—Relative Plant Scale, Capital Intensity, and Employee Skill Level: Averages for Industries Grouped by the Productivity of Foreign-Owned Establishments Relative to That of U.S.-Owned Establishments, 1990

			Percent	
Range of relative productivity (percent) ¹	Number of industries	Relative plant scale ²	Relative capital intensi- ty 3	Relative employ- ee skill level ⁴
All industries	312	376	102	109
At least 30 percent lower	18 52 89 61 92	136 208 288 373 604	58 85 96 108 121	103 98 106 111 118
Addendum: Coefficient of correlation between the measure in the column and the relative productivity ratio for the 312 industries		.50*	.64*	.39*

^{*} Statistically significant at the 1-percent confidence level.

portant. In a significant number of industries, the productivity of foreign-owned establishments was higher than that of U.S.-owned establishments: It was more than 10 percent higher in 153 of the 312 industries (table 12). In considerably fewer industries, the productivity of foreign-owned establishments was relatively low: It was at least 10 percent lower in only 70 industries. ²³ In 89 industries, foreign-owned establishments' productivity was roughly equal to (within 10 percent of) that of U.S.-owned establishments.

Studies of productivity frequently indicate that plant scale, capital intensity, and employee skill level strongly influence productivity. The following discussion examines the extent to which these conventional factors explain the differences between the productivity of foreign-owned and U.S.-owned establishments.

Plant scale.—Differences between the productivity of foreign-owned and U.S.-owned establishments were highly correlated across industries with differences in plant scale (table 12). This pattern can be seen by comparing the industries in which foreign-owned establishments' productivity was relatively low with the industries in which it was relatively high. In the 18 "lower productivity" industries, the average plant scale of foreign-owned establishments was only about 36 percent larger than that of U.S.-owned es-In contrast, in the 92 "higher tablishments. productivity" industries, the average plant scale of foreign-owned establishments was more than six times that of U.S.-owned establishments.

This pattern is further illustrated in table 13, which shows selected lower and higher productivity industries. In 7 of the 11 lower productivity industries, the average plant scale of foreignowned establishments was smaller than that of U.S.-owned establishments. In contrast, in all but 2 of the 23 higher productivity industries, the average plant scale of foreign-owned establishments was at least twice as large as that of U.S.-owned establishments.

Capital intensity.—As discussed earlier, even though the capital intensity of foreign-owned establishments was not systematically higher or lower than that of U.S.-owned establishments within individual industries, the differences in the capital intensity of the two groups of establishments were sizable in a large number

^{21.} Productivity can be measured in a variety of ways; the measure used here—value added per production-worker hour—is a commonly used measure of labor productivity and can be easily calculated from the data. Studies of productivity sometimes use total output (shipments plus inventory change) instead of value added in the numerator. However, when total output is used as a measure of production, the inputs to which output is related typically include not only labor employed within the establishment but also capital and the inputs that the establishment purchases from others (for example, materials or business services); data on some of these inputs are not available from the ASM. Furthermore, in attempting to determine whether foreignowned establishments differ from U.S.-owned establishments, value added may be the preferred measure because it reflects only the production by the establishments themselves, whereas total output reflects, in addition to the establishments' own production, the value of inputs purchased from others.

^{22.} The remaining difference was attributable to the interaction of the industry-mix effects and within-industry differences. The decomposition was performed for the $_{312}$ industries. For these industries, value added per production-worker hour was $_{575}$ for foreign-owned establishments and $_{555}$ for U.S.-owned establishments.

Relative productivity is foreign-owned establishments' value added per production worker hour divided by the corresponding measure for U.S.-owned establishments times 100.
 Relative plant scale is foreign-owned establishments' value added per establishment

^{2.} Relative plant scale is foreign-owned establishments value added per establishment divided by the corresponding measure for U.S.-owned establishments times 100. This column shows the unweighted averages of the relative scale measure for industries in the groups defined by the relative productivity measure shown in the stub.

^{3.} Relative capital intensity is foreign-owned establishments' non-employee-compensation share of value added divided by the corresponding measure for U.S.-owned establishments times 100. This column shows the unweighted averages of the relative capital intensity measure for industries in the groups defined by the relative productivity measure shown in the stub.

^{4.} Relative employee skill level is foreign-owned establishments' compensation per employee divided by the corresponding measure for U.S.-owned establishments times 100. This column shows the unweighted averages of the relative employee skill level measure for industries in the groups defined by the relative productivity measure shown in the stub.

^{23.} Across the 312 industries, the mean difference between the foreignowned and U.S.-owned productivity measures was \$8.19 per hour. A statistical test indicated that this difference was significant at the 1-percent confidence level.

of industries. As table 12 indicates, these differences are highly correlated with differences in productivity. Like the case of plant scale, as the productivity of foreign-owned establishments increases in relation to that of U.S.-owned establishments, the relative capital intensity of foreign-owned establishments also increases. The correlation between capital intensity and productivity reflects the tendency for additional capital to allow increased production when combined with a given amount of labor.

The correlation between differences in productivity and differences in capital intensity of foreign-owned and U.S.-owned establishments is particularly evident when the capital intensities of the two groups of establishments in lower and higher productivity industries are compared. In the lower productivity industries, the average capital intensity of foreign-owned establishments was only 58 percent of that of U.S.-owned

establishments. In contrast, in the higher productivity industries, the average capital intensity of foreign-owned establishments exceeded that of U.S.-owned establishments by 21 percent. The data shown in table 13 for selected lower and higher productivity industries further illustrate this pattern. In all of the lower productivity industries, foreign-owned establishments were less capital intensive than U.S.-owned establishments, whereas in all but one of the higher productivity industries, foreign-owned establishments were more capital intensive.

Employee skill level.—Differences in productivity of foreign-owned and U.S.-owned establishments were correlated with differences in the skill level of their employees (measured as compensation per employee); however, the correlation was not as high as the correlation for plant scale and

Table 13.—Productivity, Plant Scale, Capital Intensity, and Employee Skill Level of Foreign-Owned and U.S.-Owned Establishments, Selected Industries in Which the Productivity of Foreign-Owned Establishments Was Relatively Low or High, 1990

		Fo	reign-owned	d establishme	nts	l	J.Sowned	establishmen	ts	Foreign-owned establishments relative to U.Sowned establishments (percent)			
SIC code	Industry	Productivi- ty (dollars) ¹	Plant scale (millions of dollars) ²	Capital intensity (percent) 3	Employee skill level (dollars) ⁴	Productivi- ty (dollars) ¹	Plant scale (millions of dollars) ²	Capital intensity (percent) 3	Employee skill level (dollars) ⁴	Produc- tivity	Plant scale	Capital intensity	Employ- ee skill level
2296 3721 3844 2911 3295 2833 3724 3692 3711 3643 3524	Industries in which foreign-owned establishments had relatively low productivity: Tire cord and fabrics Aircraft X-ray apparatus and tubes Petroleum refining Minerals, ground or treated Medicinals and botanicals Aircraft engines and engine parts Primary batteries, dry and wet Motor vehicles and car bodies Current-carrying wiring devices Lawn and garden equipment	20.1 30.8 56.3 123.8 37.8 105.6 43.7 28.8 62.0 29.1 43.8	13.4 30.5 15.6 61.0 6.6 10.4 10.9 7.2 151.6 10.8 48.6	28 12 36 67 28 61 33 31 52 31 65	23,786 43,176 45,010 56,727 49,584 48,543 41,474 26,222 47,037 30,621 24,195	66.2 76.8 119.8 248.2 75.0 200.4 82.7 51.4 104.3 43.7 63.7	34.3 115.6 18.7 69.5 2.0 10.6 27.9 9.8 94.3 6.2 9.7	73 31 67 85 75 81 50 61 66 53	28,535 48,834 44,245 55,053 26,492 46,583 47,121 30,728 60,373 28,840 29,451	30 40 47 50 53 53 56 59 67 69	39 26 83 88 324 98 39 73 161 173 502	38 41 53 79 37 76 66 52 80 60 96	83 88 102 103 187 104 88 85 78 106 82
3555 2033 3291 3563 2096 3594 3567 2031 2834 3873 3398 2034 2241 2836 2032 2045 2731 3088 3821 3748 3818	Industries in which foreign-owned establishments had relatively high productivity: Printing trades machinery Canned fruits and vegetables Abrasive products Air and gas compressors Potato chips and similar snacks Fluid power pumps and motors Industrial furnaces and ovens Pickles, sauces, and salad dressings Flour and other grain mill products Pharmaceutical preparations Watches, clocks, watchcases, and parts Metal heat treating Dehydrated fruits, vegetables, soups Narrow fabric mills Biological products except diagnostic Canned specialties Prepared flour mixes and doughs Book publishing Plastics plumbing fixtures Laboratory apparatus and furniture Railroad equipment Inorganic pigments	92.2 82.7 85.0 104.0 114.0 86.9 66.8 163.0 107.6 417.4 75.5 74.4 84.1 42.0 129.2 161.2 144.0 689.4 88.6 134.0 112.6 2557.2	23.8 35.5 28.0 17.0 32.1 15.1 4.4 35.7 17.8 153.6 17.6 23.3 30.5 37.0 34.4 22.8 25.6 25.1	68 79 58 55 76 46 86 86 78 54 78 68 68 86 86 86 84 80 83	34,815 27,591 48,695 45,572 36,432 40,044 39,474 35,742 54,215 30,788 25,025 37,209 31,089 36,583 36,583 35,482 45,506 37,331 49,606	59.5 52.3 53.1 62.9 66.0 49.4 37.0 89.7 57.5 220.7 38.9 42.0 20.9 64.3 80.1 68.5 291.4 35.1 52.8 41.4	3.3 9.1 3.4 7.3 8.00 5.6 2.4 7.4 7.4 3.0 33.7 2.8 6.2 2.3 15.7 7.4 3.8 2.2 3.7 9.2 7.8	36 70 54 44 69 37 30 79 62 80 55 46 45 77 68 77 68 73 34	41,234 26,491 34,351 39,642 26,683 32,519 28,091 35,627 43,629 27,299 21,377 36,677 30,766 31,615 37,424 23,809 34,375 39,208	155 158 160 165 173 176 180 182 187 194 196 200 201 201 201 201 210 237 252 254 272	722 389 817 234 400 269 181 483 456 625 431 542 562 1,026 194 503 911 1,032 692 277	188 113 107 125 1100 149 153 109 123 98 125 118 132 161 120 112 123 110 140 140 128 182	84 104 142 115 137 101 121 127 119 124 104 122 113 117 101 101 116 98 81 149 132 95 5

Value added per production worker hour.

^{2.} Value added per establishment.

^{3.} Non-employee-compensation share of value added.

^{4.} Compensation per employee

NOTE.—The industries with relatively low productivity for foreign-owned establishments shown in this table are the industries in which the productivity of foreign-owned establishments was at least 30 percent lower than that

of U.S.-owned establishments and that (1) had at least six foreign-owned establishments, (2) were not suppressed for foreign-owned establishments, and (3) were not residual industries (see "Technical Note" in the article). The industries with relatively high productivity for foreign-owned establishments shown in this table are the industries in which the productivity of foreign-owned establishments was a least 50 percent higher than that of U.S.-owned establishments and that (1) had at least six foreign-owned establishments, (2) were not suppressed for foreign-owned establishments, and (3) were not residual industries (see "Technical Note").

SIC Standard Industrial Classification

for capital intensity.²⁴ In the lower productivity industries, the employee skill level of foreignowned and U.S.-owned establishments was about the same, whereas in the higher productivity industries, the employee skill level of foreignowned establishments was 18 percent higher than that of U.S.-owned establishments. Table 13 further illustrates the relationship between productivity and employee skill level. In 10 of the 11 lower productivity industries, the employee skill level of foreign-owned establishments was roughly equal to, or lower than, that of U.S.owned establishments. In contrast, in 15 of the 23 higher productivity industries, the employee skill level of foreign-owned establishments was substantially higher than that of U.S.-owned establishments.

Combined effects.—The prior discussion showed that, when taken separately, differences in the plant scale, capital intensity, and employee skill level of foreign-owned and U.S.-owned establishments are each associated with differences in productivity. To determine whether a particular factor still independently contributes to the differences in productivity once the influence of each of the other factors is taken into account, the measures of relative plant scale, capital intensity, and employee skill level were included as independent variables in a multiple regression equation in which the relative productivity measure was the dependent variable. In addition to testing for the independent contribution of each of the three factors, the regression also provides an indication of their combined importance. The results confirmed that, even after allowing for the influence of the other measures, the relative plant scale, capital intensity, and employee skill level measures were each significantly correlated with the differences in productivity.²⁵ Furthermore, over 60 percent of the variation in the relative

$$RPR = -.89 + .02RSC + .01RCI + .01RES$$

(4.90) (15.67) (9.10)
 $R^2 = .61,$
 $F = 163.7$

where *RPR*, *RSC*, *RCI*, and *RES* are the measures of relative productivity, plant scale, capital intensity, and employee skill level, respectively. The t-statistics for the independent variables, which appear in parentheses, indicate that the coefficients for all of the variables were statistically significant at the 1-percent confidence level. The coefficients of correlation between the independent variables were as follows: Plant scale and capital intensity, 0.32; plant scale and employee skill level, 0.33; capital intensity and employee skill level, 0.04.

productivity measure could be accounted for by the combined variation in these three factors.

Effect of foreign ownership.—One additional statistical check was made to test directly whether foreign ownership per se was associated with higher productivity levels. This check involved estimating a multiple regression equation that controlled for the effects on productivity levels of plant scale, capital intensity, and employee skill level and that included a variable for foreign ownership. The test indicated that there was no correlation between productivity and for-eign ownership per se.²⁶ Thus, any influence of foreign ownership on productivity appears to be mainly indirect: The plant scale, capital intensity, and employee skill level of foreignowned establishments differ from those of U.S.owned establishments, and it is largely because of these differences that the productivity for foreign-owned establishments is higher.

Technical Note

This note describes the statistical decomposition method used in the article and discusses how the findings of the article are affected by the estimation of data for foreign-owned establishments and by the inclusion in the SIC of residual industries, which cover establishments not elsewhere classified.

Statistical decomposition

The differences between foreign-owned and U.S.-owned establishments in average plant scale, capital intensity, compensation per employee, wages per production-worker hour, and productivity were decomposed statistically into industry-mix,

$$PR = -133.81 + .19SC + 219.10CI + .0024ES - .15FDMY$$
 $(1.83) (19.95) (10.99) (-.04)$
 $R^2 = .54,$
 $F = 188.41$

where PR, SC, CI, and ES are the measures of productivity, plant scale, capital intensity, and employee skill level, respectively, and FDMY is a dummy variable for foreign ownership. The t-statistics for the independent variables, which are shown in parentheses, indicate that the coefficients of both the capital intensity and employee skill level variables were significant at the 1-percent confidence level, that the coefficient of the scale variable was significant at the 10-percent confidence level, and that the coefficient of the foreign-ownership dummy was insignificant. To rule out the possibility that the regression results were influenced by errors in the measurement of capital intensity through the use of a proxy variable, tests controlling for this potential errors-in-variables problem using "instrumental variables" were conducted; the results of the tests suggested that such errors probably were not a problem.

^{24.} The compensation-per-employee measure of employee skill level (sometimes termed "human capital intensity") reflects both occupational structure and the accumulation of skills within occupations.

 $^{{\}tt 25}.$ Using the ${\tt 312}$ industries as the observations, the estimation yielded the following:

^{26.} A linear regression was estimated in which there were 624 observations (there were separate observations for foreign-owned and U.S.-owned establishments for each of the 312 industries). This estimation yielded the following:

within-industry, and interaction effects. The decomposition for a given measure begins with expressing the measure as a weighted average of values for individual industries. For plant scale, for example, average plant scale (value added per establishment) may be expressed as a weighted average of the average plant scales in individual industries, with the weight for any given industry being the industry's share in the total number of establishments. Thus, the average plant scale for U.S.-owned establishments can be expressed as

$$p = \sum_{i=1}^{312} s_i p_i,$$

and the average plant scale of foreign-owned establishments can be expressed as

$$p^{a} = \sum_{i=1}^{312} s_{i}^{a} p_{i}^{a},$$

where p is average plant scale (value added per establishment) for the $_{312}$ industries (see footnote 9), p_i is plant scale for industry i, and s_i is the share of the ith industry in the total number of establishments for the $_{312}$ industries. (Variables with the superscript a denote data for foreign-owned establishments, and variables without a superscript denote data for U.S.-owned establishments.) The difference between average plant scales of the two groups of establishments can then be decomposed algebraically as

$$p^{a} - p = \sum_{i=1}^{312} p_{i}(s_{i}^{a} - s_{i}) + \sum_{i=1}^{312} s_{i}(p_{i}^{a} - p_{i}) + \sum_{i=1}^{312} (p_{i}^{a} - p_{i})(s_{i}^{a} - s_{i}).$$

The first term on the right side of the equation measures the effects of differences in industry mix; it is the difference in plant scale that would have resulted if, in each industry, plant scale were the same for foreign-owned establishments as for U.S.-owned establishments but if the differences in the distribution of the establishments by industry were as observed. The second term on the right side measures the effects of within-industry differences in plant scale; it is the difference in plant scale that would have resulted if foreignowned establishments had the same distribution by industry as U.S.-owned establishments but if the differences in plant scale that existed in each industry were as observed. The third term reflects the interaction between these two effects.

A decomposition similar to this one was carried out for each of the other measures discussed in the article.

Estimation of nonsample establishments

Data were estimated for foreign-owned establishments that were not selected for the 1990 ASM, which covered only a sample of all manufacturing establishments. For manufacturing as a whole, 17 percent of the shipments of foreign-owned establishments was estimated in 1990. for the nonsample foreign-owned establishments were estimated using industry-average relationships between employment and payroll, on the one hand, and the other items covered by the ASM, on the other. (Employment and payroll for all foreign-owned establishments were obtained from the Census Bureau's Standard Statistical Establishment List.) Because industry-average relationships were used as the basis for estimation, actual differences between foreign-owned and U.S.-owned establishments may not be the same as those observed in the data; in particular, both the total and the within-industry differences may be larger. To check this possibility, the productivity of foreign-owned and U.S.-owned establishments was compared using data only for those foreign-owned establishments that were reported in the ASM. This comparison indicated that both the total productivity difference and the within-industry difference are larger when only these data are used than when both the reported and estimated data are used. However, the significance of this result is difficult to assess because the foreign-owned establishments included in the ASM sample were much larger, on average, than the nonsample establishments, and, as discussed

Data Availability

This article presents summary data for foreignowned U.S. manufacturing establishments. Publications presenting more detailed data for 1989 and 1990 are available from the Superintendent of Documents (see inside back cover for order information). The data are also available on diskettes at a cost of \$20 each. For the 1989 data, specify BEA Accession Number 50-93-40-789, and for the 1990 data, Accession Number 50-93-40-790. Send your order, along with a check or money order payable to "Bureau of Economic Analysis," to Public Information Office Order Desk, BE-53, Bureau of Economic Analysis, U.S. Department of Commerce, Washington, DC 20230. To place an order using MasterCard or VISA, call (202) 606-9827. For further information about the link project, call (202) 606-9893.

in the previous section, productivity tends to be higher in larger establishments.

Residual industries

The sic includes some three- and four-digit industries that cover establishments not elsewhere classified. (An sic code with the digit "9" appearing as the third or fourth digit usually designates such an industry.) These residual industries usually do not consist of homogeneous activity groups. For example, sic 3699 ("Electrical machinery, equipment, and supplies, not elsewhere classified") includes, among other things, establishments that manufacture electric Christmas tree lights and establishments that manufacture particle accelerators. Because of this heterogeneity, the activities of foreign-owned and U.S.-owned establishments that are classified in such industries may differ significantly. These differences could, in turn, cause the withinindustry differences that were observed in the data to be larger than if comparisons had been based only on industries in which activities were more homogeneous. To determine whether this was the case, the residual industries were excluded from the data, and the comparisons of the hourly wage rate and the productivity of foreign-owned and U.S.-owned establishments were repeated. Two different checks were made: In the first, only the 15 three-digit residual industries were excluded; in the second, both the threeand four-digit residual industries (a total of 53 industries) were excluded. In both the hourly wage rate and the productivity comparisons, excluding the residual industries had little effect on the results. Specifically, both the overall differences between foreign-owned and U.S.-owned establishments and the relative importance of the industry-mix effects and within-industry differences were nearly the same as those reported in the article. In addition, the distributions of foreign-owned and U.S.-owned establishments in terms of relative hourly wage rates and productivity were little changed from those discussed in the article.

Table 14 follows.

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990

	by Detailed Industr									
		For	eign-owned establis	hments		All U.S. establishmen	ts		ned establishn of all U.S. esta	
SIC	In director.		Thousands	s of dollars		Thousands	of dollars	percentage		ibiisiirierits
code	Industry	Number of employees	Value added by manufacture	Value of shipments	Number of employees ¹	Value added by manufacture ¹	Value of shipments ²	Employ- ment	Value added by manufac- ture	Value of shipments
	Manufacturing ³	2,004,235	177,360,745	417,539,353	18,840,300	1,326,361,700	2,873,501,600	10.6	13.4	14.5
20	Food and kindred products	159,386	19,501,177	46,842,783	1,469,900	140,972,800	384,009,000	10.8	13.8	12.2
21 22	Tobacco products Textile mill products	H 47,363	(D) 2,283,123	5,693,627	40,900 632,500	22,561,300 26,541,600	29,922,400 65,951,400	(^D)	(^D) 8.6	(D) 8.6
23 24	Apparel and other textile products	23,085	850,240	1,727,481	992,900 682,900	33,034,000 28,597,200	64,413,600	2.3 2.5	2.6 2.9	2.7
25	Lumber and wood products	17,043 J	842,486 (^D)	2,304,003 (^D)	499,200	21,644,700	74,287,200 41,682,000	(D) 7.7	(D)	(D) 8.7
26 27	Paper and allied products Printing and publishing	48,644 103,983	4,709,223 10,408,807	11,395,189 16,499,934	628,100 1,538,100	59,823,300 103,179,000	131,444,600 157,059,500	7.7 6.8	7.9 10.1	8.7 10.5
28 29	Chemicals and allied products Petroleum and coal products	242,392 25,638	48,835,701 4,106,797	87,678,890 46,372,551	853,300 111,900	153,032,400 27,214,100	288,183,700 172,588,600	28.4 22.9	31.9 15.1	30.4 26.9
30	Rubber and miscellaneous plastics products	120,951	8,757,926	17,790,551	870,100	49,889,000	101,398,200	13.9	17.6	17.5
31 32	Leather and leather products	6,362 105,578	287,251 8,450,211	608,138 16,407,454	117,400 509,100	4,586,600 34,140,200	9,887,300 63,468,000	5.4 20.7	6.3 24.8	6.2 25.9
33 34	Primary metal industries	119,087 93,300	10,297,630 6,350,246	31,902,909 13,973,579	711,900 1,438,700	53,366,600 79,951,900	146,052,000 163,052,800	16.7 6.5	19.3 7.9	21.8 8.6
35	Industrial machinery and equipment	191,440	13,561,697	31,010,583	1,876,700	132,165,800	256,344,700	10.2	10.3	12.1
36 37	Electronic and other electric equipment	228,237 104,147	16,703,246 7,170,588	34,601,773 28,834,909	1,497,400 1,773,700	106,983,900 146,916,300	194,847,900 367,926,700	15.2 5.9	15.6 4.9	17.8 7.8
38 39	Instruments and related products	121,520 26,087	9,722,110 1,929,276	15,840,686 3,553,235	948,600 386,300	81,665,600 20,095,600	123,776,700 37,205,200	12.8 6.8	11.9 9.6	12.8 9.6
	Administrative and auxiliary	200,064	n.a.	n.a.	1,260,900	n.a.	n.a.	15.9	n.a.	n.a.
20 201	Food and kindred products Meat products	159,386 16,050	19,501,177 642,258	46,842,783 2,911,450	1,469,900 376,900	140,972,800 18,434,500	384,009,000 90,776,500	10.8 4.3	13.8 3.5	12.2 3.2
2011 2013	Meat packing plantsSausages and other prepared meats	3,864 2,968	172,550 199,018	1,124,837 845,454	118,400 81,700	6,666,500 5,315,700	51,069,200 18,779,700	3.3 3.6	2.6 3.7	2.2 4.5
2015	Poultry slaughtering and processing	9,218	270,690	941,159	176,800	6,452,300	20,927,600	5.2	4.2	4.5
202 2021	Dairy products Creamery butter	18,410 B	2,121,659 (^D)	6,845,546 (^D)	139,000 1,600	13,233,700 207,500	50,962,400 1,307,500	13.2 (^D)	16.0 (^D)	13.4 (^D) 11.7
2022 2023	Cheese, natural and processed Dry, condensed, evaporated products	4,804 1,420	390,614 468,861	1,886,501 908,179	34,900 12,100	2,850,600 2,670,200	16,155,800 6,135,300	13.8 11.7	13.7 17.6	14.8
2024 2026	lcé cream and frozen desserts	8,724	(D) 823,911	(D) 3,183,337	20,700 69,600	1,725,500 5,779,900	4,660,200 22,703,600	(^D) 12.5	(^D) 14.3	(^D) 14.0
203	Preserved fruits and vegetables	27,181	3,362,382	6,918,243	218,200	20,418,900	44,494,500	12.5	16.5	15.5
2032 2033	Canned specialties Canned fruits and vegetables	931 9,641	213,440 1,278,306	389,181 2,935,885	23,900 68,000	3,272,300 6,405,200	6,322,300 14,697,900	3.9 14.2	6.5 20.1	6.2 20.1
2034 2035	Dehydrated fruits, vegetables, soups Pickles, sauces, and salad dressings	2,345 1,525	334,656 392,483	591,218 621,680	14,100 21,200	1,124,900 2,984,500	2,453,700 5,749,800	16.6 7.2	29.8 13.2	24.1 10.8
2037 2038	Frozen fruits and vegetables Frozen specialties, nec	5,768 6,971	353,619 789,878	1,037,316 1,342,963	46,200 44,700	2,921,600 3,710,400	7,473,600 7,797,000	12.5 15.6	12.1 21.3	13.9 17.2
204	Grain mill products	15,180	2,877,809	6,796,558	102,700	19,294,700	46,538,000	14.8	14.9	14.6
2041 2043	Flour and other grain mill products	1,312 0	231,559 0	726,735 0	12,300 16,100	1,251,300 6,325,300	5,624,700 8,704,600	10.7 0	18.5 0	12.9 0
2044 2045	Rice milling Prepared flour mixes and doughs	C 2,499	(D) 554,763	(D) 937,758	4,300 12,000	592,500 1,496,700	1,771,700 3,155,500	(^D) 20.8	(^D) 37.1	(^D) 29.7
2046	Wet corn milling	H	(D)	(D)	9,300	2,867,700	6.696.400	(D) (D)	(D)	(D) (D)
2047 2048	Dog and cat food Prepared feeds, nec	G 5,123	475,527	2,159,666	12,900 35,800	3,842,200 2,919,000	7,015,000 13,570,200	14.3	16.3	15.9
205 2051	Bakery products	26,951 14,359	2,769,836 1,074,725	4,310,139 1,683,037	207,900 149,000	15,971,100 10,475,500	26,121,300 17,019,200	13.0 9.6	17.3 10.3	16.5 9.9
2052 2053	Cookies and crackersFrozen bakery products, except bread	12,276 316	1,676,510 18,601	2,592,481 34,621	48,700 10,200	4,823,100 672,400	7,803,500 1,298,600	25.2 3.1	34.8 2.8	33.2 2.7
206	Sugar and confectionery products	14,715	1,527,756	3,862,402	92,300	9,474,600	21,044,500	15.9 (^D)	16.1	18.4
2061 2062	Raw cane sugar Cane sugar refining	Ğ	(D)		6,100 4,900	502,000 659,700	1,295,600 3,075,300	\D\	(D)	(D) (D) (D)
2063 2064	Beet sugar Candy and other confectionery products	G 7,746	(Þ) 621,196	(D) 1,231,407	7,600 49,200	828,800 4,354,900	2,133,900 7,991,800	(^D) 15.7	(^D) 14.3	15.4
2066 2067	Chocolate and cocoa products	G	(D)	(D)	11,300 4,400	1,418,100 725,200	3,061,300 1,113,700	(D)	(D)	(D) (D) (D)
2068	Salted and roasted nuts and seeds	C 6,163	(D)	(D)	8,900	985,900	2,373,000 19,499,200	(D) 21.0	(D) (D) 23.6	(D) 22.8
207 2074	Fats and oils Cottonseed oil mills	6,163 E	973,226 (D)	4,445,591 (^D)	29,300 2,800	4,118,200 185,000	850,500	(D)	(D)	(D)
2075 2076	Soybean oil mills Vegetable oil mills, nec	G 184	(D) 27,225	(D) 179,793	6,900 700	1,519,000 98,600	10,966,300 490,400	(^D) 26.3	(^D) 27.6	(^D) 36.7
2077 2079	Animal and marine fats and oils	C 3,706	(D) 565,481	1,739,181	8,600 10,300	715,400 1,600,300	1,776,200 5,415,800	(^D) 36.0	(^D) 35.3	(^D) 32.1
208 2082	Beverages	14,504 G	2,561,436	5,052,651	146,200	25,033,900	52,198,000	9.9 (D)	10.2	9.7
2083	Malt beverages Malt	É	(D)	(D)	32,600 1,400	8,192,800 170,800	15,186,200 700,400	(D)	(D) (D)	(D) (D)
2084 2085	Wines, brandy, and brandy spirits Distilled and blended liquors	2,496 3,357	397,667 924,787	722,462 1,625,637	14,400 7,400	1,810,100 1,888,300	3,657,800 3,473,500	17.3 45.4	22.0 49.0	`19.8 46.8
2086 2087	Bottled and canned soft drinks	5,151 764	511,608 263,015	1,345,438 371,437	82,400 8,100	9,075,100 3,896,900	23,847,500 5,332,500	6.3 9.4	5.6 6.7	5.6 7.0
209	Miscellaneous food and kindred products	20,232	2,664,815	5,700,203	157,300	14,993,300	32,374,500	12.9	17.8	17.6
2091 2092	Canned and cured fish and seafoods Fresh or frozen prepared fish	1,192 6,764	63,249 353,240	267,432 1,443,721	7,100 40,500	303,200 1,776,900	998,200 6,087,700	16.8 16.7	20.9 19.9	26.8 23.7
2095 2096	Roasted coffee	2,322 2,139	592,348 320,787	1,200,431 518,688	11,200 32,300	3,581,800 2,906,300	6,622,700 6,062,100	20.7 6.6	16.5 11.0	18.1 8.6
2097 2098	Manufactured ice Macaroni and spaghetti	B	(D)	(D)	4,400 6,200	238,000 728,700	326,700 1,229,600	(D)	(D)	(D) (D)
2099	Food preparations, nec	7,574	1,307,414	2,219,343	55,700	5,458,300	11,047,600	13.6	24.0	20.1
21 211	Tobacco products Cigarettes	H G	(D) (D)	(D)	40,900 27,800	22,561,300 20,628,300	29,922,400 25,522,400	(D)	(D) (D)	(D)
2111	Cigarettes	G	(D)	(D) (D)	27,800	20,628,300	25,522,400	(D)	(D)	(P) (P) 0
212 2121	Cigars	0	Ĭ	Ĭ	2,300 2,300	137,000 137,000	229,800 229,800	0	Ó	0
213 2131	Chewing and smoking tobacco	C	(D) (D) (D)	(D) (D) (D)	3,200 3,200	1,105,900 1,105,900	1,473,800 1,473,800	(D)	(D) (D) (D)	(D) (D) (D)
214 2141	Tobacco stemming and redrying	F F	(D) (D)	(D)	7,600 7,600	690,000 690,000	2,696,500 2,696,500	(D) (D)	(D) (D)	(D) (D)
22	Textile mill products	47,363	2,283,123	5,693,627	632,500	26,541,600	65,951,400	7.5	8.6	86
221 2211	Broadwoven fabric mills, cotton	G	(D)	(D)	62,500 62,500	2,457,000 2,457,000	5,324,500 5,324,500	(D) (D)	(D)	(P) (P) 12.5
222	Broadwoven fabric mills, manmade fiber and silk	10,405	538,937	1,076,324	85,300 l	3,619,300	8,577,900	12.2	14.9	12.5

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990—Continued

	by Detailed Industry, 1990—Continued											
		For	eign-owned establis	hments		All U.S. establishmen	ts		ned establishments as a of all U.S. establishments			
SIC	la disate.		Thousands	of dollars		Thousands	of dollars	percentage		ablishments		
code	Industry	Number of employees	Value added by manufacture	Value of shipments	Number of employees ¹	Value added by manufacture ¹	Value of shipments ²	Employ- ment	Value added by manufac- ture	Value of shipments		
2221 223	Broadwoven fabric mills, manmade fiber and silk	10,405	538,937	1,076,324	85,300	3,619,300 674,600	8,577,900	12.2	14.9	12.5		
2231	Broadwoven fabric mills, wool	357 357	23,336 23,336	41,728 41,728	15,700 15,700	674,600	1,798,300 1,798,300	2.3 2.3	3.5 3.5	2.3 2.3		
224 2241	Narrow fabric mills	983 983	77,334 77,334	107,476 107,476	17,000 17,000	671,400 671,400	1,259,700 1,259,700	5.8 5.8	11.5 11.5	8.5 8.5		
225 2251	Knitting mills	8,331 E	290,206	701,556 (D)	197,900 23,400	6,791,100 911,200	14,596,500 1,620,700	4.2 (D)	4.3	4.8 (D)		
2252 2253	Hosiery, nec	G 1,378	(D) 35,918	(D) 67,356	38,600 63,600	1,062,000 1,783,200	2,277,900 3,456,400	(D) (D) (D) 2.2	(D) 2.0	(Þ) 1.9		
2254	Knit underwear mills	G	(D)	(D)	15,400	596,500	1,105,000	(D) 2.7	(D)	(D)		
2257 2258	Weft knit fabric mills Lace and warp knit fabric mills	842 G	32,153 (D)	102,668 (^D)	30,700 22,300	1,370,000 931,600	3,588,700 2,298,300	(D) 0	2.3 (^D)	(D)		
2259 226	Knitting mills, nec	0 H	(D)) Ó (^D)	3,900 49,400	136,500 2,365,700	249,300 6,303,800	(D)	` Ó (^D)	(P)		
2261 2262	Finishing plants, cotton	1,341 E	59,665	113,369 (D)	14,900 22,300	812,300 1,109,700	1,594,800 3,400,900) 9.0 (□)	7.3	(₽)		
2269 227	Finishing plants, nec Carpets and rugs	1,489 3,310	74,144 179,830	189,153 661,636	12,200 51,800	443,600 2,917,300	1,308,100 10,038,400	12.2 6.4	16.7 6.2	14.5 6.6		
2273	Carpets and rugs	3,310	179,830	661,636	51,800	2,917,300	10,038,400	6.4	6.2	6.6		
228 2281	Yarn and thread mills Yarn spinning mills	10,800 6,69 <u>3</u>	394,793 246,816	996,732 619,148	100,700 75,000	3,753,100 2,654,500	10,574,600 7,259,200	10.7 8.9	10.5 9.3	9.4 8.5		
2282 2284	Throwing and winding mills Thread mills	F H	(D)	(D) (D)	18,500 7,100	769,300 329,300	2,521,000 794,500	(D) (D)	(D)	(D) (D)		
229 2295	Miscellaneous textile goods Coated fabrics, not rubberized	7,828 E	520,049 (D)	1,524,095 (^D)	52,200 8,900	3,292,000 578,600	7,477,800 1,361,800	15.0 (^D)	15.8 (^D)	2ó.4 (^D)		
2296 2297	Tire cord and fabrics Nonwoven fabrics	2,849 2,329	94,050 214,792	443,174 669,364	5,100 16,900	334,300 1,306,900	981,600 2,851,000	55.9 13.8	`28.1 16.4	45.1 23.5		
2298 2299	Cordage and twine	G 1,199	(D) 118,688	(P) 203,167	7,000 14,400	248,800 823,400	636,900 1,646,500	(D) 8.3	(^D) 14.4	(P) 12.3		
23	Apparel and other textile products	23,085	850,240	1,727,481	992,900	33,034,000	64,413,600	2.3	2.6	2.7		
231 2311	Men's and boys' suits and coats Men's and boys' suits and coats	4,262 4,262	148,603 148,603	234,577 234,577	48,400 48,400	1,500,800 1,500,800	2,622,400 2,622,400	8.8 8.8	9.9 9.9	8.9 8.9		
232	Men's and boys' furnishings	7,982	264,990	548,727 (D)	258,800	8,051,400	14,872,900	2.1	3.3	3.7		
2321 2322	Men's and boys' shirts Men's and boys' underwear and nightwear	H G	(D)	(D)	69,700 15,300	2,197,700 381,700	4,242,600 724,900	(D)	(D)	(P)		
2323 2325	Men's and boys' neckwear Men's and boys' trousers and slacks	B 1,813	(P) 67,229	(Þ) 163,467	7,400 81,700	268,500 3,016,700	499,900 5,657,300	(D) (D) (D) (D) 2.2	(^D) 2.2	(Þ) 2.9		
2326 2329	Men's and boys' work clothing	C F	(D)	(D)	31,500 53,300	846,300 1,340,600	1,461,700 2,286,600	(D) (D)	(D)	(D) (D)		
233 2331	Women's and misses' outerwear	1,950 C	60,636	111,089 (D)	318,200 64,400	10,192,400 1,954,900	19,338,700 3,733,000	.6	(P)	(D).6		
2335 2337	Women's, junior's, and misses' dresses Women's and misses' suits and coats	F 1,004	(D) 36,450	(D) 77,062	106,400 45,900	3,346,800 1,979,000	5,914,500 4,162,800	(D) (D) 2.2	(D) 1.8	(Þ) 1.9		
2339 234	Women's and misses' outerwear, nec Women's and children's undergarments	C G	(D)	(D) (D)	101,500 60,300	2,911,700 1,859,000	5,528,400 3,424,300	(D)	(D) (D)	(D)		
2341	Women's and children's underwear	G	(D) (D)	(D) (D)	48,700	1,298,400	2,337,400	(D) (D) (D) (D)	(D) (D)	(D) (D)		
2342 235	Bras, girdles, and allied garments	E 0	\	` ό	11,600 16,500	560,600 424,300	1,086,900 736,600	`ó	` ó	`ó		
2353 236	Hats, caps, and millinery	0 F	0 (D)	0 (^D)	16,500 60,800	424,300 2,045,700	736,600 3,697,800	0 (^D)	0 (^D)	(D) (D)		
2361 2369	Girls' and children's dresses and blouses	E C	(D) (D) (D)	(D) (D)	29,000 31,900	903,800 1,141,900	1,724,500 1,973,200	(D) (D) (D)	(D) (D)	(D)		
237 2371	Fur goods Fur goods	0 0	0	0	2,200 2,200	103,600 103,600	378,700 378,700) Ó 0	` Ó 0	0		
238 2381	Miscellaneous apparel and accessories	C	(D) (D)	(D) (D)	38,300 5,200	1,237,900 212,400	2,256,400 340,800	(D)	(D)	(D) (D)		
2384 2385	Robes and dressing gowns Waterproof outerwear	0) Ó	` Ó	3,900 4,500	119,700 113,000	306,300 219,300	` ó	` ó) Ó 0		
2386 2387	Leather and sheep-lined clothing	0	0	0	2,200 11,100	73,000 386,100	166,600 673,400	0	0	0		
2389	Apparel belts	0	0	0	11,500	333,800	550,100	0	0	0		
239 2391	Miscellaneous fabricated textile products Curtains and draperies	6,515 F	273,047 (^D)	620,649 (^D)	189,300 23,400	7,618,800 685,400	17,085,900 1,499,200	3.4 (^D)	3.6 (^D)	3.6 (^D)		
2392 2393	Housefurnishings, nec	2,638 360	86,198 12,369	214,278 29,131	44,800 5,700	1,967,300 230,000	4,871,900 513,000	5.9 6.3	4.4 5.4	4.4 5.7		
2394 2395	Canvas and related products	C 0	(D)	(^D)	17,300 14,200	531,100 388,100	1,134,900 742,700	(D) 0	(D) 0	(^D)		
2396 2397	Automotive and apparel trimmings Schiffli machine embroideries	F C	(D)	(D) (D)	47,100 5,900	2,267,400 172,900	5,104,800 309,200	(D) (D)	(D) (D)	(D) (D)		
2399	Fabricated textile products, nec	1,586	110,416	206,322	31,100	1,376,600	2,910,300	5.1	8.0	7.1		
24 241	Lumber and wood products Logging	17,043 721	842,486 119,353	2,304,003 382,586	682,900 83,400	28,597,200 4,313,200	74,287,200 12,229,000	2.5 .9	2.9 2.8	3.1 3.1		
2411 242	Logging Sawmills and planing mills	721 2,706	119,353 143,504	382,586 431,743	83,400 170,800	4,313,200 7,174,500	12,229,000 19,934,900	.9 1.6	2.8 2.0	3.1 2.2		
2421 2426	Sawmills and planing mills, general Hardwood dimension and flooring mills	2,071 F	122,196	378,485	138,900 29,300	6,184,300	17,923,000	1.5	2.0	2.1		
2429	Special product sawmills, nec	B	(D)	(D)	2,500	908,800 81,500	1,800,500 211,300	(D) (D) (D) 3.5	(D)	(D) (D) 3.3		
243 2431	Millwork, plywood and structural members	7,930 3,909	339,789 168,644	777,564 375,646	229,400 90,500	9,577,600 3,851,600	23,245,200 9,524,700		3.5 4.4	3.9		
2434 2435	Wood kitchen cabinets Hardwood veneer and plywood	G 1,328	(D) 59,420	(^D) 135,003	62,800 18,700	2,540,100 706,600	4,610,000 2,051,700	(P) 7.1	(^D) 8.4	(^D) 6.6		
2436 2439	Softwood veneer and plywood	C	(D)	(D)	35,600 21,800	1,669,200 810,100	5,030,400 2,028,400	(D)	(D) (D)	(D) (D)		
244 2441	Wood containers Nailed wood boxes and shook	Ċ	(D)	(D)	41,500 6,000	1,189,200 191,600	2,850,000 431,300	(D) (D) (D) 0	(D)	(12)		
2448	Wood pallets and skids	С	(P)	(P) 0	28,300	802,000	1,948,600	(P) 0	(P) 0	(D)		
2449 245	Wood containers, nec	0 G	(D)	(D)	7,200 61,400	195,600 2,364,800	470,200 6,471,000	(D)	(D)	(P) (P)		
2451 2452	Mobile homes Prefabricated wood buildings	B 1,359	(D) 48,762	(Þ) 116,306	38,800 22,600	1,501,600 863,200	4,202,500 2,268,500	` 6.0	(⊡) 5.6	5.1		
249 2491	Miscellaneous wood products Wood preserving	4,118 F	178,693 (^D)	570,338 (^D)	96,400 13,000	3,977,800 696,500	9,557,000 2,642,700	4.3 (^D)	4.5 (^D)	6.0 (^D)		
2493 2499	Reconstituted wood products Wood products, nec	1,598 G	95,998 (D)	247,272 (D)	22,300 61,100	1,285,000 1,996,300	3,042,600 3,871,800	(D) 7.2 (D)	7.5 (^D)	` 8.1 (□)		
	Furniture and fixtures	J	(D)	(P)	499,200	21,644,700	41,682,000	(D)	(P)	(P)		
20		J	. ()	() !	700,200	_1,0-1,100 1	.1,002,000	. ()	()	. ()		

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990—Continued

Foreign-owned establishments All U.S. establishments Foreign-owned establishments						nents as a				
SIC			Thousands			Thousands			of all U.S. esta	
code	Industry	Number of employees	Value added by manufacture	Value of shipments	Number of employees ¹	Value added by manufacture ¹	Value of shipments ²	Employ- ment	Value added by manufac- ture	Value of shipments
251 2511 2512 2514 2515 2517 2519 252 2521 2522 253 2531 254 2542 259 2599	Household furniture Wood household furniture Upholstered household furniture Metal household furniture Mattersses and bedsprings Wood television and radio cabinets Household furniture, nec Office furniture Wood office furniture Office furniture, except wood Public building and related furniture Public building and related furniture Partitions and fixtures Wood partitions and fixtures Partitions and fixtures, except wood Miscellaneous furniture, and fixtures Drapery hardware and blinds and shades Furniture and fixtures.	9,065 2,183 H H 0 G 1,577 3,761 F H G G F C C	276,284 85,549 (P) (P) (P) 33,088 277,062 (P) (P) (P) (P) (P) (P) (P) (P) (P) (P)	692,827 192,599 (P) (P) (P) 148,970 481,778 (P) (P) (P) (P) (P) (P) (P) (P) (P) (P)	274,800 130,900 83,800 24,700 3,300 5,700 74,900 26,000 26,000 72,600 40,100 32,500 19,000 31,900	9,878,100 4,399,000 2,809,100 1,032,400 1,331,400 132,600 173,700 4,719,500 1,100,800 3,618,700 1,147,100 1,147,100 3,409,300 1,620,800 2,490,600 1,005,100 1,485,600	19,912,900 8,302,900 5,815,300 2,184,100 2,994,900 458,700 8,030,100 1,998,800 6,031,400 3,112,400 6,193,000 3,147,200 3,045,800 1,886,300 2,547,300	3.3 1.7 (P) 0 0 (P) 27.7 5.0 (P) (P) (P) (P) (P) (P) (P) (P) (P) (P)	2.8 1.9 (P) 0 (P) 19.0 5.9 (P) (P) (P) (P) (P) (P) (P) (P) (P) (P)	3.5 2.3 (P) (P) 0 (P) 32.5 6.0 (P) (P) (P) (P) (P) (P) (P) (P) (P) (P)
26 2611 2611 2622 2621 2631 2655 2655 2655 2656 2657 2671 2672 2673 2674 2674 2676 2677 2676	Paper and allied products Pulp mills Pulp mills Paper mills Paper mills Paper mills Paper mills Paperboard mills Paperboard mills Paperboard containers and boxes Setup paperboard boxes Setup paperboard boxes Corrugated and solid fiber boxes Fiber cans, drums and similar products Sanitary food containers Folding paperboard boxes Miscellaneous converted paper products Paper coated and laminated, packaging Paper coated and laminated, nec Bags: plastics, laminated, and coated Bags: uncoated paper and multiwall Die-cut paper and board Sanitary paper products Envelopes Stationery products Converted paper products Converted paper products Converted paper products	48,644 E E 10,612 10,612 7,562 7,562 17,531 344 9,976 G G C 5,477 J 1,404 4,579 1,101 723 G B C C	4,709,223 (P) (1,458,591 1,119,742 1,119,742 997,570 22,552 538,037 (P) 347,908 (P) 80,606 443,059 84,592 34,172 (P)	11,395,189 (P) 3,553,586 3,553,586 2,147,095 2,147,095 3,034,012 42,885 1,891,850 (P) 873,388 (P) 257,078 1,185,660 1777,252 96,731 (P) (P) (P) (D) (D) (D) (D) (D) (D) (D) (D) (D) (D	628,100 16,100 130,100 130,100 53,100 53,100 53,100 10,101 13,300 17,500 228,500 16,400 35,000 16,900 16,800 37,400 16,900 16,800 26,100 39,000 26,100 30,700	59,823,300 3,416,400 3,416,400 16,599,800 16,599,800 8,123,000 11,082,100 312,900 5,901,900 750,600 1,074,400 20,602,000 1,133,400 2,625,100 877,100 1,045,700 7,896,200 1,194,900 577,900	131,444,600 6,239,100 6,239,100 35,321,800 15,919,300 30,510,400 565,100 18,572,200 1,884,900 2,518,700 6,989,400 43,454,000 2,707,800 2,119,000 2,119,000 14,709,200 2,816,600 1,332,100 4,127,900	(P)	(P) (P) (P) (P) (P) (P) (P) (P) (P) (P)	8.7 (P) 10.1 10.1 13.5 13.5 13.5 10.2 (P) (P) (P) 12.5 (P) (P) (P) (P) (P) (P) (P) (P) (P) (P)
277 2711 2711 2722 2721 2732 2731 2732 274 2742 2752 2752 2754 2759 276 2761 2771 278 2782 2782 2789 2791 2796	Printing and publishing Newspapers Newspapers Periodicals Periodicals Periodicals Books Book publishing Book printing Miscellaneous publishing Miscellaneous publishing Commercial printing, lithographic Commercial printing, gravure Commercial printing, gravure Commercial printing, gravure Commercial printing, rec Manifold business forms Manifold business forms Greeting cards Greeting cards Greeting cards Greeting cards Blankbooks and bookbinding Blankbooks and looseleaf binders Bookbinding and related work Printing trade services Typesetting Platemaking services	103,983 19,774 19,774 14,122 14,122 21,423 17,407 4,016 4,732 4,732 28,413 15,041 1,	10,408,807 798,449 798,449 1,957,867 1,957,867 3,365,885 3,167,853 551,139 551,139 2,322,445 1,274,879 732,128 315,438 (P) (P) (P) (P) (P) (P) (P) (P)	16,499,934 1,055,891 1,055,891 3,124,876 3,124,876 4,660,080 4,305,984 354,096 650,747 650,747 4,549,246 2,547,334 1,473,185 528,727 (P) 0 0 (P) (P) (P) 286,725	1,538,100 443,400 115,200 115,200 115,200 73,500 65,200 65,200 65,200 65,200 580,400 423,300 23,900 133,200 50,300 24,600 70,200 34,600 70,200 38,500 31,700 66,500 33,600 32,900	103,179,000 26,559,600 26,559,600 13,847,700 13,847,700 13,320,400 10,919,500 2,400,900 6,656,200 6,656,200 6,656,200 11,742,000 6,029,100 4,038,100 4,038,100 2,827,500 3,218,700 2,182,900 1,035,800 3,709,400 1,605,700 2,103,700	157,059,500 34,641,700 20,396,700 20,396,700 19,449,900 15,317,900 8,874,700 8,874,700 3,867,400 7,807,500 7,807,500 3,720,700 4,549,400 1,363,400 4,715,200 1,957,400 2,757,800	6.8 4.5 4.5 12.3 12.3 17.5 23.7 7.3 7.3 4.9 3.6 37.1 3.4 (D) (D) (D) (D) (D) (D) (D)	10.1 3.0 3.0 14.1 14.1 25.3 29.0 8.2 8.3 8.3 8.0 6.0 42.0 (P) (P) (P) (P) (P) (P)	10.5 3.0 15.3 15.3 24.0 28.1 8.6 6.6 6.6 40.5 5.1 (P) (P) (P) (P) (P) (P)
28 2811 2812 2813 2816 2819 2819 2819 2822 2823 2824 2833 2834 2835 2844 285 2856 2869 2873 2874	Chemicals and allied products Industrial inorganic chemicals Alkalies and chlorine Industrial gases Inorganic pigments Industrial inorganic chemicals, nec Plastics materials and synthetics Plastics materials and resins Synthetic rubber Cellulosic manmade fibers Organic fibers, noncellulosic Drugs Medicinals and botanicals Pharmaceutical preparations Diagnostic substances Biological products except diagnostic Soap, cleaners, and toilet goods Soap and other detergents Polishes and sanitation goods Surface active agents Toilet preparations Paints and allied products Paints and allied products Industrial organic chemicals Gum and wood chemicals Cyclic crudes and intermediates Industrial organic chemicals Phosphatic fertilizers	242,392 22,882 E H 4,343 13,469 54,991 14,365 I H 29,307 65,378 2,063 51,180 3,865 8,270 22,075 5,439 H H 10,436 10,833 10,833 10,833 38,025 F I 27,762 10,186 F I I I I I I I I I I I I I I I I I I	48,835,701 4,576,277 (P) (1,369,809) 2,153,141 8,854,655 3,446,830 (P) (P) 4,002,359 14,224,655 259,825 12,591,73 476,620 907,037 5,537,023 1,389,093 (P) (P) 2,681,806 1,635,949	87,678,890 7,845,636 (P) (2,055,67) 4,167,800 18,797,001 18,244,436 (P) (P) (P) 7,215,738 19,489,079 602,462 16,760,810 655,862 1,469,945 9,216,467 2,657,805 (P) (3,719,10) 3,528,421 3,528,421 3,528,421 19,192,018 (P) 15,432,739 4,815,384	853,300 100,900 6,800 9,000 8,500 131,600 11,400 11,400 182,900 10,900 143,800 19,600 13,300 19,600 19,600 15,900 55,900 25,900 25,500 23,000 10,300 42,800 10,300 10,300 12,500 10,500	153,032,400 16,099,700 1,449,900 1,919,200 1,939,800 20,511,200 12,1915,300 1,706,700 679,000 38,244,500 22,392,200 32,744,700 1,317,400 25,007,800 7,971,200 3,601,400 12,104,200 6,765,700 28,813,100 3,900,000 1,241,000 3,900,000 1,213,300 3,900,000 1,213,300 3,900,000 1,213,300 3,900,000 1,213,300 3,900,000 1,213,300 1,151,100	288,183,700 26,690,800 2709,800 3,058,100 3,203,900 17,719,000 48,419,800 4,210,300 1,456,700 11,427,100 53,719,700 44,919,400 44,182,300 2,462,200 2,155,800 15,373,400 3,168,300 17,048,400 14,238,700 14,238,700 14,238,700 14,238,700 165,695,500 642,900 10,922,600 54,160,000 18,307,400 3,113,400 4,636,200	28.4 22.7 (P) (P) (P) 51.1 17.6 41.8 23.0 (P) (P) 60.9 35.7 18.9 35.6 22.9 62.2 17.5 15.0 (P) (P) (P) (P) (P) 17.1 20.1 20.1 20.1 20.1 20.1 20.1 20.1 20	31.9 28.4 (P) (P) (P) 70.9 43.2 28.3 (P) 67.5 37.2 10.9 38.5 26.6 68.9 22.1 17.4 (P) (P) (P) (P) 22.2 24.2 24.2 24.2 32.1 (P) (P) (P) (P) (P) (P) (P) (P)	30.4 29.4 (P) 64.2 23.5 38.8 26.3 (P) 63.1 36.3 12.2 37.9 68.2 21.7 37.9 (P) (P) 21.8 24.8 24.8 24.8 24.8 24.8 24.8 24.8 24

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990—Continued

		by I	ıstry, 1990—	-Continued						
		For	eign-owned establis	hments		All U.S. establishmer	nts		ned establishm of all U.S. esta	
SIC	Industry	Niverbanas	Thousands	of dollars	North an of	Thousands	of dollars	porcomago	Value	
code	,	Number of employees	Value added by manufacture	Value of shipments	Number of employees ¹	Value added by manufacture ¹	Value of shipments ²	Employ- ment	added by manufac- ture	Value of shipments
2875 2879 289 2891 2892 2893 2895 2899	Fertilizers, mixing only Agricultural chemicals, nec Miscellaneous chemical products Adhesives and sealants Explosives Printing ink Carbon black Chemical preparations, nec	B 7,778 18,022 5,339 G 3,622 E 6,810	(P) 2,331,159 2,112,109 600,694 (P) 408,164 (P) 863,758	3,836,117 4,794,884 1,352,921 (P) 1,291,774 (P) 1,786,912	7,100 17,700 89,200 21,400 13,800 11,400 1,800 40,900	552,900 5,142,700 9,530,600 2,333,200 874,400 1,035,700 380,000 4,907,200	2,018,800 8,538,900 19,674,000 5,485,100 1,324,600 2,754,400 691,900 9,418,000	(P) 43.9 20.2 24.9 (P) 31.8 (P) 16.7	(D) 45.3 22.2 25.7 (D) 39.4 (D) 17.6	(D) 44.9 24.4 24.7 (D) 46.9 (P) 19.0
29 291 2911 295 2951 2952 299 2992 2999	Petroleum and coal products Petroleum refining Petroleum refining Asphalt paving and roofing materials Asphalt paving mixtures and blocks Asphalt letts and coatings Miscellaneous petroleum and coal products Lubricating oils and greases Petroleum and coal products, nec	25,638 19,702 19,702 3,469 H F 2,467 G C	4,106,797 3,418,395 3,418,395 413,016 (P) (P) 275,386 (P)	46,372,551 44,134,647 44,134,647 1,073,158 (P) (P) 1,164,746 (P)	111,900 71,900 71,900 26,700 14,300 12,400 13,200 11,200 2,000	27,214,100 22,822,000 22,822,000 2,734,700 1,449,800 1,284,900 1,280,300 377,100	172,588,600 159,411,100 159,411,100 7,798,700 4,213,800 3,554,900 5,378,700 4,398,500 980,200	22.9 27.4 27.4 13.0 (D) (D) 18.7 (D)	15.1 15.0 15.0 15.1 (D) (D) 16.6 (D)	26.9 27.7 27.7 13.8 (D) (P) 21.7 (D)
30 301 3011 3021 305 3052 3053 306 3061 3083 3084 3085 3084 3085 3086 3087 3088	Rubber and miscellaneous plastics products Tires and inner tubes Tires and inner tubes Rubber and plastics footwear Rubber and plastics footwear Rubber and plastics footwear Hose and belting and gaskets and packing Rubber and plastics footwear Gaskets, packing and sealing devices Fabricated rubber products, nec Mechanical rubber goods Fabricated rubber products, nec Miscellaneous plastics profulcts, nec Unsupported plastics film and sheet Unsupported plastics film and sheet Unsupported plastics profile shapes Laminated plastics pose Plastics bottles Plastics bottles Plastics foam products Custom compound purchased resins Plastics plumbing fixtures Plastics products, nec	120,951 35,511 789 789 10,126 2,588 7,538 15,317 4,617 10,700 59,208 9,582 3,434 4,32 1,466 6,382 2,927 1,588 28,159	8,757,926 3,237,878 3,237,878 37,710 37,710 450,334 154,716 295,618 970,180 273,121 697,059 4,061,824 885,377 171,737 240,299 199,298 106,544 413,715 233,343 205,501 1,606,010	17,790,551 5,805,548 60,556 66,656 66,656 6632,230 323,324 470,427 1,677,995 8,906,695 1,948,224 377,308 448,093 588,688 200,942 1,027,385 720,485 301,540 3,284,030	870,100 67,700 10,500 10,500 23,100 33,200 103,000 46,300 56,600 632,600 11,400 26,700 12,900 28,800 63,700 18,200 9,100	49,889,000 6,488,600 338,700 338,700 3,143,300 1,380,100 1,763,300 5,225,400 3,139,100 34,692,900 4,294,900 1,285,700 1,526,400 3,783,300 1,297,800 1,297,800 1,297,800	101,398,200 11,860,800 650,000 650,000 5,570,200 2,574,800 10,559,200 3,30,200 6,629,000 72,758,000 2,888,800 2,924,700 2,6688,800 3,728,900	13.9 52.5 52.5 7.5 7.5 7.5 18.0 11.2 22.7 14.9 10.0 18.9 9.4 18.6 12.9 18.4 18.9 5.1 10.0 16.1 17.5 7.0	17.6 49.9 49.9 11.1 11.1 14.3 11.2 16.8 18.6 13.1 22.2 11.7 20.6 13.4 20.7 24.7 6.6 10.9 18.0 35.6 8.1	17.5 48.9 10.3 10.3 15.5 12.6 18.0 20.3 12.0 25.3 12.2 21.0 14.0 19.5 22.9 5.4 11.4 22.2 31.2 8.4
31 311 3131 3131 3142 3142 3143 3144 315 315 315 3161 317 3171 3172 3199	Leather and leather products Leather tanning and finishing Leather tanning and finishing Footwear cut stock Footwear cut stock Footwear, except rubber House slippers Men's footwear, except athletic Women's footwear, except athletic Footwear, except rubber, nec Leather gloves and mittens Leather gloves and mittens Luggage Luggage Handbags and personal leather goods Women's handbags and purses Personal leather goods, nec Leather goods, nec Leather goods, nec	6,362 G G G E E E 3,191 O H O F O O B B B S 905 O C C C	287,251 (P) (P) (P) (P) (P) 98,155 0 (P) 0 (P) 37,599 37,599 0 (P) (P)	608,138 (P)	117,400 12,100 5,200 5,200 62,000 4,300 28,500 2,800 2,800 14,000 14,000 14,000 14,000 6,500 8,600 8,600	4,586,600 779,900 779,900 196,400 196,400 1,058,600 682,700 218,200 59,200 618,000 618,000 509,600 319,700 189,900 303,200	9,887,300 2,410,900 2,410,900 413,300 413,300 276,000 2,148,800 1,393,200 414,100 154,800 1,169,400 912,200 546,900 365,200 594,700 594,700	5.4 (D) (D) (D) (D) (D) (D) (D) (D)	6.3 (P) (P) (P) (P) (P) (P) (P) (P) (P) (P)	6.2 (D) (D) (D) (D) (D) (D) (D) (D)
32 3211 3211 3212 3221 3221 3221 3221 3	Stone, clay, and glass products Flat glass Flat glass Glass and glassware, pressed or blown Glass containers Pressed and blown glass, nec Products of purchased glass Products of purchased glass Cement, hydraulic Cement, hydraulic Structural clay products Brick and structural clay tile Clay refractories Structural clay products, nec Pottery and related products Vitreous plumbing fixtures Vitreous plumbing fixtures Semivitreous table and kitchenware Semivitreous table and kitchenware Semivitreous table and kitchenware Porcelain electrical supplies Pottery products, nec Concrete, gypsum, and plaster products Concrete block and brick Concrete block and brick Concrete block and brick Cut stone and stone products Cut stone and stone products Miscellaneous nometallic mineral products Abrasive products Minerals, ground or treated Mineral wool Nonclay refractories Nonmetallic mineral products, nec	105,578 21,522 16,391 5,131 6,953 6,953 10,501 10,501 10,501 10,501 10,501 2,033 10,816 15,646 1,259 3,359 C C C 18,413 7,997 C 2,974 3,516 3,404 E	8,450,211 (P) 1,645,014 1,266,761 378,253 427,734 427,734 1,353,752 1,353,752 1,353,752 (P) (B) (C) (D) (D) (D) (D) (D) (D) (D) (D) (D) (D	16,407,454 (P) 2,887,318 2,250,907 636,411 907,180 2,702,922 2,802,902 (P) (P) 4,875,489 285,310 1,162,562 2,467,829 2,467,829 (P) (P) 3,298,011 1,711,414 (P) 467,005 557,928 465,817 (P)	509,100 14,600 14,600 14,600 14,600 36,600 53,900 17,600 17,600 17,600 17,600 17,600 18,500 2,200 9,800 6,500 2,200 19,000 1,200 19,000 1,200 19,000 1,200 19,000 1,200 19,000 1,200 19,000 1,200 19,000 1,200 19,000 1,200 19,000 11,500	34,140,200 1,394,800 1,394,800 5,342,800 2,751,400 3,341,500 2,196,800 2,196,800 1,852,900 753,500 556,600 451,400 91,300 1,838,800 578,000 278,100 34,200 539,400 409,100 11,661,600 1,134,300 5,633,500 422,500 967,000 5,633,500 422,500 967,000 5,633,500 1,887,700 1,887,700 1,887,700 1,887,700 1,887,700 1,887,700 1,887,700 1,887,700 1,887,700 1,887,700	63,468,000 2,279,000 2,279,000 8,918,000 4,946,100 3,971,900 6,141,300 4,250,700 4,250,700 4,250,700 1,168,700 22,900 149,800 2,613,400 825,100 810,000 591,700 24,595,000 12,829,600 12,829,600 12,829,600 12,829,600 13,988,800 988,800 988,800 988,800 10,595,300 10,595,300 11,499,800 1,499,800 1,077,600 667,200	20.7 (P) (P) (P) (29.9 44.8 14.5 512.9 12.9 59.7 59.7 52.8 (P)	24.8 (P) (P) (30.8 46.0 14.6 12.8 61.6 61.6 62.4 29.7 (P) 19.8 (P) (P) (P) (P) 19.1 12.4 17.9 18.6 25.2 31.4 (P) (P) (P) 29.5 43.3 (P) 24.1 16.8 48.0 (P)	25.9 (P)

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990—Continued

			istry, 1990—	Continueu		Foreign-owned establishments as a				
		For	eign-owned establis			All U.S. establishmen			ned establishn of all U.S. esta	
SIC code	Industry	Number of	Inousand	s of dollars	Number of	Thousands	of dollars	Faralass	Value	\/-l
		employees	Value added by manufacture	Value of shipments	employees ¹	Value added by manufacture ¹	Value of shipments ²	Employ- ment	added by manufac- ture	Value of shipments
33	Primary metal industries	119,087	10,297,630	31,902,909	711,900	53,366,600	146,052,000	16.7	19.3	21.8
331 3312	Blast furnace and basic steel products	60,902 45,361	5,487,240 4,215,490	14,963,600 11,073,717	258,800 188,500	23,766,000 18,283,000	62,121,100 45,950,400	23.5 24.1	23.1 23.1	24.1 24.1
3313	Electrometallurgical products	2,502	225,270	540,250	5,200	431,200	1,180,400	48.1	52.2	45.8
3315 3316	Steel wire and related products	5,762 3,210	338,443 343,536	833,015 1,387,426	26,700 16,300	1,723,400 1,620,800	4,179,700 5,842,200	21.6 19.7	19.6 21.2	19.9 23.7
3317	Steel pipe and tubes	4,067	364,501	1,129,192	22,100	1,707,700	4,968,500	18.4	21.3	22.7
332 3321	Iron and steel foundries	10,651 3,204	650,840 160,093	1,172,560 366,026	132,500 81,000	6,691,500 4,111,200	12,064,500 7,825,300	8.0 4.0	9.7 3.9	9.7 4.7
3322 3324	Malleable iron foundries	0	0	(D)	4,900 19,800	196,800 1,033,500	320,600 1,592,100	(D)	(D)	(D)
3325	Steel foundries, nec	Ġ	(D)	(D)	26,700	1,350,000	2,326,500	(D)	(D)	(D) (D)
333 3331	Primary nonferrous metals	9,006 G	1,096,651	5,122,942	34,700 4,600	4,265,800 918,000	15,507,100 4,201,200	26.0	25.7	33.0
3334	Primary aluminum	Н	(D)	(D)	19,500	2,205,600	7,033,900	(D) (D)	(D)	(D)
3339 334	Primary nonferrous metals, nec	3,956 1,369	500,755 127,534	2,615,331 580,769	10,600 14,700	1,142,200 1,107,500	4,272,000 6,130,200	37.3 9.3	43.8 11.5	61.2 9.5
3341	Secondary nonferrous metals	1,369	127,534	580,769	14,700	1,107,500	6,130,200	9.3	11.5	9.5
335 3351	Nonferrous rolling and drawing Copper rolling and drawing	30,029 2,948	2,367,427 227,006	8,977,349 982,802	157,100 21,400	11,832,500 1,679,300	39,330,900 6,880,200	19.1 13.8	20.0 13.5	22.8 14.3
3353 3354	Aluminum sheet, plate, and foil	7,405 H	609,787	3,765,865	25,100 30,900	2,508,500 1,466,900	11,121,500 4,850,300	29.5	24.3	33.9
3355	Aluminum rolling and drawing, nec	В	(D)	(D)	800	54,600	388,300	(D)	(D)	(D) (D)
3356 3357	Nonferrous rolling and drawing, nec	5,354 10,026	450,339 910,548	1,140,812 2,472,542	18,600 60,200	1,502,500 4,620,700	3,481,200 12,609,400	28.8 16.7	30.0 19.7	32.8 19.6
336	Nonterrous toundries (castings)	4,125	215,566	412,845	79,800	3,548,000	7,159,300	5.2	6.1	5.8
3363 3364	Aluminum die-castings	1,051 1,378	60,815 76,771	109,066 137,898	28,800 13,200	1,326,600 598,200	2,779,500 1,317,900	3.6 10.4	4.6 12.8	3.9 10.5
3365	Aluminum foundries	879	35,879	84,672	23,600	980,700	1,919,100	3.7	3.7	4.4
3366 3369	Copper foundries	440 377	23,689 18,412	44,381 36,828	9,000 5,200	353,100 289,500	677,800 465,000	4.9 7.3	6.7 6.4	6.5 7.9
339 3398	Miscellaneous primary metal products Metal heat treating	3,005 619	352,372	672,844	34,200	2,155,300	3,738,800	8.8	16.3	18.0
3399	Primary metal products, nec	2,386	54,553 297,819	70,710 602,134	20,500 13,700	1,274,000 881,300	1,871,700 1,867,100	3.0 17.4	4.3 33.8	3.8 32.3
34	Fabricated metal products	93,300	6,350,246	13,973,579	1,438,700	79,951,900	163,052,800	6.5	7.9	8.6
341 3411	Metal cans and shipping containers	1	(D)	(D)	43,100 35,900	4,090,500 3,668,400	13,555,700 12,342,400	(D)	(D)	(D)
3412	Metal barrels, drums, and pails	Ė	(D)	(D)	7,200	422,100	1,213,300	(D)	(D)	(D)
342 3421	Cutlery, handtools, and hardware	7,490 E	520,445 (P)	880,277	139,000 10,900	8,504,200 977,800	14,666,300 1,320,500	5.4 (D)	6.1 (D)	6.0
3423	Hand and edge tools, nec	G	(D)	(D)	40,600	2,392,800	3,966,700	(D) (D) 2.3	(D)	(D) (D) (D) 2.1
3425 3429	Saw blades and handsaws Hardware, nec	199 5,804	11,253 370,289	19,052 646,714	8,700 78,800	540,300 4,593,300	916,800 8,462,300	7.4	2.1 8.1	7.6
343 3431	Plumbing and heating, except electric	893 C	43,752	91,560	43,400 7,700	3,079,500	5,897,200	2.1	1.4	1 16
3432	Metal sanitary ware Plumbing fixture fittings and trim	B	(D)	(D)	17,300	524,800 1,400,100	980,000 2,749,900	(D) (D) 3.4	(D)	(D) (D) (D) 3.3
3433 344	Heating equipment, except electric	617 29,974	34,384 1,759,842	71,294 3,963,428	18,400 405,900	1,154,600 19,934,500	2,167,400 44,936,100	3.4 7.4	3.0 8.8	3.3 8.8
3441	Fabricated structural metal	3,542	196,117	456,577	82,700	4,035,400	9,788,100	4.3	4.9	4.7
3442 3443	Metal doors, sash, and trimFabricated plate work (boiler shops)	5,478 9,865	279,379 623,795	648,667 1,146,070	72,200 76,100	3,053,500 4,198,500	6,981,500 8,653,700	7.6 13.0	9.1 14.9	9.3 13.2
3444	Sheet metal work	3,743	255,366	718,505	99,100	4.867.400	10,249,100	3.8	5.2	7.0
3446 3448	Architectural metal work	1,796 4,682	80,549 264,414	142,548 683,464	30,000 22,800	1,350,800 1,183,000	2,492,900 2,984,100	6.0 20.5	6.0 22.4	5.7 22.9
3449 345	Miscellaneous metal work	868 H	60,222	167,597	23,000 95,200	1,245,900 5,150,400	3,786,800 8,723,000	3.8 (D)	4.8 (D)	4.4 (D)
3451	Screw machine products	F	(D)	(D)	42,400	1,956,000	3,034,400	(D)	(D)	(D) (D) (D)
3452 346	Bolts, nuts, rivets, and washers	H 12,364	(^D) 779,611	(Þ) 1.671.569	52,800 249,000	3,194,400 13,665,600	5,688,600 29,662,800	(^D) 5.0	(^D) 5.7	(^D) 5.6
3462	Iron and steel forgings	1,026	66,069	141,519	28,400	1,764,900	3,858,800	3.6	3.7	3.7
3463 3465	Nonferrous forgings	7,486	499,953	(D) 998,998	7,200 110,600	495,200 6,300,200	1,159,100 14,544,500	(^D) 6.8	(^D) 7.9	(^D) 6.9
3466 3469	Crowns and closures	F 2.645	(D) 140,343	(D) 345.992	4,400 98,400	358,200 4,747,300	720,200 9,380,200	(^D) 2.7	(D) 3.0	(D)
347	Metal stampings, nec	2,818	139,431	300,355	117,400	5,410,300	9,441,900	2.4	2.6	3.2
3471 3479	Plating and polishing Metal coating and allied services	1,766 1,052	80,996 58,435	150,156 150,199	73,200 44,300	2,981,000 2,429,300	4,513,300 4,928,700	2.4 2.4	2.7 2.4	3.3 3.0
348	Ordnance and accessories, nec	8,880	627,458	875,955	70,500	4,741,100	6,725,100	12.6	13.2	13.0
3482 3483	Small arms ammunition	7 3,229	224,824	332,965	8,500 27,100	535,900 1,908,900	844,100 3,128,600	(^D) 11.9	(^D) 11.8	(^D) 10.6
3484 3489	Small arms Ordnance and accessories, nec	4,152	311,061	376,861	12,500 22,400	859,900 1,436,400	1,108,800 1,643,600	33.2	36.2 (^D)	
349	Miscellaneous fabricated metal products	19,488	1,365,184	2,903,330	275,100	15,375,700	29,444,700	(D) 7.1	8.9	(P) 9.9
3491 3492	Industrial valves	3,772 2,773	308,526 163,642	516,548 291,756	46,400 30,900	3,385,500 1,913,600	5,745,400 3,322,800	8.1 9.0	9.1 8.6	9.0 8.8
3493	Steel springs, except wire	658	41,082	91,764	6,100	286,400	524,700	10.8	14.3	17.5
3494 3495	Valves and pipe fittings, nec	1,961 752	138,061 47,549	218,489 94,747	26,000 20,100	1,535,800 974,700	2,924,000 1,843,900	7.5 3.7	9.0 4.9	7.5 5.1
3496 3497	Miscellaneous fabricated wire products	1,127 2,971	76,025	177,381	33,200	1,552,100	2,999,700 2,845,800	3.4 28.0	4.9 24.9	5.9 27.2
3498	Metal foil and leafFabricated pipe and fittings	1,318	233,451 82,758	773,891 173,957	10,600 21,900	938,400 1,027,000	2,333,800	6.0	8.1	7.5
3499	Fabricated metal products, nec	4,156	274,090	564,797	80,000	3,762,300	6,904,600	5.2	7.3	8.2
35 351	Industrial machinery and equipment Engines and turbines	191,440 16,390	13,561,697 1,112,504	31,010,583 3,116,038	1,876,700 83,200	132,165,800 7,159,000	256,344,700 16,580,900	10.2 19.7	10.3 15.5	12.1 18.8
3511	Turbines and turbine generator sets	10,390 G	(D)	(D)	21,900	2,259,200	4,356,700	(D)	(D)	(D)
3519 352	Internal combustion engines, nec	J 12,375	(D) 835,435	(Þ) 2,111,956	61,300 94,100	4,899,800 7,985,000	12,224,200 16,456,200	(^D) 13.2	(^D) 10.5	(^D) 12.8
3523	Farm machinery and equipment	3,120	203,438	402,467	69,600	5,978,500	11,546,200	4.5	3.4	3.5
3524 353	Lawn and garden equipment Construction and related machinery	9,255 27,880	631,997 1,598,623	1,709,489 4,021,136	24,500 202,700	2,006,500 13,928,000	4,910,000 30,696,600	37.8 13.8	31.5 11.5	34.8 13.1
3531 3532	Construction machinery	11,704 3,171	732,113	1,908,758	89,900	6,797,300	16,069,600	13.0 20.5	10.8 21.1	11.9
3533	Mining machinery Oil and gas field machinery	3,705	192,219 201,485	461,029 467,686	15,500 27,200	912,800 2,040,900	1,865,500 3,634,700	13.6	9.9	24.7 12.9
3534 3535	Elevators and moving stairways	G 5,025	(D) 276,854	(D) 605,623	9,200 32,900	556,500 2,066,300	1,343,100 4,089,900	(^D) 15.3	(^D) 13.4	(^D) 14.8
3536	Hoists, cranes, and monorails	5,025 F	(D)	(D)	7,900	517,500	966,400	(D)	(D)	(D)

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990—Continued

	by Detailed Industry, 1990—Continued											
		For	eign-owned establis	hments		All U.S. establishmen	ts		ned establishn of all U.S. esta			
SIC	la divete.		Thousands	of dollars		Thousands	of dollars	percentage		ablishments		
code	Industry	Number of employees	Value added by manufacture	Value of shipments	Number of employees ¹	Value added by manufacture ¹	Value of shipments ²	Employ- ment	Value added by manufac- ture	Value of shipments		
3537	Industrial trucks and tractors	2,383	115,580	291,798	20,100	1,036,700	2,727,500	11.9	11.1	10.7		
354 3541	Metalworking machinery	19,092 2,062	1,394,423 171,141	2,725,415 443,218	280,800 30,300	16,515,600 1,890,300	27,035,200 3,606,800	6.8 6.8	8.4 9.1	10.1 12.3		
3542 3543	Machine tools, metal forming types	1,883 F	96,304 (D)	256,698 (D)	14,600 8,100	853,800 396,600	1,652,700 534,300	12.9 (D)	11.3	15.5 (D)		
3544	Special dies, tools, jigs and fixtures	2,608	184,990	362,528	119,800	6,525,400	9,487,200	(D) 2.2	(P) 2.8	(D) 3.8		
3545 3546	Machine tool accessories	4,849 3,110	344,150 230,447	518,199 573,896	55,200 18,300	3,072,400 1,471,800	4,550,400 2,805,800	17.0	15.7	20.5		
3547 3548	Rolling mill machinery	A 2,678	(D) 267,392	(D) 407,136	3,800 19,200	173,300 1,457,000	483,400 2,683,600	(^D) 13.9	(^D) 18.4	(^D) 15.2		
3549	Metalworking machinery, nec	F	(D)	(D)	11,700	675,100	1,231,100	(D)	(D)	(D)		
355 3552	Special industry machinery Textile machinery	24,212 G	1,734,560	3,800,482 (D)	172,300 16,000	11,002,600 814,900	21,258,400 1,505,100	`14.1 (^D)	15.8 (^D)	17.9 (D)		
3553 3554	Woodworking machinery	B 7,475	(D) 434,247	(D) 1,362,140	7,800 20,300	477,400 1,118,700	936,600	(D) (D) 36.8	(D) 38.8	(Þ) 49.2		
3555	Paper industries machinery Printing trades machinery	4,104	452,470	794,591	25,000	1,808,200	2,770,400 3,538,200	16.4	25.0	22.5		
3556 3559	Food products machinery	4,258 6,885	297,397 454,441	525,508 921,544	19,000 84,200	1,266,300 5,517,000	2,260,900 10,247,100	22.4 8.2	23.5 8.2	23.2 9.0		
356	General industrial machinery	31,198	2,208,830	4,090,152	260,100	16,811,000	30,338,800	12.0	13.1	13.5		
3561 3562	Pumps and pumping equipment	4,196 10,717	206,436 719,562	459,482 1,254,013	37,400 39,000	2,552,800 2,481,700	4,830,300 4,306,300	11.2 27.5	8.1 29.0	9.5 29.1		
3563 3564	Air and gas compressors	1,174 3,980	119,325 257,166	377,131 508,765	24,500 27,700	1,769,900 1,519,600	3,806,900 2,850,100	4.8 14.4	6.7 16.9	9.9 17.9		
3565	Packaging machinery	2,931	231,718	339,278	23,500	1.735.400	2,762,200	12.5	13.4	12.3		
3566 3567	Speed changers, drives, and gears	1,165 905	84,437 66,086	134,194 125,897	18,400 18,900	1,353,000 902,500	2,055,700 1,766,100	6.3 4.8	6.2 7.3	6.5 7.1		
3568 3569	Power transmission equipment, nec	1,225 4,905	103,237 420,863	153,139 738,253	23,700 47,000	1,503,300 2,992,800	2,596,500 5,364,700	5.2 10.4	6.9 14.1	5.9 13.8		
357	Computer and office equipment	30,831	2,913,058	7,115,958	287,700	31,283,300	64,073,300	10.7	9.3	11.1		
3571 3572	Electronic computers Computer storage devices	16,459 2,357	1,834,287 203,435	4,529,638 496,052	134,100 42,600	19,666,300 4,359,000	39,293,600 8,751,100	12.3 5.5	9.3 4.7	11.5 5.7		
3575 3577	Computer terminals Computer peripheral equipment, nec	G 5,873	(D) 416,633	1,175,119	12,100 59,100	728,500 3,923,000	1,790,000 9,146,300	(^D) 9.9	(^D) 10.6	(^D) 12.8		
3578	Calculating and accounting equipment	F	(D)	(D)	7,400	620,400	1,170,200	(D)	(D)	(D)		
3579 358	Office machines, nec	4,507 18,237	323,078 1,042,239	568,349 2,753,038	32,500 186,000	1,986,200 12,158,500	3,922,100 26,218,200	13.9	16.3 8.6	14.5 10.5		
3581 3582	Automatic vending machines	F	(D)	(D)	7,400 5,200	338,100 240,400	741,700 526,600	(D) (D)	(D) (D)	(D) (D)		
3585	Commercial laundry equipment	12,482	643,108	1,969,831	126,900	8,339,500	19,043,200	9.8	` 7 7	10.3		
3586 3589	Measuring and dispensing pumps	G 2,542	208,850	(D) 390,279	8,000 38,600	519,100 2,721,400	1,029,500 4,877,200	(D) 6.6	(D) 7.7	(^D) 8.0		
359 3592	Industrial machinery, nec	11,225	722,025	1,276,408	309,600	15,322,800	23,687,100	3.6	4.7	5.4 14.2		
3593	Carburetors, pistons, rings, valvesFluid power cylinders and actuators	3,372 1,344	142,034 90,006	289,111 160,152	20,600 20,700	1,045,800 1,195,300	2,042,400 1,981,900	16.4 6.5	13.6 7.5	8.1		
3594 3596	Fluid power pumps and motors	2,171 1,782	196,397 136,089	320,944 257,590	14,900 6,300	1,004,100 336,400	1,798,600 680,000	14.6 28.3	19.6 40.5	17.8 37.9		
3599	Industrial machinery, nec	2,556	157,499	248,611	247,200	11,741,200	17,184,100	1.0	1.3	1.4		
36	Electronic and other electric equipment	228,237	16,703,246	34,601,773	1,497,400	106,983,900	194,847,900	15.2	15.6	17.8		
361 3612	Electric distribution equipment Transformers, except electronic	15,390	1,075,338	2,305,772 (D)	75,100 32,800	5,206,700 1,892,300	9,728,600 4,177,800	20.5	20.7 (D)	23.7 (^D)		
3613 362	Switchgear and switchboard apparatus	22.242	(D) 1,426,822	(D)	42,300	3,314,400	5,550,800	(D) (D) 13.8	(D)	(Þ) 14.3		
3621	Electrical industrial apparatus	22,343 11,175	592,403	2,588,408 1,158,605	161,900 72,600	10,126,800 4,005,300	18,158,700 7,672,200	15.4	14.1 14.8	15.1		
3624 3625	Carbon and graphite products	2,338 6,485	133,675 500,490	256,027 832,448	8,600 66,000	586,800 4,688,400	1,166,900 7,854,200	27.2 9.8	22.8 10.7	21.9 10.6		
3629	Electrical industrial apparatus, nec	2.345	200,254	341,328	14,600	846,300	1,465,400	16.1	23.7	23.3		
363 3631	Household appliances	19,287 H	1,131,593 (^D)	2,666,319 (^D)	110,500 19,200	7,835,900 1,138,900	18,069,000 2,994,000	17.5 (D) (D)	14.4 (^D)	14.8 (^D)		
3632 3633	Household refrigerators and freezers	H G	(D)	(D) (D)	23,600 16,100	1,464,300 1,543,100	3,799,800 3,234,400	(D)	(D) (D)	(D) (D)		
3634	Electric housewares and fans	Н	(D)	(D)	24,900	1,425,000	3,055,900	(D)	(D)	(D)		
3635 3639	Household vacuum cleaners	4,270 H	272,025 (D)	483,156 (D)	12,400 14,200	997,800 1,266,900	1,860,100 3,124,900	34.4 (^D)	27.3 (^D)	26.0 (P)		
364 3641	Electric lighting and wiring equipment Electric lamps	15,332 H	983,402 (D)	1,817,322 (D)	156,600 19,800	10,768,500 1,862,500	19,322,300 2,830,900	9.8 (^D)	9.1 (^D)	9.4 (P)		
3643 3644	Current-carrying wiring devices	2,898 793	129,383	231,081	44,100	2,642,100	4,404,000	6.6	` 4.9	` 5.2		
3645	Noncurrent-carrying wiring devices Residential lighting fixtures	1,939	73,858 95,361	126,128 180,434	22,600 17,800	1,919,500 826,000	3,346,100 1,561,300	3.5 10.9	3.8 11.5	3.8 11.6		
3646 3647	Commercial lighting fixtures	G 1,611	(^D) 106,561	(D) 201,219	23,000 14,900	1,609,800 1,025,100	3,208,900 2,121,700	(^D) 10.8	(^D) 10.4	(^D) 9.5		
3648	Lighting equipment, nec	1,697	89,390	194,671	14.500	883,600	1,849,500	11.7	10.1	10.5		
365 3651	Household audio and video equipment	19,299 13,038	1,664,553 923,399	5,924,331 4,924,250	44,700 30,800	3,150,000 1,892,000	9,376,700 7,520,500	43.2 42.3	52.8 48.8	63.2 65.5		
3652 366	Prerecorded records and tapes	6,261 36,028	741,154 3,279,104	1,000,081 6,524,868	13,900 250,400	1,257,900 22,349,700	1,856,100 38,451,700	45.0 14.4	58.9 14.7	53.9 17.0		
3661	Telephone and telegraph apparatus	17,726	1,991,593	3,778,517	92,700	9,619,400	17,297,300	19.1	20.7	21.8		
3663 3669	Radio and television communications equipment	13,338 4,964	953,866 333,645	2,140,417 605,934	135,400 22,400	11,278,000 1,452,300	18,759,300 2,395,100	9.9 22.2	8.5 23.0	11.4 25.3		
367 3671	Electronic components and accessories	74,588 7,508	5,484,636 500,498	8,944,169 1,096,153	535,900 23,400	37,270,000 1,317,800	60,844,000 2,570,400	13.9 32.1	14.7 38.0	14.7 42.6		
3672	Printed circuit boards	3,325	173,596	316,281	76,700	4,997,200	7,844,100	4.3	3.5	4.0		
3674 3675	Semiconductors and related devices	34,660 6,098	3,340,139 293,898	4,927,774 535,530	181,800 19,500	17,855,500 848,500	25,977,300 1,471,600	19.1 31.3	18.7 34.6	19.0 36.4		
3676 3677	Electronic resistors Electronic coils and transformers	4,549 550	173,124 29,169	317,477 41,819	14,400 22,800	535,400 599,100	862,700 1,074,600	31.6 2.4	32.3 4.9	36.8 3.9		
3678	Electronic connectors	3,736	311,131	446,049	37,400	2,389,300	3,820,900	10.0	13.0	11.7		
3679 369	Electronic components, nec	14,162 25,970	663,081 1,657,798	1,263,086 3,830,584	159,900 162,200	8,727,100 10,276,300	17,222,400 20,897,000	8.9 16.0	7.6 16.1	7.3 18.3		
3691	Storage batteries	3,671	268,456	649,835	23,100	1,718,800	3,625,800	15.9	15.6	17.9		
3692 3694	Primary batteries, dry and wet Engine electrical equipment	1,690 1,606	64,619 86,517	161,492 239,178	10,600 46,100	761,900 2,846,700	1,580,300 5,810,500	15.9 3.5	8.5 3.0	10.2 4.1		
3695 3699	Magnetic and optical recording media Electrical equipment and supplies, nec	7,779 11,224	534,811 703,395	1,726,704 1,053,375	24,000 58,400	1,675,600 3,273,300	4,032,100 5,848,300	32.4 19.2	31.9 21.5	42.8 18.0		
			· .	28,834,909	1,773,700	146,916,300	367,926,700		4.9			
37 371	Transportation equipment	104,147 73,413	7,170,588 5,436,606	25,011,828	704,400	69,648,700	214,963,800	5.9 10.4	7.8	7.8 11.6		
3711	Motor vehicles and car bodies	32,296	3,183,878	18,123,409	239,500	39,504,400 l	140,417,000	l 13.5	8.1	12.9		

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990—Continued

		For	eign-owned establis	hments		All U.S. establishmen	nts		ned establishm of all U.S. esta	
SIC	Industry		Thousands	of dollars		Thousands	of dollars	percentage	Value	Distillions
code	industry	Number of employees	Value added by manufacture	Value of shipments	Number of employees ¹	Value added by manufacture ¹	Value of shipments ²	Employ- ment	added by manufac- ture	Value of shipments
3713	Truck and bus bodies	G	(D)	(D)	37,200	1,809,300	4,382,200	(D)	(D) 7.9	(D)
3714 3715	Motor vehicle parts and accessories Truck trailers	39,230 C	2,123,952 (D)	6,563,321 (D)	388,700 24,800	26,871,400 869,000	64,875,400 3,122,000	`1Ó.1 (^(D))	(D)	10.1 (P)
3716	Motor homes	. 0) Ó	` Ó	14,100	594,500	2,167,200	(D) 0	(P) 0	(^D)
372 3721	Aircraft and parts	18,928 4,945	985,449 243.878	2,223,467 746,741	615,700 289,300	44,903,200 20,235,400	94,640,200 51,369,600	3.1 1.7	2.2	2.3 1.5
3724	Aircraft engines and engine parts	3,013	186,076	397,010	129,000	12,059,100	22,812,800	2.3	1.2 1.5	1.5 1.7
3728 373	Aircraft parts and equipment, necShip and boat building and repairing	10,970 5,993	555,495 292,752	1,079,716 590,271	197,500 175,200	12,608,700	20,457,900 15,853,700	5.6 3.4	4.4 3.4	1 52
3731	Ship building and repairing	5,995 G	(D)	(D)	121,200	8,554,700 6,362,800	10,855,700	(D) (D) 7.8	(D)	3.7 (D) (D) 7.2
3732	Ship building and repairing	H	(D)		54,100	2,191,800	4,998,000	(D)	(D) (D) (D) 12.3	(D)
374 3743	Railroad equipmentRailroad equipment	2,312 2,312	225,809 225,809	339,421 339,421	29,500 29,500	1,839,200 1,839,200	4,693,600 4.693,600	7.8 7.8	12.3 12.3	7.2
375	Motorcycles, bicycles, and parts	F	(D)	(D) (D)	9,400	570,800	1,475,800	(D)	(D)	7.2 7.2 (D) (D)
3751 376	Motorcycles, bicycles, and parts	F G	(D) (D)	(D) (D)	9,400 200,300	570,800 19,284,300	1,475,800 30,554,100	(D) (D) (D)	(D) (D) (D)	(D)
3761	Guided missiles and space vehicles	0	()	Ò	156,200	15,782,500	25,082,600	0	0	l `ó
3764	Space propulsion units and parts	0 G	0	0	29,700	2,412,000	3,755,800	0	0	0
3769 379	Space vehicle equipment, nec	G	(D) (D)	(D) (D)	14,400 39,100	1,089,700 2,115,600	1,715,600 5,745,500	(D) (D) 0	(D) (D)	(D) (D)
3792	Travel trailers and campers	G 0) Ó	Ò	13,800	622,800	1,657,500	` ó	0	Ó
3795 3799	Tanks and tank components Transportation equipment, nec	0 G	0 (D)	0 (^D)	9,300 16,000	694,500 798,300	1,846,500 2,241,500	(D)	0 (^D)	0 (P)
			, ,	, ,	· ·			, ,		' '
38 381	Instruments and related products Search and navigation equipment	121,520 19,160	9,722,110 1,433,915	15,840,686 2,094,047	948,600 313,600	81,665,600 24,931,900	123,776,700 36,733,500	12.8 6.1	11.9 5.8	12.8 5.7
3812	Search and navigation equipment Measuring and controlling devices	19,160	1,433,915	2,094,047	313,600	24,931,900	36,733,500	6.1	5.8	5.7
382 3821	Measuring and controlling devices	53,500 3,290	3,679,493 333.003	6,037,558 506,393	283,600 17.800	19,629,200 1,209,700	31,455,800 1,916,700	18.9 18.5	18.7 27.5	19.2 26.4
3822	Environmental controls	7,702	404,098	669,225	26,100	1,461,600	2,396,000	29.5	27.5	27.9
3823	Process control instruments	13,410	791,866	1,379,551	54,700	3,764,700	5,924,000	24.5	21.0	23.3
3824 3825	Fluid meters and counting devices	3,130 10,806	260,544 744,956	440,090 1,125,640	10,400 78,400	976,700 5,352,400	1,665,900 8,389,700	30.1 13.8	26.7 13.9	26.4 13.4
3826	Analytical instruments	5,648	491,886	822,932	37,800	3,018,700	4,906,100	14.9	16.3	16.8
3827 3829	Optical instruments and lenses	3,027 6,487	160,220 492,920	299,938 793,789	22,000 36,300	1,326,700 2,518,700	2,217,700 4.039,700	13.8 17.9	12.1 19.6	13.5 19.7
384	Medical instruments and supplies	29,530	2,573,803	4,262,668	234,700	20,286,300	30,934,200	12.6	12.7	13.8
3841 3842	Surgical and medical instruments	11,597 7,931	1,027,510 697,442	1,554,613 1,174,739	88,900 86,600	7,077,500 7,163,100	10,261,600 11,127,600	13.0 9.2	14.5 9.7	15.2 10.6
3843	Dental equipment and supplies	1,078	77,419	135,006	12,900	890,100	1,364,700	8.4	8.7	9.9
3844 3845	Dental equipment and supplies X-ray apparatus and tubes Electromedical equipment	2,895 6,029	202,729 568,703	495,358	12,600	1,495,800 3,659,800	2,576,500	23.0 17.9	13.6 15.5	19.2 16.1
385	Ophthalmic goods	7,861	480,831	902,952 633,762	33,600 28,000	1,625,600	5,603,800 2,274,700	28.1	29.6	27.9
3851	Ophthalmic goods	7,861	480,831	633,762	28,000	1,625,600	2,274,700	28.1	29.6	27.9
386 3861	Photographic equipment and suppliesPhotographic equipment and supplies	9,455 9,455	1,360,864 1,360,864	2,400,481 2,400,481	79,300 79,300	14,527,200 14,527,200	21,018,200 21,018,200	11.9 11.9	9.4 9.4	11.4 11.4
387	Watches, clocks, watchcases, and parts	2,014	193,204	412,170	9,400	665,400	1,360,200	21.4	29.0	30.3
3873	Watches, clocks, watchcases, and parts	2,014	193,204	412,170	9,400	665,400	1,360,200	21.4	29.0	30.3
39 391	Miscellaneous manufacturing industries	26,087 1,138	1,929,276	3,553,235 109,874	386,300 49,100	20,095,600 2,590,700	37,205,200 5,754,200	6.8 2.3	9.6 2.1	9.6 1.9
3911	Jewelry, silverware, and plated ware	1,130 E	54,025 (D)	(D)	35,600	1,869,400	4,180,100	(D) (D)	(D)	(D)
3914	Silverware and plated ware	В	(D)	(D)	7,300	462,300	751,900	(D)	(D)	(D)
3915 393	Jewelers' materials and lapidary work	1,545	79.949	130,485	6,200 11,700	259,000 547,700	822,200 872,900	13.2	14.6	14.9
3931	Musical instruments	1,545	79,949	130,485	11,700	547,700	872,900	13.2	14.6	14.9
394 3942	Toys and sporting goods Dolls and stuffed toys	10,644 E	899,270	1,659,072	98,600 4,900	5,919,600 244,100	11,043,600 380,400	10.8 (^D)	15.2	15.0 (D)
3944	Games, toys, and children's vehicles	Н	(D)	(D)	27,900	1,911,800	3.622.900	(D) (D)	(D) (D) 12.4	(D) (D) (D) 12.5
3949 395	Sporting and athletic goods, nec	5,842 3,397	465,662 219,327	883,445 484,349	65,800 29,900	3,763,600 1,780,000	7,040,200 3,310,100	\ 8.9 11.4	12.4 12.3	12.5 14.6
3951	Pens, pencils, office, and art supplies Pens and mechanical pencils Lead pencils and art goods	1,584	98,523	239,000	9,600	682,400	1,205,800	16.5	14.4	19.8
3952 3953	Lead pencils and art goods	G O	(D)	(D)	5,300 7,700	407,200 295,200	745,900 485.600	(D) 0	(^D)	(^D)
3955	Carbon paper and inked ribbons	E	(D)	(D)	7,300	395,200	872,700	(D)	(D)	(D)
396	Costume jewelry and notions	2,636	144,693	251,301	28,200	1,363,500	2,222,900	9.3	10.6	11.3 0
3961 3965	Costume jewelry Fasteners, buttons, needles, and pins	0 2,636	144,693	251,301	19,200 9,000	892,400 471,100	1,415,700 807,200	29.3	0 30.7	31.1
399	Miscellaneous manufactures	6,727	532,012	918,154	168,800	7,894,100	14,001,600	4.0	6.7	6.6
3991 3993	Brooms and brushes	E G	(D)	(D)	14,000 69,500	731,000 2,613,800	1,221,800 4,826,500	(D)	(D)	(D)
3995	Burial caskets	0	6	0	10,200	579,800	1,093,500	0	` ó	(D) 0
3996 3999	Hard surface floor coverings, nec	F 4,248	(D) 360,031	(D) 560,730	7,100 68,000	793,200 3,176,200	1,377,300 5,482,400	(D) 6.2	(^D) 11.3	(^D) 10.2
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	Administrative and auxiliary	200,064	n.a.	n.a.	1,260,900	n.a.	n.a.	15.9	n.a.	n.a.

^D Suppressed to avoid disclosure of data of individual companies.

which they were taken.

na. Not available.

1. The data shown in this column are rounded to the nearest 100 employees because they are rounded in this manner in the Census Bureau's 1990 Annual Survey of Manufactures: Statistics for Industry Groups and Industries, from which they were taken.

2. The data shown in this column are rounded to the nearest \$100,000 because they are rounded in this manner in the Census Bureau's 1990 Annual Survey of Manufactures: Statistics for Industry Groups and Industries, from

A. On this line, the columns for number of employees cover both operating establishments and administrative and auxiliary establishments; the other columns cover operating establishments only.

NOTE.—Size ranges are given in employment cells that are suppressed. The size ranges are: A—0 to 19; B—20 to 99; C—100 to 249; E—250 to 499; F—500 to 999; G—1,000 to 24,99; H—2,500 to 4,999; I—5,000 to 9,999; J—10,000 to 24,999; H—25,000 to 49,999; L—50,000 to 99,999; M—100,000 or more.

SIC Standard Industrial Classification