

FOREIGN DIRECT INVESTMENT IN THE UNITED STATES

Establishment Data for Manufacturing, 1991

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U.S. DEPARTMENT OF COMMERCE

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METHODOLOGY

Introduction

This volume presents detailed establishment data for 1991 on the manufacturing operations of U.S. affiliates of foreign companies. A U.S. affiliate is a U.S. business enterprise that is owned 10 percent or more, directly or indirectly, by a foreign person.¹

The data presented here are the result of an ongoing project to improve U.S. Government data on foreign direct investment in the United States (FDIUS); the project was authorized by the Foreign Direct Investment and International Financial Data Improvements Act of 1990. The data were obtained by linking Bureau of Economic Analysis (BEA) enterprise, or company, data on foreign direct investment with Bureau of the Census establishment, or plant, data for all U.S. companies.

This volume is part of an annual series covering the manufacturing establishments of U.S. affiliates; volumes presenting data for 1988–90 were published earlier.

The data presented here update and extend the data link project's initial results, which covered 1987 and were published in *Foreign Direct Investment in the United States: Establishment Data for 1987*. The initial data link was for 1987 because that was a benchmark, or census, year for both the BEA data on foreign direct investment in the United States and the Census Bureau data on all U.S. businesses. The 1987 publication covered both manufacturing and nonmanufacturing industries and presented data on the number, employment, payroll, and shipments or sales of the establishments of U.S. affiliates (hereinafter referred to as "foreign-owned establishments").

The establishment data from the link project complement BEA's enterprise data for U.S. affiliates. BEA's enterprise data are needed for analyzing the overall

1. "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 86 percent of all manufacturing employment by U.S. affiliates in 1991.

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 analyses of the activities and importance of foreign-owned U.S. companies in specific, detailed industries. 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 1991 data on foreign-owned establishments in this volume were obtained from the Census Bureau's Annual Survey of Manufactures (ASM), which covers all U.S. manufacturing establishments. The tables included in the main body of the publication present data for foreign-owned establishments for most items covered by the ASM, including value added, shipments, employment and employee compensation, capital expenditures, cost of materials, and inventories. These tables show the data by detailed industry, by State, and by country of ultimate beneficial owner. For comparison, some of these tables also show totals for key items for all U.S. manufacturing establishments and the share of the all-U.S. totals accounted for by foreign-owned establishments.²

2. The data for all U.S. manufacturing establishments are from the Census Bureau's 1991 Annual Survey of Manufactures: Statistics for Industry Groups

The tables in this volume are organized into three parts. The first part gives an overview of the data by industry, country, and State. The second part presents detailed industry tables for individual States. The third part presents detailed industry tables for selected countries.

How the Link Was Done

The link was carried out in three phases. In the first phase, BEA and the Census Bureau exchanged their data in order to identify and obtain data for those U.S. establishments in the Census Bureau's Standard Statistical Establishment List (SSEL) that are foreign-owned. The SSEL is a computerized list of all U.S. companies and their establishments. It includes names and addresses and other identification information as well as key economic data obtained from Census Bureau surveys and from administrative records.

Foreign-owned establishments on the SSEL were identified primarily through a computer match of Employer Identification Numbers (EIN's) that are both reported on BEA's surveys of foreign direct investment in the United States and included on the Census Bureau's SSEL. EIN's are identification numbers that companies and their establishments are required to use when filing Federal and State payroll and income taxes. For enterprises that failed to link in the computer match of EIN's, other enterprise identification information, such as names and addresses, was used to match the BEA enterprises to Census Bureau establishments. In this phase, the foreign-owned establishments of U.S. affiliates were identified regardless of industry of the affiliates or of the individual establishments; that is, this phase covered both manufacturing and nonmanufacturing U.S. affiliates and their manufacturing and nonmanufacturing establishments.

In the second phase of the link, data from the Census Bureau's ASM were obtained for those establishments on the SSEL that were identified as being foreign-owned and that also were required to report in the ASM. This step was necessary because, although data could be obtained from the SSEL on the number, employment, and payroll of foreign-owned establishments, the SSEL does not include information on other items that are covered by the ASM, such as value added, capital expenditures, and cost of materials.

In the third and final phase, data were imputed (estimated) for the foreign-owned manufacturing estab-

lishments that were not selected for the 1991 ASM, which covers only a sample of all manufacturing establishments.³ For foreign-owned establishments not in the sample, data were imputed using industry-average relationships between employment and payroll on the one hand and the other items covered by the ASM on the other (as noted earlier, employment and payroll were obtained from the SSEL for all foreign-owned establishments).

Imputed data accounted for \$74.9 billion of shipments, 18 percent of all shipments by foreign-owned manufacturing establishments in 1991. The percentage of shipments that is imputed is shown by industry in table 1.1, by country in table 1.7, and by State in table 1.16. For some individual industries, countries, and States, a significant percentage of the total is imputed. Totals for cells with relatively few establishments in the sample are less reliable than those for cells with a higher sample coverage.

Evaluation of the Link

To be consistent with all-U.S.-business data published by the Census Bureau, the data for foreign-owned establishments cover only establishments with employment.⁴ Based on BEA data for all industries, U.S. affiliates that linked had 4,782,900 employees and accounted for 98 percent of the employment of all U.S. affiliates in 1991. Virtually all of the large BEA affiliates linked to Census Bureau establishments. Affiliates that failed to link were generally small and together accounted for only 89,000 employees. This group includes affiliates that could not be linked to a Census Bureau establishment because the two agencies had different EIN's or other identification information for a given company or because of the absence of valid EIN's or other identification information.

The Census Bureau total for the manufacturing employment of foreign-owned establishments is very close

3. Published ASM statistics cover all manufacturing establishments in the United States. These statistics are estimates derived by combining data obtained for establishments in the ASM sample with data estimated for establishments not in the sample. For a description of ASM sample methodology and estimating procedures, see *1991 Annual Survey of Manufactures: Statistics for Industry Groups and Industries*.

The Census Bureau and BEA use the term "imputed" differently. For the Census Bureau, "imputed" refers to the estimation, for individual establishments, of data items covered by the ASM; this is the sense in which "imputed" is used in this publication. For BEA, "imputed" refers to the assignment of values to certain transactions that do not occur in the market economy and for which values are thus not obtainable from surveys of businesses or other sources.

4. More specifically, the data cover any foreign-owned establishment that had one or more paid employee(s) sometime during 1991.

to the BEA total for the manufacturing employment of U.S. affiliates—2,004,600, compared with 2,038,800.⁵ Based on BEA data, U.S. affiliates with manufacturing employment that linked to a Census Bureau establishment had 1,996,800 manufacturing employees and accounted for 98 percent of all manufacturing employees of U.S. affiliates.

BEA and Census Bureau Data Compared

In comparing BEA published data on the U.S. affiliates of foreign companies with the data on foreign-owned establishments in this publication, it should be noted that the two data sets differ in coverage, definition, and classification. These differences do not significantly affect comparisons of overall totals but may affect comparisons for specific industries. This section summarizes the key differences.

Coverage differences

The geographic coverage of the Census Bureau's data for foreign-owned establishments is somewhat narrower than that of BEA's enterprise data. The former cover the 50 States and the District of Columbia, whereas the latter also cover Puerto Rico, the Virgin Islands, Guam, American Samoa, U.S. offshore oil and gas sites, and other outlying U.S. areas. In the BEA data, manufacturing employment in the latter areas was 14,300 in 1991.

Definitional differences

BEA data are reported on a fiscal-year basis, whereas the Census Bureau data are on a calendar-year basis.⁶

5. Most of BEA's enterprise data are classified by industry based on the major industry of the enterprise. As noted earlier, data for an industry based on the classification of the overall enterprise often do not reflect activities in that industry alone. In order to obtain a more precise measure of the manufacturing activities of foreign-owned companies, BEA requires that each U.S. affiliate provide a count of employees on the payroll of its manufacturing plants. The BEA total cited in the text is based on this count of manufacturing employees. Because only employees actually involved in manufacturing activities are counted, this BEA measure closely approximates one that might be obtained from an establishment survey, such as the Census Bureau's ASM. BEA obtains only an overall total for employees at all manufacturing plants; no breakdown is obtained by the specific industry of the plant.

Although coverage of the BEA and Census Bureau data differ somewhat (see the next section), the BEA manufacturing employment total cited in the text has been adjusted for these differences.

6. In BEA's 1987 benchmark survey of foreign direct investment in the United States, affiliates with fiscal years ending in quarters other than the last quarter of the calendar year (October-December) accounted for about one-

As a result, for some industries, BEA totals for certain items, such as employment and employee compensation, capital expenditures, and inventories, can differ from the totals for similar items based on the Census Bureau data for foreign-owned establishments.

In cases where similar items are available from both agencies, the BEA definitions sometimes differ from those used by the Census Bureau. These differences are noted in the "Definitions" section.

Classificational differences

As noted earlier, most BEA data for U.S. affiliates are classified by primary industry of the consolidated enterprise, whereas the Census Bureau data are classified by the industry of each individual establishment, or plant, within the enterprise. Because affiliates are often highly diversified, they are likely to have activities in industries other than the one that applies to the consolidated enterprise as a whole. As a result, totals for industries in the BEA data often differ significantly from totals for the same industries in the Census Bureau data.⁷

Industry and Country Classification

In this publication, establishments are classified by industry based on their primary activity, which is generally determined by the principal product or group of products produced by the establishment. Operating establishments are classified using industry definitions described in the 1987 edition of the Standard Industrial Classification (SIC) manual. Administrative and auxiliary establishments are not classified by industry (see "General Notes to Tables" for additional details).

In tables that show data by country, the data are classified by country of ultimate beneficial owner (UBO) of the U.S. affiliate to which the establishment belongs. A UBO is that person that ultimately owns or controls, and therefore ultimately derives the benefits from owning or controlling, a U.S. affiliate. More specifically, 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 person

third of total affiliate employee compensation. See *Foreign Direct Investment in the United States: 1987 Benchmark Survey, Final Results*.

7. For more information on the effects on the data of the differences in industry classification, see "Foreign Direct Investment in the United States: Establishment Data for 1987," SURVEY OF CURRENT BUSINESS 72 (October 1992): 44-78.

Table A.—Expenditures for Used Plant and Equipment of Foreign-Owned Manufacturing Establishments in 1991

[Thousands of dollars]

SIC code	Industry	Amount
	Manufacturing	483,586
20	Food and kindred products	39,811
21	Tobacco products	(D)
22	Textile mill products	15,504
23	Apparel and other textile products	765
24	Lumber and wood products	3,427
25	Furniture and fixtures	(D)
26	Paper and allied products	17,132
27	Printing and publishing	21,570
28	Chemicals and allied products	52,781
29	Petroleum and coal products	18,390
30	Rubber and miscellaneous plastics products	21,347
31	Leather and leather products	(D)
32	Stone, clay, and glass products	21,621
33	Primary metal industries	56,391
34	Fabricated metal products	54,982
35	Industrial machinery and equipment	73,361
36	Electronic and other electric equipment	24,851
37	Transportation equipment	22,769
38	Instruments and related products	20,633
39	Miscellaneous manufacturing industries	7,738

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

outside the United States in a U.S. affiliate's ownership chain that has a direct investment interest in the U.S. affiliate. (See "General Notes to Tables" for additional details.)

Items Covered by the ASM but Not Shown in This Publication

Two items that appear in ASM publications—capital expenditures for used plant and equipment and the quantity of electric energy generated less sold—are not shown in the tables in the main body of this publication because most data cells for these items would have been suppressed to avoid disclosure of data of individual companies. However, [table A](#) provides data on capital expenditures for used plant and equipment of foreign-owned establishments for highly aggregated industries. A similar tabulation for the quantity of electric energy generated less sold is not possible because, even at this highly aggregated level, virtually every cell would have been suppressed.

Definitions

The definitions used in this publication are the same as those used in the ASM. These definitions are summarized below; more detailed definitions may be found in *1991 Annual Survey of Manufactures: Statistics for Industry Groups and Industries* and *1987 Census of Manufactures: General Summary*. Where applicable, the definitions used here are compared with the definitions used for the corresponding items in the BEA data.

Benefits

Benefits consist of "social security and other legally required payments" and "employer payments and other programs."

Social security and other legally required payments.—

These payments consist of all legally required employee benefits, primarily Federal old age and survivors' insurance (social security), unemployment compensation, and workers' compensation.

Employer payments and other programs.—

These benefits consist of employer payments for voluntary employee benefit programs not specifically required by legislation, whether they are employer-initiated or the result of collective bargaining. They include employer payments for life insurance premiums, supplemental accident and sickness insurance premiums, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude employer costs for company-operated cafeterias, in-plant medical services, free parking, discounts on employee purchases, and uniforms and work clothing for employees.

Cost of materials

Cost of materials consists of direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year. The major components of cost of materials are the following: (1) Raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies or for repair and maintenance during the year; (2) electric energy purchased; (3) fuels consumed for heat, power, or generation of electricity; (4) work done by others on materials or parts furnished by manufacturing establishments (contract work); and (5) products bought and resold in the same condition. Cost of materials excludes purchased services.

Like value of shipments, totals for cost of materials for major industry groups and for manufacturing as a whole include large amounts of duplication. (See definition of [value of shipments](#).)

Cost of purchased fuels and electric energy

Cost of purchased fuels and electric energy consists of the cost of fuels consumed for heat, power, or generation of electricity and the cost of purchased electric energy, whether purchased from the establishments of other companies, transferred from other establishments of the same company, or withdrawn from inventory during the year. The cost and quantity of purchased electric energy represent the amounts actually used during the year.

Employees

For operating establishments, the number of employees is the average number of full-time and part-time production workers on the payroll for the four pay periods including the 12th of March, May, August, and November, plus the number of other full-time and part-time employees on the payroll for the pay period including March 12. For administrative and auxiliary establishments, the number of employees is the number of full-time and part-time employees who were on the payroll in the pay period including March 12. Salaried officers and executives of corporations are included; proprietors and partners of unincorporated businesses are excluded.

Establishment

An establishment is a single physical location where business is conducted or where services or industrial operations are performed. An establishment may be either an operating establishment or an administrative or auxiliary establishment. The data cover every manufacturing establishment having one or more paid employee(s) sometime during 1991. The number of establishments is the number that were in business at any time during 1991 (regardless of their status at the beginning or end of the year).

Administrative and auxiliary establishments are central administrative offices and auxiliary units of companies with more than one establishment.⁸ A central administrative office is an establishment primarily engaged in management and general administrative functions performed centrally for other establishments in the same company. An auxiliary unit is an establishment primarily engaged in performing support services for other establishments in the same company rather than for the general public or for other business firms.

8. In 1991 *Annual Survey of Manufactures: Statistics for Industry Groups and Industries*, such establishments are called "auxiliaries."

Such support services include research, development, and testing; warehousing and storage; maintenance and repair; and other miscellaneous services.

Expenditures for new plant and equipment

Expenditures for new plant and equipment consist of expenditures for (1) plants under construction, (2) permanent additions and major alterations to operating manufacturing establishments, and (3) new machinery and equipment used for replacement and for additions to plant capacity, if they were of the type for which depreciation accounts were ordinarily maintained. They include expenditures for assets acquired under capital leases. They exclude expenditures for facilities owned by the Federal Government but operated under contract by private companies and plant and equipment furnished at no cost to the manufacturer by communities and nonprofit organizations.

Other workers

Other workers are nonproduction employees of the manufacturing establishment, including those engaged in factory supervision above the line-supervisor level. Other workers include employees in the following activities: Sales (including drivers/salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing, clerical and routine office functions, executive, purchasing, financial, legal, personnel (including cafeteria, medical, etc.), professional, and technical. All employees at administrative and auxiliary establishments are included. Also included are employees on the payroll of manufacturing establishments engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

Payroll

Payroll consists of the gross earnings, paid in the calendar year, of all employees on the payroll of manufacturing establishments. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. Salaries of officers and executives of corporations are included. Payments to proprietors and partners of unincorporated concerns, to members of the armed

forces, and to pensioners carried on the active payrolls of manufacturing establishments are excluded.

Production worker hours

Production worker hours consist of hours worked, including actual overtime hours (not straight-time-equivalent hours). They exclude hours paid for vacations, holidays, or sick leave.

Production workers

Production workers are workers, up through the line-supervisor level, at an operating establishment that are engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (power plant, etc.), recordkeeping, and other services closely associated with these production operations at the establishment.

Value added by manufacture

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

Value added by manufacture avoids the duplication in the value of shipments that results when the products of one establishment are used as materials by another. Value added by manufacture is considered the best value measure available for assessing the relative economic importance of manufacturing among industries and geographic areas.

Value added by manufacture differs somewhat in concept from BEA's measure of the gross product of U.S. affiliates. BEA's gross product measure is calculated as the sum of (1) factor incomes (that is, employee compensation, profits, and interest), (2) nonfactor income (that is, indirect business taxes), and (3) consumption of fixed capital (that is, depreciation). Value added by manufacture, on the other hand, is calculated as the difference between the value of production (value of shipments plus the change in finished goods and

work-in-process inventories) and the cost of materials consumed. The two measures differ because purchased services are excluded from gross product but included in value added by manufacture and because sales, excise, and other indirect taxes are included in gross product but excluded from value added by manufacture. Additionally, gross product reflects inventory change valued at replacement cost, whereas value added by manufacture reflects inventory change valued at book value.

Value of shipments⁹

Value of shipments covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and

9. In some tables in *1991 Annual Survey of Manufactures: Statistics for Industry Groups and Industries*, this item is called "value of industry shipments."

Data Availability

Copies of publications presenting establishment-level data for 1987-90 may be obtained from the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. The data are also available on diskettes, which may be obtained from BEA.

To place orders use the BEA and GPO order forms at the back of this publication. Orders should specify the appropriate stock number or accession number, the title of the publication or diskette (including the year of the data), and the price of the publication or diskette. Payment must accompany all orders.

Year	Publication			Diskette	
	Title	GPO stock number	Price	BEA accession number	Price
1987	Foreign Direct Investment in the United States: Establishment Data for 1987	(¹)	\$36.00	50-92-40-777	\$20.00
1988	Establishment Data for Manufacturing, 1988	(¹)	\$13.00	50-94-40-788	\$20.00
1989	Establishment Data for Manufacturing, 1989	(¹)	\$13.00	50-93-40-789	\$20.00
1990	Establishment Data for Manufacturing, 1990	(¹)	\$14.00	50-93-40-790	\$20.00
1991	Establishment Data for Manufacturing, 1991	003-010-00250-6	\$14.00	50-94-40-791	\$20.00

1. Available from BEA. Contact the International Investment Division at (202) 606-9898.

In some cases, the Census Bureau may make special tabulations or perform regressions or other statistical analyses of the data at cost, within the limits of available resources and subject to the legal requirements to avoid disclosure of data of individual companies. A request for a cost estimate as well as exact specifications of the type of tabulations or analyses wanted should be directed to Chief, Industry Division, Bureau of the Census, Washington, DC 20233.

Ordering information for publications and diskettes covering BEA's enterprise data on foreign direct investment in the United States is at the back of this publication.

taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing.

Totals for value of shipments for major industry groups and for manufacturing as a whole include large amounts of duplication because the products of some industries are used as materials by others. This duplication results, in part, from the combination of related industries that represent successive stages in the production of a finished manufactured product. Examples are the combination of flour mills and bakeries in the food group and of pulp mills and paper mills in the paper and allied products group.

The shipments measure shown here for foreign-owned establishments differs significantly in concept from the "sales" measure in the BEA enterprise data for U.S. affiliates. Because the shipments measure is based on data reported at the establishment level, it includes the value of shipments between establishments within the same enterprise, as well as the value of shipments to outsiders. The BEA sales measure does not include shipments between establishments within an enterprise, because the BEA data are reported on a consolidated enterprise basis, and on this basis only sales by the consolidated enterprise to outside individuals or firms are counted. As a result of this difference, the shipments total for an enterprise obtained by summing across all establishments of the enterprise based on the Census

Bureau data could be significantly higher than the sales total for the same enterprise in the BEA data.

Confidentiality

The Census Bureau and BEA are prohibited by law from publishing data that disclose the identity of, or information reported by, individual companies. In this publication, data in each cell were tested to determine whether they should be suppressed to maintain confidentiality. The data on numbers of establishments and their distribution by employment size class are not considered confidential, and these items are shown for countries, industries, or States in instances where other items are suppressed. For employment of foreign-owned establishments, cells that are suppressed contain letter symbols indicating the employment size range for the cell. For all other items, suppressed cells are indicated by a "(D)"; no size ranges are given.

The data in this publication are presented at a highly detailed industry level. In tables that present cross-classifications of the detailed industry data, such as by individual State or by investing country, many cells at the greatest levels of detail are suppressed. The large number of suppressed cells in this volume is an unavoidable consequence of distributing data for a relatively small number of companies among a large number of highly detailed categories while upholding the legal requirement to preserve the confidentiality of the data of individual companies.