Measuring Globalization: The Experience of the United States of America

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Prepared for the 22^{nd} CEIES Seminar, "Statistics and Economic Globalisation," Copenhagen, Denmark, June 2 -3, 2003

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1. Introduction

As the term is usually employed, "globalization" implies that not only has consumption been internationalized through cross-border trade in goods and services, but production also has been internationalized through foreign direct investment. In discussions relating to statistical indicators of globalization, it is commonly taken for granted that data on cross-border trade will be available, and so the attention is focused on information relating to the operations of direct investment enterprises, or affiliates. For the United States, data on trade date to colonial times, and they have been published in balance of payments accounts since 1923. The United States is also recognized for its early implementation of data on the operations of affiliates. However, some might be surprised to learn that such data were collected for years as early as 1950. A census of U.S. direct investment abroad for that year marked the first appearance on a U.S. Government survey of questions on the financing and operations of foreign affiliates of U.S. companies [U.S. Department of Commerce, 1953]. Previous censuses—the first one covered 1929—had collected only the data needed to compile the balance of payments accounts and the international investment position. The 1950 census introduced a few questions on the overall financing and operations of affiliates, including total assets, fixed assets, and selected information on financing of affiliates provided by U.S. portfolio investors and by foreign investors.

From those modest beginnings has evolved what many regard as the world's most fully developed system of data collection on direct investment operations, covering a wide variety of indicators of the financing and operations of U.S. parent companies, their foreign affiliates, and U.S. affiliates of foreign companies. Not only have the raw data been collected, but numerous steps have been taken to add analytical value to them. These steps will be described in due

^{*}The author would like to thank colleagues at the Bureau of Economic Analysis who provided a number of helpful comments on an earlier draft.

¹To acknowledge an oversimplification, foreign direct investment also contributes to the internationalization of consumption (through the local provision of foreign-branded products), and cross-border trade also contributes to the internationalization of production (through trade in intermediate products).

course, but they can be broadly described as efforts to organize the data in ways that are useful for analysis or to construct additional measures that may be derived from the collected data. To ensure that the data are fully utilized, the collection agency—the Bureau of Economic Analysis (BEA), an agency of the U.S. Department of Commerce—has developed both an in-house research capability and a program of working with outside researchers. Finally, BEA has developed a number of methodologies and users' guides to aid users as they attempt to understand and interpret the data.

From this description, it can be seen that the collection of the raw data, although the *sine qua non* without which the other activities could not occur, is just one element in a larger program to provide information needed to measure globalization and to analyze its impact on the U.S. economy, and on the economies of other countries as they may be affected by direct investments in and by the United States. The remainder of this paper will outline this program in greater detail, under the following headings: (1) The data, (2) organizing and enhancing the data, (3) research and analysis, and (4) explaining the data.

2. The data

BEA collects two broad types of data on multinational companies: (1) Balance of payments and direct investment position data and (2) financial and operating data.² The former include the various categories of income and capital transactions that may occur between parent companies and their affiliates, as well as the transactions that occur between parents and third parties when parents acquire or sell ownership interests in affiliates. They also include the related investment positions. These data conform closely to those called for by the fifth edition of the IMF *Balance of Payments Manual* and by the third edition of the OECD *Benchmark Definition of Foreign Direct Investment*.

The financial and operating data, which are the focus of this paper, include such items as balance sheets, income statements, sales of goods and services, employment and employee compensation, U.S. trade in goods, research and development expenditures, taxes, and external

²For inward investment, a one-time survey covering new foreign direct investments also is conducted. It collects information on the cost of the investments, the financing provided by foreign direct investors, and selected items describing the operations of the newly established or acquired affiliates. Thus, it relates to both of the principal data types identified in the text.

financial position. Most of these categories represent not just one item, but a group of items. For example, balance sheets show various asset and liability categories, income statements show different types of revenues and expenses, and so on. Unlike the balance of payments and direct investment position data, the financial and operating data pertain to the entire operations of the affiliates, not just the parent company's share. They are defined using the same ownership criteria (10 percent interest by a single investor) as the balance of payments and direct investment position data, but for foreign affiliates, some items are collected only for affiliates that are majority-owned by U.S. direct investors.

Both types of data are collected in mandatory surveys authorized by a law known as the International Investment and Trade in Services Survey Act. This act dates to 1976 and has been critical to the success of the data collection effort. In addition to making reporting mandatory, the act requires that the data reported be held confidential and not published or otherwise disclosed in such a manner "that the person to whom the information relates can be specifically identified." In preparing the data for publication, each table cell is tested to determine whether the data it contains should be suppressed (that is, not shown) for confidentiality reasons. The act further stipulates that the data may be used for statistical and analytical purposes only; the use of an individual company's data for tax, investigative, or regulatory purposes is prohibited.

The financial and operating data are collected in two types of surveys—benchmark and annual.⁴ (Data on direct-investment-related balance of payments transactions are collected quarterly.) The benchmark surveys are the most comprehensive surveys, both in company coverage and in subject matter [U.S. Department of Commerce, 1998 and 2001]. The benchmark surveys cover virtually the entire direct investment universe in terms of value.⁵ For years not covered by a benchmark survey, an annual sample survey is conducted. The sample is a cut-off sample, with reporting thresholds significantly higher than those on the benchmark

³The act was initially designated as the International Investment Survey Act of 1976. In 1984, it was amended to authorize collection of data on trade in services and redesignated as indicated.

⁴As mentioned in footnote 2, some financial and operating data also are collected in a one-time survey covering new inward direct investments.

⁵The benchmark surveys do have exemption levels to exclude very small companies from reporting, but in claiming exemption a few key data items must be indicated, as a means of certifying eligibility for exemption. Data reported for these items provide general indicators of size that are used in estimating data for the companies that are not required to report.

surveys. To obtain universe estimates of the overall operations of parents and affiliates for nonbenchmark years, data reported in the benchmark surveys for nonsample companies are extrapolated forward, based on the movement of the sample data reported in the annual surveys. Thus, consistent series are obtained for all years.

On both the benchmark and annual surveys, the data are collected at the enterprise, or company, level and are classified according to the primary industry of the enterprise, using categories derived from the North American Industry Classification System (NAICS).⁷ Because each enterprise must be classified in a single industry, the diversity of activity occurring within each enterprise may not be apparent from data collected on this basis. However, sales are required to be broken down by industry, to allow BEA to determine the primary industry of the enterprise. This distribution also can provide some insights into the enterprise's mix of activities.

For the financial and operating data, the data are disaggregated by country of location of the affiliate, for foreign affiliates of U.S. companies, and by country of ultimate beneficial owner, for U.S. affiliates of foreign companies. Where there is an ownership chain, these countries may differ from those shown in the balance of payments and direct investment position data, which are classified according to the country with which the U.S. party to the transaction had a direct transaction or position, as recommended by international standards and as is appropriate for tracking financial flows.

The data are published in BEA's monthly journal, the *Survey of Current Business*, and in separate, more detailed publications. They also are posted on BEA's Web site, at www.bea.gov. A comprehensive, regularly updated online listing of articles and publications is available in the International Investment Division Product Guide, available at http://www.bea.gov/bea/ai/iidguide.htm.

⁶BEA is conducting research into the feasibility of using stratified sampling in connection with the annual surveys.

⁷NAICS was jointly developed, and is used, by the three partner countries of the North American Free Trade Area—Canada, Mexico, and the United States. Introduced in 1997, it was designed with a view to compatibility at the 2-digit level with the International Standard Industrial Classification of the United Nations. For the United States, it replaces the 1987 Standard Industrial Classification.

To illustrate the data that are provided, selected key items for nonbank foreign affiliates of U.S. companies and U.S. affiliates of foreign companies are shown in Table 1. (This and other tables are at the end of the paper.)

3. Organizing and enhancing the data

In addition to providing data on the items collected in its surveys, BEA has made considerable efforts to organize the data in ways useful for analysis and to derive additional measures from the collected data. Through these efforts, value and function have been added to the data over and above that available from the straightforward tabulations of collected items. Moreover, these gains have been achieved without an increase in the burden imposed on the companies that must report the data. Four of the most important types of information that have been made available in this way will be described here: (1) Linkages to establishment-level data, (2) estimates of gross product (value added), (2) information on the "structure of production", and (3) an ownership-based framework of the U.S. current account.⁸

Linkages to establishment-level data.--As growth in foreign direct investment in the United States accelerated in the 1980's, concerns were expressed about the impact of foreign direct investment on particular industries, such as high-technology industries. To satisfy the need for greater detail on the activities of foreign-owned U.S. companies in particular industries, a joint project between BEA and the U.S. Census Bureau, which collects a wide variety of data on the domestic economy, has been undertaken periodically over the last several years to identify the foreign-owned subset of all domestically located establishments (e.g., plants). The resulting data provide information on foreign-owned establishments in over 1,000 individual industries, compared to around 200 industries in the enterprise-level data [U.S. Department of Commerce, 2003]. This project was made possible by the 1990 Foreign Direct Investment and International Financial Data Improvements Act, which—among other provisions—authorized data sharing between BEA and the Census Bureau.

⁸An exercise similar to these in spirit, but pertaining to the balance of payments and direct investment position data rather than the financial and operating data, revalued the direct investment position from the historical-cost basis reflected in data reported to BEA to prices of the current period [Landefeld and Lawson (1991)].

Gross product.—Although BEA collects data on sales by affiliates in its benchmark and annual surveys, for most purposes, gross product, or value added, is a preferable measure of production. Gross product indicates the extent to which affiliates' sales result from their own production rather than from production that originates elsewhere, whereas sales data do not distinguish between these two sources of production. Also, gross product estimates measure the value added to the economy by affiliates in a specific time period, whereas sales in a given period may represent production of earlier periods (that is, out of inventory).

In a global economy, gross product estimates for affiliates are important because they can be compared to total gross product of the home or host economy, to determine affiliates' unduplicated contribution to production. BEA first published estimates of the gross product of foreign affiliates of U.S. companies for 1966 and first published estimates of the gross product of the U.S. affiliates of foreign companies for 1974. Its first estimates of gross product for U.S. parent companies covered 1977. For all three groups of companies, the estimates were initially provided only for years covered by a benchmark survey, but subsequently an annual series was introduced.

Gross product is not a directly collected item, but is estimated from other items that are collected. The estimation methodology exploits the national income identity that states that gross product is equal to the sum of various charges against production. The BEA estimates are derived as the sum of the following five factor and nonfactor charges: Compensation of employees, net interest paid, capital consumption allowances, indirect business taxes, and profit-type return. An alternative method would be to subtract purchases of intermediate inputs from gross output. However, purchases data are not requested on the BEA surveys, and respondents have indicated that such data would be difficult to provide.

One limitation of the initial gross product estimates for parents and affiliates was that they were available only in current dollars; thus, they reflected not only changes in real output, but also changes in prices and, for foreign affiliates, in exchange rates. To partly overcome this limitation, in 1997 BEA developed estimates of real gross product of majority-owned foreign affiliates in manufacturing [Mataloni, 1997]. These estimates are based on purchasing-power-

⁹As will be explained in the next section, once value added has been estimated, it becomes possible to construct a residually derived estimate of purchases.

parity exchange rates and are stated in terms of chained 1996 dollars, which are free from the biases associated with current-dollar measures and with traditional, fixed-weighted measures. The estimates are restricted to manufacturing because the source data necessary for the adjustments are currently unavailable for other industries.

Structure of production.— The data BEA collects on affiliate operations, together with the estimates of gross product and certain residually derived information, can be used to analyze how affiliates structure their production. For example, data on gross product, sales, and inventory changes can be used to derive estimates of affiliates' purchases from outside suppliers (calculated as sales plus inventory change minus gross product). These estimates can be used to gauge the extent to which affiliates' sales result from their own production (gross product) or from the production of others (as measured by purchases). In addition, by using this information in conjunction with information on the affiliates' imports, local content can be separated from content that originates elsewhere. Structure of production methodologies have been developed both for U.S. affiliates of foreign companies [Lowe, 1990] and for U.S. parent companies and their foreign affiliates [Mataloni and Goldberg, 1994]. Going into the details of the calculations for all three groups of companies is beyond the scope of this paper, but the tabulation shown in table 2 for majority-owned foreign affiliates of U.S. companies illustrates the kind of information that can be provided.

Ownership-based current-account framework.—A fourth application of the financial and operating data has been to integrate selected items into a supplemental, ownership-based framework of the U.S. current account. An objective of the framework is to better recognize the role of foreign affiliates as a means of delivering goods and services to international markets and as a contributor to the nation's economic performance in world markets. Under this framework, "trade" is construed broadly to include not only cross-border exports and imports of goods and services, but also deliveries through affiliates. However, the latter are entered in the accounts, not at their full value, but in a way that reflects only the return to the capital ownership by the parent firm. An alternative trade balance is introduced that reflects both channels of delivery, thus capturing the effects on the United States economy of sales that originate both within and beyond its geographical borders.

The conventional measure of the trade balance reflects a country's performance in international markets in terms of the net value of goods and services transactions between firms and persons residing in that country and those residing abroad. Sales of goods and services by foreign affiliates of investing companies to other foreign persons, and sales by foreign affiliates in host countries to other persons in those countries, are not regarded as exports and imports and are therefore excluded from the trade balance.

In the ownership-based framework, in contrast, sales by foreign affiliates are no longer disregarded, but are entered in the accounts in a way that reflects the return to the direct investor's ownership interest in the affiliate (which, in conventional balance of payments accounts, may be labelled "direct investment income"). Returns to U.S. direct investors generated by the sales of goods and services by their foreign affiliates are added to the conventional measure of U.S. cross-border exports, to yield a measure of total U.S. receipts arising from cross-border sales and sales by foreign affiliates. Similarly, returns accruing to foreign owners of affiliates located in the United States are added to U.S. cross-border imports, to yield a comparable measure of total U.S. payments. Entering the effects of affiliate sales in this way recognizes these sales as a separate and distinct method of supplying foreign markets, while at the same time ensuring that only the portion of sales revenues that accrues to the benefit of the home country is included as revenue from that country's foreign sales. The grouping of these items recognizes that cross-border trade and sales through affiliates both are methods of active participation in international markets. In this regard, they lie in sharp contrast with other items in the current account, including the more passively generated income on other types of investment and the fundamentally different types of transactions recorded under current unilateral transfers.

To show the linkages between the returns to direct investors and the activities of affiliates that generate these returns, details obtained from the financial and operating data are added showing the gross sales and expenses (as well as any profits accruing to local or third-country investors) that, when netted against one another, give rise to this return. ¹⁰ Expenses are further broken down to show compensation of employees, thus providing a more detailed picture

¹⁰The information on expenses is not collected directly but is estimated residually, as the difference between the return to direct investors and the sales that generate the return.

of the activities generating and underlying the return to direct investors. Having constructed these more comprehensive measures of receipts and payments resulting from international sales and purchases, a balance is calculated equal to the difference between them.

Accounts compiled on this basis have been presented periodically in the United States since the early 1990's. ¹¹ The basic structure of the accounts and key figures for the year 2000 are shown in table 3. The table shows that the U.S. deficit on goods, services, and net receipts from sales by affiliates is smaller than the deficit on goods and services alone, reflecting the fact that U.S. investors had higher returns on their direct investments abroad than foreign investors had on their direct investments in the United States. In addition to the items discussed above, the table adds details on whether the cross-border trade is with unrelated parties or with affiliated parties and, for the latter, on whether the trade is with foreign parent companies or with foreign affiliates.

4. Research and analysis

BEA conducts a variety of research and analytical activities in support of its data on operations of multinational companies. Research is conducted to interpret the data and place the data in context and to develop new methodologies and measures, such as those discussed in the previous section. Research is also conducted in an effort to identify and understand the economic characteristics and effects of affiliate operations. Finally, the Bureau administers a program under which outside researchers may work with the data on projects that are of mutual interest. Most of the in-house work is done by a specially designated research staff, which at present is comprised of seven people.

As an example of the economic analysis conducted by the in-house staff, one study compared the operations of foreign-owned manufacturing establishments with those of U.S.-owned establishments by examining such characteristics as wage rates, plant size, capital intensity, and labor productivity [Howenstine and Zeile, 1994]. It found that foreign-owned establishments tended to be much larger than U.S.-owned establishments, and to have somewhat

¹¹The initial developmental work is presented in Landefeld, Whichard, and Lowe (1993) and in Whichard and Lowe (1995). The most recent presentation of the accounts—including historical data and a few items not shown in table 3—is in Lowe (2003).

higher capital intensity, wage rates, and labor productivity. The study attributed the difference in plant size to foreign ownership per se, but concluded that the other differences probably were largely due to the nature of the industries in which foreign investment was concentrated.

Another study examined trade in goods between affiliated units of multinational companies (MNC's) [Zeile, 1994]. It found that such intrafirm trade accounted for a major share of U.S. international trade in goods—for more than one-third of U.S. exports in 1994 and for more than two-fifths of U.S. imports. For both exports and imports, this trade consisted mainly of shipments from parents to their affiliates rather than shipments to parents from their affiliates. By industry, most of the intrafirm trade of U.S. MNC's was found to be between U.S. manufacturing parents and their foreign manufacturing affiliates, while most of the intrafirm trade of foreign MNC's was between U.S. wholesale trade affiliates and their foreign parent groups.

A third example of in-house research is an article that examined why the average rate of return on assets of foreign-owned nonfinancial companies in the United States was persistently lower than the comparable measure for U.S.-owned companies [Mataloni, 2000]. Among several factors examined, age and market share were found to be significant, while industry mix and shifting profits out of the United States using transfer prices were found to be relatively insignificant.

An earlier study involving rates of return investigated the relationship between age and rate of return of foreign manufacturing affiliates of U.S. manufacturing parent companies [Lupo, Gilbert, and Liliestedt, 1978]. It found that the rate of return tended to increase with age and, furthermore, that the relationship was genuine, and not due to industry mix effects. The authors concluded that "the age effect may reflect the cost of breaking into new markets, decreases in costs that are the result of the learning process, the progressive weeding out of unprofitable affiliates, and the preemption of the most profitable investment opportunities by older affiliates."

Complementing the research performed by internal staff, BEA administers a program that permits leading academic researchers to work on site as unpaid Special Sworn Employees to conduct formal studies using its confidential micro data on multinational companies. This work is conducted under strict guidelines and procedures that protect the confidentiality of company-specific data, as required by law. Results from this research have received widespread attention

through publication in high-quality academic journals and through dissemination in the National Bureau of Economic Research working paper series (including nine issued within the past two years alone). Recent papers have covered such topics as the extent to which the location decisions of multinational firms reflect a trade-off between achieving proximity to customers and concentrating production to achieve economies of scale [Brainard, 1997]; industry and country determinants of U.S. direct investment abroad [Yeaple, 2003 (forthcoming)]; the choice between exports and direct investment as a means of serving foreign markets [Helpman, Melitz, and Yeaple, 2003]; factors influencing the tendency of U.S. firms to organize their foreign operations as joint ventures rather than as wholly-owned subsidiaries [Desai, Foley, and Hines, 2002a]; the sensitivity of multinational company operations to tax rules [Desai, Foley, and Hines, 2002b]; the determinants of foreign entry into U.S. manufacturing industries through takeovers and the creation of new firms [Feliciano and Lipsey, 2002]; and how tariff reductions, changes in technology, and changes in prices influence trade flows of U.S. parent companies and their Canadian affiliates [Feinberg and Keane, 2003].

5. Explaining the data

No matter how extensive the data, they cannot realize their full potential unless users have a good understanding of them. BEA has taken a number of steps to promote such an understanding. Articles that present and interpret the data generally include key definitions, and may include explanatory boxes or footnotes relating to definitions and terminology. Where a measure, such as the real gross product estimates or the ownership-based current account framework, was discussed in detail in an initial developmental article, references back to that article will be provided in subsequent articles and presentations that carry the series forward. In addition, detailed methodologies are provided in benchmark survey publications [U.S. Department of Commerce, 1998 and 2001]. Less technical explanatory materials, targeted at a more general audience, have been published as users' guides [Mataloni, 1995 and Quijano, 1990]. A set of public information fliers that the Bureau recently prepared for the various data series in the international area included separate information sheets for U.S. direct investment abroad, foreign direct investment in the United States, and the International Accounts research program ["BEA's International Accounts," 2003]. Finally, BEA's research staff, senior data collection staff, and managers of the data collection and research efforts all regularly give

presentations to interested groups on the direct investment data and field inquiries from a variety of data users, including researchers, Government users, journalists, and the general public.

Table 1.—Key Indicators of the Operations of Nonbank Foreign Affiliates of U.S. Companies and of Nonbank U.S. Affiliates of Foreign Companies

(Billions of dollars)

	Foreign affiliates of U.S. companies		U.S. affiliates of foreign companies	
	1990	2000	1990	2000
Total assets	1,559.0	5,260.2	1,550.2	4,847.3
Sales	1,493.4	2,891.5	1,175.9	2,334.7
Net income	84.6	209.6	-4.5	30.6
U.S. exports of goods ¹	106.4	203.0	92.3	165.3
U.S. imports of goods ²	102.2	215.3	182.9	366.6
Compensation of employees	184.8	302.6	163.6	329.7
Employment (thousands)	6,833.9	9,606.9	4,734.5	6,429.2
Gross product	440.0	704.5	239.3	522.2
Research and development expenditures ³	10.2	30.2	11.5	19.8

¹For foreign affiliates, shows goods shipped to affiliates. For U.S. affiliates, shows goods shipped by affiliates.

²For foreign affiliates, shows goods shipped by affiliates. For U.S. affiliates, shows goods shipped to affiliates.

³For foreign affiliates, covers majority-owned affiliates only. (In 2000, majority-owned affiliates accounted for 88 percent of the assets, 86 percent of the sales, and 84 percent of the employment of all nonbank foreign affiliates of U.S. companies.)

Table 2.—Structure of Output for Nonbank Majority-Owned Foreign Affiliates of U.S. Companies

(Billions of Dollars)

		1990	2000
	Billions of dollars		
1	Sales	1,208.3	2,486.9
2	plus: inventory change	17.8	6.8
3	Equals: total output (also = line $4 + line 5$)	1,226.1	2,493.7
4	Gross product	356.0	605.9
5	Purchases	870.1	1,887.8
6	U.S. exports of goods shipped to MOFA's	100.2	196.0
7	Shipped by U.S. parents	88.4	167.6
8	Shipped by unaffiliated U.S. persons	11.9	28.3
9	Other ¹	769.9	1,691.8
10	Foreign content of output (line 4 + line 9)	1,125.9	2,297.7
	Percent		
	Share of total output accounted for by:		
11	Foreign content	92	92
12	MOFA gross product	29	24
13	Other	63	68
14	U.S. content	8	8
15	U.S. exports of goods shipped by U.S. parents	7	7
16	U.S. exports of goods shipped by unaffiliated U.S. persons	1	1

MOFA Majority-owned foreign affiliate.

¹Includes purchases of goods and services from foreign (non-U.S.) residents and purchases of services from U.S. residents. The inclusion of purchases of services from the United States in this item, which is necessary for practical reasons, imparts some upward bias to the estimate of foreign content (line 10).

Table 3.—Ownership-Based Framework of the U.S. Current Account, 2000

(Billions of dollars)

TILV	ports of goods and services and income receipts	1,4
2	2 Receipts resulting from exports of goods and services or sales by foreign affiliates	
3	Exports of goods and services, total	1,2°
4	To unaffiliated foreigners	7
5	To affiliated foreigners	3
6	To foreign affiliates of U.S. companies	2
7	To foreign parent groups of U.S. affiliates	_
1	Net receipts by U.S. companies of direct investment income resulting from	1
8	sales by their foreign affiliates	1
9	Nonbank affiliates	1
10	Sales by foreign affiliates	2,8
11	Less: Foreign affiliates' purchases of goods and services from the United States	2
12	Less: Costs and profits accruing to foreign persons	1,9
3	Compensation of employees of foreign affiliates	3
14	Other	1,6
15	Less: Sales by foreign affiliates to other foreign affiliates of the same parent	5
16	Bank affiliates ¹	
17	Other income receipts	2
18		
lm	ports of goods and services and income payments	1,7
9	Payments resulting from imports of goods and services or sales by U.S. affiliates	1,5
20	Imports of goods and services, total	1,4
21	From unaffiliated foreigners	9
22	From affiliated foreigners	4
23	From foreign affiliates of U.S. companies	1
24	From foreign parent groups of U.S. affiliates	2
25	Net payments to foreign parents of direct investment income resulting from sales by their U.S. affiliates	
26	Nonbank affiliates	
27	Sales by U.S. affiliates	2,3
28	Less: U.S. affiliates' purchases of goods and services from abroad	3
9	Less: Costs and profits accruing to U.S. persons	1,8
30	Compensation of employees of U.S. affiliates	3
31	Other	1,5
32	Less: Sales by U.S. affiliates to other U.S. affiliates of the same parent ²	
33	Bank affiliates ¹	
34	Other income payments	2
	ilateral current transfers, net	-
Me	moranda:	
	Balance on goods and services	-3
30	Balance on goods, services, and net receipts from sales by affiliates (line 2 minus line 19)	-2
36 37 38	balance on goods, services, and het receipts from sales by anniates (line 2 minus line 17)	

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