

## Selected Issues in the Measurement of U.S. International Services

By Obie G. Whichard and Maria Borgia

EACH year since 1990, the Bureau of Economic Analysis (BEA) has published an article in the *SURVEY OF CURRENT BUSINESS* presenting and analyzing detailed data on U.S. international sales and purchases of private services.<sup>1</sup> These articles have sought to present estimates in as much detail as possible and to provide in a single presentation data on the two major international channels of services delivery—cross-border trade and sales through locally established direct investment enterprises, or affiliates. While the articles have included some information on the concepts underlying the data, their primary purpose has been to present the data rather than to discuss methodological issues in detail. This article is intended to complement the annual articles by addressing a number of measurement issues relating to U.S. international services. Its goals are to inform BEA data users about issues that may affect their interpretation of the data and to identify alternative methodologies or additional source data that might be used to improve the data. In some cases, BEA has already begun to implement changes in data collection that would allow improved measures to be constructed. In others, the discussion in this article can be viewed as preparatory work for future improvements.

The series of annual articles on international services transactions was introduced after a long-term data improvement program for international services had been initiated, and several of its elements put in place. (For an annotated chronology of the improvements, see the appendix.) The improvement program built on existing data series. This approach maximized data continuity, economized on resources, and limited increases in reporting burdens. For cross-border trade, the data were upgraded by building on data included in the international transactions accounts (ITA's); new surveys were initiated, existing surveys were improved, and outside information was used to develop estimates

1. The first article in this series was Obie G. Whichard and Anthony J. DiLullo, "U.S. International Sales and Purchases of Services," *SURVEY OF CURRENT BUSINESS* 70 (September 1990): 37–72. The most recent article was Michael A. Mann and Maria Borgia, "U.S. International Services: Cross-Border Trade in 2000 and Sales Through Affiliates in 1999," *SURVEY* 81 (November 2001): 49–95.

for services not covered by BEA surveys. For services delivered through affiliates, estimates were developed through the addition of further breakdowns to existing surveys on the operations of multinational companies.

While the strategy of building on existing data series has allowed improvements to be achieved relatively quickly and with relatively modest increases in cost and burden, in some cases the usefulness of the estimates has been limited by the reliance on series that were developed prior to the emergence of some of the current needs of data users. For some services, the estimates capture aggregate balance-of-payments flows but do not provide the most useful measures of the services provided. For example, trade in insurance services is measured as the difference between premiums and claims, which in a particular period may bear little or no relationship to the value of the services provided and can even be negative. For other services, measurement or classification of cross-border sales differs from that of sales through affiliates, hampering comparisons of deliveries through the two channels. For example, cross-border exports in construction are treated as a service in the ITA's and are recorded net of foreign expenses and related U.S. exports of goods, but in the data on sales through affiliates, construction is treated as a goods-producing industry whose sales are recorded in terms of total operating revenues. This article addresses these limitations and, where feasible, suggests ways to overcome them.

In several cases, particularly those involving finance and insurance, the issues discussed in this article have been the subject of other research conducted both within and outside BEA.<sup>2</sup> Any implementation of improvements suggested in this article for BEA's international accounts will be undertaken with a view to

2. Among the ongoing outside research activities are a Brookings Institution research program on Productivity in the Services Sector, Organisation for Economic Co-operation and Development (OECD) expert group meetings on trade-in-services statistics (held jointly with Eurostat), and OECD task forces on finance and on insurance. BEA is participating in all of these activities. In addition, BEA made contributions to the forthcoming *Manual on Statistics of International Trade in Services* and has participated in meetings held over the years in connection with periodic revisions to the International Monetary Fund's *Balance of Payments Manual* (see footnote 3).

maximizing consistency between these accounts and other accounts produced by BEA, including the national income and product accounts (NIPA's) and the various industry accounts.

BEA's ongoing efforts over many years to improve its data on international services are partly in response to the increasing importance of these transactions in world markets. The rapid growth in these transactions has made it increasingly important that services trade be reflected in statistics in a complete and economically meaningful way. In addition, international guidelines for statistics on trade in services have become more detailed and more specific in recent years.<sup>3</sup> These guidelines recommend the services to be identified and suggest measures that weigh the need for theoretically correct measures against the practical difficulties in developing such measures. Finally, new uses of data on trade in services have emerged in recent years. For example, the addition of services to the agenda in trade negotiations requires statistics to support the negotiations and to assist in monitoring the resulting agreements.

This article begins with a brief overview of the data BEA provides on international services and a general discussion of the limitations of the different types of data. It then considers measurement issues specific to five categories of services with unique attributes or recording methodologies that pose special problems of measurement—insurance, wholesale and retail trade, finance, construction, and utilities.

### Data on U.S. International Services

BEA's data on U.S. international sales and purchases of private services cover two major types of transactions—(1) cross-border exports and imports and (2) sales of services through majority-owned affiliates of multinational companies. Cross-border exports and

imports represent international trade in the conventional sense and cover transactions between companies and individuals resident in the United States and those resident abroad. In addition to being presented in the annual SURVEY articles, these transactions are recorded in summary form in the monthly news release on U.S. trade in goods and services and, in greater detail, in the ITA's, which are presented in the quarterly releases and in the SURVEY. With only a few exceptions, the most important of which is travel, these data are disaggregated by type of service. Most of the data are derived from BEA surveys.

Sales of services through affiliates represent services sold through the channel of direct investment. These sales are not considered U.S. international transactions because, under the residency principle of balance-of-payments accounting, affiliates of multinational companies are regarded as residents of the countries where they are located rather than of the countries of their owners. However, this channel is the major channel for delivering many types of services, and in some cases, its use is the only practical method of delivery because of the need for proximity of consumer and producer when the service is performed. The data on sales of services through affiliates cover nonbank majority-owned affiliates and are derived from questions on BEA's annual and benchmark surveys of direct investment that require affiliates' sales or gross operating revenues to be distributed among sales of goods, sales of services, and investment income. Data are collected on affiliates' sales of services to all destinations, but the data presented in the annual SURVEY articles on services focus on sales abroad by foreign affiliates of U.S. companies and sales in the United States by U.S. affiliates of foreign companies—that is, on the sales that are not included in U.S. cross-border exports or imports.

There are two major differences between the data on cross-border trade and those on sales through affiliates. First, the data on cross-border trade are classified by type of service, whereas the data on sales of services through affiliates are classified on the basis of the primary industry of the affiliate. Data on the specific types of services sold by affiliates would be required for service-by-service comparisons of deliveries through the two major channels, but due to resource constraints and concerns about respondent burden, these data have not been collected to date.

Second, the data on cross-border trade treat sales and purchases alike, whereas the data on sales through affiliates measure the affiliates' sales but not their purchases. While the primary reason for providing statistical coverage of affiliates' activities is to measure the

3. Guidance for compiling statistics on trade in services for balance of payments accounts is provided in International Monetary Fund, *Balance of Payments Manual* (BPM5), 5th ed. (Washington, DC: 1993). More detailed guidance is provided in the forthcoming *Manual on Statistics of International Trade in Services* (MSITS), which is being jointly published by the Commission of the European Communities, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, United Nations Conference on Trade and Development, and World Trade Organization. (As of June 2002, a substantively final, but unedited, version of this manual was available on the United Nations Statistics Division Internet site, <<http://esa.un.org/unsd/tradeserv/manual.asp>>.) MSITS provides guidance for compiling data on both cross-border trade in services and services delivered through affiliates. For cross-border trade in services, MSITS is consistent with BPM5 but is more detailed. For services delivered through affiliates, MSITS' recommendations draw on the international *System of National Accounts* (SNA) (Commission of the European Communities, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, and World Bank, *System of National Accounts, 1993* (Brussels/Luxembourg, New York, Paris, and Washington, DC, 1993)).

services they produce and deliver, a complete picture of their activities and the economic impact of these activities would include information on affiliates' purchases of services as well. However, information on company record-keeping practices suggests that it would be difficult to collect these data from the companies that report on BEA's surveys.<sup>4</sup>

### Issues Regarding Specific Services

For most types of services, the service is clearly defined, explicitly priced, and usually not difficult to isolate statistically from goods or other nonservice elements with which the service may be associated. However, one or more of these issues complicates measurement and interpretation of the five service categories singled out for discussion in the remainder of this article—insurance, wholesale and retail trade, finance,

construction, and utilities. Of the five, insurance is the most complex and is treated in the most detail. The issues that are discussed, possible ways of addressing them, and the effects on the data of the adoption of alternative methodologies or development of improved source data are summarized in table 1.

### Insurance

Insurance is an important service both in U.S. cross-border trade in services and in services supplied internationally through foreign affiliates of U.S. companies and U.S. affiliates of foreign companies. In 2001, U.S. exports of insurance—measured as premiums received by U.S. insurance companies on insurance sold abroad net of claims paid—were \$3.2 billion, about 1 percent of total U.S. exports of private services.<sup>5</sup> However, the underlying gross flows were larger—\$9.9 billion in premiums received and \$6.6 billion in claims paid. In 2001, U.S. insurance imports—measured as premiums paid to foreign insurers net of claims received from foreign insurers—were \$1.3 billion, about 1 percent of

4. BEA does provide estimates of affiliates' output by origin of the content—specifically, between the affiliate's own value added and other content, with the latter being further broken down into U.S. and foreign components. The content other than the affiliate's own value added represents the affiliate's purchased inputs of both goods and services. For content estimates covering all nonbank U.S. and foreign affiliates, see the addenda to table 1 in "An Ownership-Based Framework of the U.S. Current Account," SURVEY 82 (April 2002): 27.

5. The estimates for 2001 reported in this article are preliminary and do not reflect reported survey data for that year. Revised estimates reflecting survey results will be published in the July 2002 SURVEY.

### What are Insurance Services?

"Insurance" is generally understood to refer to arrangements that reduce risk by transferring cost or liability associated with particular contingencies to another party in exchange for a payment, or "premium." A dictionary definition of insurance is "coverage by contract whereby one party undertakes to indemnify or guarantee another against loss by a specified contingency or peril."<sup>1</sup> The *System of National Accounts, 1993* (SNA) describes insurance as activity "intended to provide individual institutional units exposed to certain risks with financial protection against the consequences of the occurrence of specified events."<sup>2</sup>

From the perspective of most policyholders, the value of insurance derives mainly from its protection against catastrophic loss. For most policyholders, insurance policies are essential. Lenders normally require proof of insurance from households and businesses, investors look for and auditors "test" for insurance coverage, government regulators mandate various types of coverage, and prudent businesses and households seek out various types of liability protection. Insurance also reduces the need for expenditures that households and businesses may otherwise undertake to reduce their individual risk. Insurance companies may provide a number of types of insurance

contracts, in order to provide businesses and households with the different types of coverage that they need.

The services provided by insurance companies can be viewed as a combination of services that pool risk and services that provide financial intermediation. The intermediary role of an insurance company derives from the requirement to hold reserves in order to cover extraordinary losses. These reserves are invested, and the investment income earned is used to defray operating expenses or increase reserves, thus enabling lower premiums to be charged. In addition, for whole life insurance, the policy itself may have an explicit component of saving.

In most periods, the premiums received (plus investment income earned) provide funding for a continuing "normal" or expected level of insurance claims and insurance services, plus an amount that is added to reserves. In other periods, withdrawals must be made out of reserves for extraordinary losses. Therefore, after taking into account investment income, premiums must be set to cover the expected costs of providing the services, settling claims, and establishing or maintaining reserves against future claims. When catastrophes occur, such as those associated with the recent terrorist attacks (in the third quarter of 2001) or with Hurricanes Andrew and Iniki (in the third quarter of 1992), premiums net of claims in the period may even turn negative, though policyholders continue to receive a positive stream of real insurance services.

1. Merriam Webster's Collegiate Dictionary, tenth ed. (Springfield, MA: Merriam-Webster, Inc., 1996).

2. SNA, paragraph 6.135.

Table 1. Summary of Measurement Issues for Five Types of Services

| Service                           | Channel of delivery      | Issue   | Possible action to address the issue   | Effect on the estimates   | Steps taken; future plans  |
|-----------------------------------|--------------------------|---|--|---|--|
| <b>Insurance</b>                  | Cross-border trade       | Above- or below-average claims may cause variations in the measure of the service—premiums less claims—that are unrelated to changes in the level of services provided.   | Reflect claims as a proportion of premiums (or as average claims), rather than actual claims.  | Reduce volatility stemming from unusually high or low claims. The average effect on trade flows would be small, but the effect in particular periods could be sizable.  | Work toward implementing an average claims approach has begun, with a goal of introducing revised estimates in 2003. Coordinate implementation with domestic statistics.   |
|                                   |                          | Premiums are recorded net of commissions, though international guidelines call for gross recording.   | Record premiums gross of commissions, and record the commissions separately as services auxiliary to insurance.  | Raise exports and imports of insurance by equal, and probably by relatively small, amounts.   | Surveys have been revised to collect premiums gross of commissions and to collect commissions as part of a new category for services auxiliary to insurance.   |
|                                   |                          | Data on other services auxiliary to insurance are incomplete and are recorded under other services categories.  | Collect more complete data, and record in a new, separate category.  | Raise exports and imports of insurance, probably by relatively small amounts, partly offset by reductions in other services.  | A new reporting category has been added for services auxiliary to insurance.   |
|                                   | Sales through affiliates | Sales largely reflect premium income, with no deduction for claims. The value of the service is consequently overstated relative to the measures used for cross-border trade and for domestic output.   | Collect separate data on premiums and claims; construct measures that net claims from premiums.  | Substantially reduce insurance services sold through affiliates.  | Proposals have been developed to collect separate data on premiums and claims on BEA surveys.  |
|                                   | Both channels            | Services implicit in income derived by insurance companies on reserves held against future claims are not included.   | Construct estimates and include them in measures of insurance services.  | Raise exports and imports of insurance and raise insurance sold through affiliates.   | Conduct further research on developing methodology and identifying data sources. Coordinate implementation with domestic statistics, which currently also exclude these services.  |
| <b>Wholesale and retail trade</b> | Cross-border trade       | Distributive services provided in connection with trade in goods are not identified as such, but are included indistinguishably in the value of the goods.  | Construct rough estimates using information from the U.S. input-output accounts.   | These services were estimated at about 4 percent of the value of both U.S. exports of goods and U.S. imports of goods in 2001.  | The estimates in the previous column would not be deducted from trade in goods, but would be made available as supplementary information for analytical purposes.  |
|                                   | Sales through affiliates | Distributive services are not identified separately, but are included in the value of goods sold through affiliates.  | Collect data on cost of goods resold and use them to construct estimates of distributive services.   | Raise significantly the sales of services through affiliates in wholesale and retail trade.   | Proposals have been developed to collect data on the goods purchased by affiliates for resale, which would enable estimates of margin output to be developed.  |
| <b>Financial services</b>         | Cross-border trade       | Estimates exclude the value of some financial services provided without explicit charge.  | Conduct research into improving the methodology for estimating exports of these services and developing a methodology for estimating imports of these services.  | Raise significantly the value of cross-border trade in financial services.  | Research is being conducted into developing a methodology for estimating the value of cross-border trade in these unpriced services.   |
|                                   | Sales through affiliates | Data do not include any information on services supplied by bank affiliates.  | Collect data from bank affiliates on sales of services, both explicit commissions and fees and information needed to estimate the value of unpriced services.  | Raise significantly the estimates of sales through affiliates in financial services.  | Proposals have been developed to collect data on sales of services by bank affiliates and on interest received and paid by these affiliates.   |
| <b>Construction</b>               | Cross-border trade       | The category is commingled with architectural, engineering, and mining services.  | Collect the data as a separately reported category.  | None, but the service will be separately identifiable in the data.  | Data have recently begun to be reported separately for construction.   |
|                                   |                          | Recording is on a net basis for exports. Related exports of goods and foreign expenses are deducted from operating revenues. International guidelines specify gross recording.  | Adopt a method of gross recording, if deemed desirable after taking into account the adjustments that would have to be made to trade in goods to avoid double counting of project-related goods exports. | Raise significantly the value of trade in construction. However, the increases would reflect grossing within the accounts that would be offset by other, new entries, rather than reflecting the closure of any gaps in coverage. | This issue will remain under review.   |
|                                   |                          | Imports are not adjusted for foreign contractors' expenses in the United States, and these expenses are not recorded elsewhere in the accounts.   | While information on the expenses of foreign contractors is unavailable, estimates might be constructed based on the relationships between expenses and operating revenues reported for exports.         | The amounts involved are believed to be small.  | The feasibility of constructing estimates on foreign contractors' U.S. expenses will be reconsidered after the more disaggregated data (see above) have been reviewed.   |
|                                   | Both channels            | The treatment of construction as a good or as a service is inconsistent between the two channels: Construction is treated as a service in the international transactions accounts, but as a goods-producing industry in the data on sales through affiliates. | The present treatment is consistent with existing international guidelines.  | None.   | The present treatment is consistent with existing international guidelines. However, consideration will be given to including memorandum lines in tables on sales of services through affiliates to show sales of "goods" in construction. |
| <b>Utilities</b>                  | Sales through affiliates | The sales of services include the value of the good (for example, electricity) that is being sold as well as the services provided in distributing that good.   | Ask affiliates to report the value of the product that is distributed as sales of goods and the value of the distribution services as sales of services, if possible.                                    | Lower the estimate of sales of services through affiliates.   | Proposals have been developed to request that the value of the product be reported to BEA as sales of goods and that the value of the distribution services be reported as sales of services, if possible.                                 |

total U.S. imports of private services. The underlying gross flows were much larger—\$32.0 billion in premiums paid and \$30.7 billion in claims received. Because of the unusually high level of claims made by U.S. insurance companies on foreign reinsurers following the terrorist attacks of September 11, 2001, measured current-dollar imports of insurance services in 2001 were considerably lower than those in 2000.<sup>6</sup> In 2000, imports of insurance services were \$9.2 billion, about 5 percent of total U.S. imports of private services. The \$9.2 billion was the net of \$27.9 billion in premiums paid and \$18.7 billion in claims received.

Sales of services by affiliates in insurance are measured as services-related operating revenues and mostly consist of premium income. These sales are larger than the cross-border trade, partly because of this difference in measurement but also because of the widespread use of affiliates to comply with regulatory requirements and to facilitate contacts with customers. In 1999 (the latest year for which estimates are available), sales of services abroad by U.S. companies' majority-owned foreign affiliates (MOFA's) in insurance were \$48.0 billion, or 14 percent of total sales of services to foreigners by all MOFA's, and sales of services in the United States by majority-owned U.S. affiliates of foreign companies (MOUSA's) were \$78.8 billion, or 27 percent of total sales of services in the United States by all MOUSA's.

Several questions arise concerning the measurement of U.S. international sales and purchases of insurance. Should the service be measured net of claims, as in the ITA's, or on a gross basis, as in the data on sales through affiliates? Whether the service is net or gross of claims, the claims must be accounted for in the balance of payments framework. Should the claims be those actually paid in a given period, as under BEA's current methodology, or should claims instead be calculated as an average portion of premiums, computed over some period? If the claims are not considered a part of insurance services, how should they be recorded? How should services auxiliary to insurance, such as claims adjustment services or actuarial services, be classified—in insurance or in other services categories? Should the investment income earned by insurance companies on reserves held against future claims be included in the measure of insurance services? Because these issues differ somewhat with

respect to the two major channels of delivery, cross-border trade and sales through affiliates are discussed separately.

### Cross-border trade

The ITA's measure cross-border trade in insurance as premiums less claims, both of which are reported and recorded on an accrual basis.<sup>7</sup> As with other services, the entries under exports and imports of insurance should reflect the values of the services provided or received. However, the measurement of these values is less clear for insurance than for most other services. Recording insurance services as premiums less claims implicitly reflects the view that the principal service provided by an insurance company is that of administering a risk pool. Under this view, only the portion of premiums not paid out in claims is treated as output of the insurance industry. The remainder simply reflects funds that, with the help of insurance companies, flow from all policyholders to (or for the benefit of) those policyholders who suffer losses. This view is reflected in all international accounts guidelines, including BPM5, MSITS, and the SNA (see footnote 3).<sup>8</sup> It is also consistent with the treatment of domestic insurance transactions in the U.S. NIPA's.<sup>9</sup>

While the net premiums approach is judged by most to be the appropriate one for recording cross-border trade in services in the international accounts, a number of issues arise with respect to its implementation. Whether insurance services should be measured based on actual claims or as a percentage of premiums probably is the most important issue. Other issues include the treatment of income on reserves held against future claims (usually termed "technical reserves") and the treatment of commissions and other services auxiliary to insurance.

7. The use of accruals means that premiums are reported as premiums are earned and claims are reported as losses are sustained, rather than these items being reported on the basis of cash flows involving premiums and claims. For ease in exposition, in the remainder of this section, premiums and claims are referred to as being "received" and "paid," but it is with the understanding that these terms refer to accruals rather than actual cash flows. The use of accruals is consistent with international statistical guidelines and—for other services as well as for insurance—helps to ensure that services are recorded against the periods in which they are provided.

8. Some analysts have suggested measures of insurance output that are based on gross rather than net premiums, but for reasons of consistency with the economic-accounting guidelines and the U.S. NIPA's, these are not considered here as options for measuring cross-border services transactions. For further discussion and references to other literature, see Jack E. Triplett and Barry P. Bosworth, "Productivity in the Services Sector," in *Services in the International Economy*, ed. Robert M. Stern (Ann Arbor: University of Michigan Press, 2001): 23–52, and Mark K. Sherwood, "Output of the Property and Casualty Insurance Industry," *Canadian Journal of Economics*: 32 (April 1999): 518–546.

9. In the NIPA's, the current-dollar gross output of a property and casualty insurance carrier is defined as net premiums received, or gross premiums received less claims paid. For a life insurance carrier, premiums (which may include an element of saving) and benefits are disregarded. Instead, the output is measured in terms of the carrier's operating expenses and profits.

6. In the ITA's and the NIPA's, current-dollar imports included an estimate for the unusually high level of claims expected to be recovered from foreign reinsurers. In the NIPA's, BEA treated this estimate as a change in the corresponding implicit price for insurance services, so real GDP was not affected. For details, see the boxes "The Terrorist Attacks of September 11<sup>th</sup> as Reflected in the National Income and Product Accounts," SURVEY 81 (November 2001): 2–3; and "Effects of September 11<sup>th</sup> Terrorist Attacks on U.S. International Transactions," SURVEY 82 (January 2002): 31.

**Actual versus average or expected claims.** The rationale for the use of premiums less claims as the measure of insurance services is not that it captures all insurance flows in a single measure, but rather that the portion of premiums that remains after provision has been made for claims can serve as a rough proxy for the operating expenses and profits—or output—associated with this activity. While this view has plausibility as an expression of a long-term tendency, it could be argued that a shortcoming of this proxy measure is that claims may fluctuate from period to period in a way that bears little or no relation to the services provided. Hurricanes, floods, oil spills, product liability settlements, and—most recently—terrorist attacks come to mind as perils whose presence or absence may cause large fluctuations in claims that do not appear to correspond to changes in the services provided or received.

To provide a measure that more closely approximates services flows, rather than measuring insurance services as premiums less *actual* claims (as under BEA's current methodology), these services might be measured as premiums less *average or expected* claims. Conceptually, expected claims would appear to be the most relevant item to include in the computation, inasmuch as it is a key factor in the determination of premiums: Insurance firms maximize expected profits by setting premiums that cover expected claims and other costs.<sup>10</sup> In a practical sense, no information is available on what the companies expect, and so an indicator of expectations must be employed. A readily available indicator is the average of past claims in relation to premiums.

Basing estimates of trade in insurance services on average claims would involve calculating an “insurance service charge” by multiplying premiums by a ratio, computed by averaging, over some period, the ratio of premiums-less-claims to premiums. BPM5 suggests this approach for imports of insurance other than reinsurance, but it would seem as useful for exports as for imports, and for reinsurance as for other types of insurance. Implementing an average-claims approach to recording insurance services in the ITA's would result in estimates that provide a more meaningful measure of the value of the services traded and would tend to reduce movements in measured exports and imports of goods and services, and thus in current-dollar gross domestic product (GDP), that, in an economic sense, reflect not only services but also elements that are more appropriately regarded as another type of flow, such as transfers or financial flows (see below).

10. As discussed later, investment income earned on insurance companies' reserves also would be considered in setting premiums.

After a portion of premiums has been recorded as an export or import of insurance services (regardless of whether that portion has been estimated by deducting actual claims or average claims), claims and any remaining portion of premiums must be recorded. According to BPM5, for nonlife insurance, these items should be recorded under current transfers, while for whole life insurance,<sup>11</sup> these items should be recorded in the financial account.<sup>12</sup> Under the current BEA methodology, the entries in transfers or the financial account net to zero and are not recorded. However, if insurance services were defined in terms of average claims, they would typically be nonzero and would have to be recorded (see the “Technical Note” beginning on page 51 for a discussion of ITA recording mechanisms under average-claims-based definitions).

Table 2 illustrates how estimates of insurance exports and imports based on an average claims differ from estimates based on actual claims in the current year, using data for 1986–2001.<sup>13</sup> A 5-year moving average is used in deriving the estimates on an average-claims basis, so estimates can be derived for the years 1991–2001. Entries for the ITA's are summarized in table 3.

For 1991–2001, exports and imports tend to be less volatile under the average-claims method, reflecting the smoothing effect of averaging the ratio of premiums-less-claims to premiums (charts 1 and 2). The smoothing is particularly evident in the 1991–93 estimates of imports. Premiums paid rose throughout this period, but because of a spike in claims recovered in

11. In economic-accounting literature, “life” insurance excludes term insurance and thus covers only insurance in which there is an element of saving and the eventual payment of a benefit is a certainty. Term life insurance may or may not result in a claim, depending on whether or not a specified contingency materializes; in this regard, it is like property and casualty insurance, with which it is grouped.

12. See paragraph 257 of BPM5. For additional details and discussion, see Peter Harper, “Recording Insurance Transactions in the Balance of Payments,” International Monetary Fund Statistics Department, Working Paper no. 95/72, July 1995. Other views of the economic character of these items, and thus of the appropriate account in which to record them, may also be legitimate. For example, claims resulting from catastrophes could be regarded as capital transfers rather than current transfers, and there may be flows in addition to those associated with whole life insurance that might be appropriately recorded as financial account transactions. It is beyond the scope of this article to evaluate such alternatives to the current international standards. However, the treatment of these items in national accounts statistics is among the issues being studied by an Organisation for Economic Co-operation and Development's task force on insurance. In any implementation of an alternative approach to measuring insurance services, either domestically or internationally, BEA will consider the various treatments that have been suggested, in addition to the treatments outlined in the current standards.

13. Table 2 is intended as an illustration of the average-claims methodology. In any actual application of the methodology, a variety of implementation issues would have to be addressed, including whether to estimate separate ratios for different types of insurance or for different geographic areas, the number of years used in the moving average, the specific type of moving average (for example, a simple average as used here or a weighted average), and the treatment of outliers.

1992, the net of premiums and claims dropped sharply from \$2.5 billion in 1991 to \$1.3 billion in 1992 and then rose even more sharply to \$3.1 billion in 1993. The most dramatic example occurred in the third quarter of 2001, when extraordinarily large claims on foreign reinsurance companies in the aftermath of the September 11 attacks resulted in an estimated \$11.0 billion shift in insurance imports, to a *negative* \$7.9 billion in that quarter.<sup>14</sup> For the year 2001, imports fell sharply because of these large claims and not because of a decrease in the services provided by foreign reinsurance companies. Under the average-claims methodology, in contrast, measured imports of insurance services continued to rise.

A measure using an average ratio calculated over a longer period than 5 years or after the removal of outliers would produce patterns that tracked the movement in premiums even more closely. A constant ratio

14. The negative \$7.9 billion figure is a preliminary estimate that is based largely on press reports and industry information. A revised estimate based on survey data will be published in the July SURVEY.

would, of course, track premiums exactly, but it would fail to capture changes over time in the relationship between premiums and claims.

Strict adherence to international guidelines would require estimating transactions in life insurance

**Table 3. Summary of Entries Under Current and Average Claims Approaches, 1991–2001**  
[Millions of dollars]

|          | Current approach |         |                         |                         | Average claims approach<br>(5-year averaging) |         |                                      |                         |
|----------|------------------|---------|-------------------------|-------------------------|---|---------|--------------------------------------|-------------------------|
|          | Exports          | Imports | Current transfers (net) | Current-account balance | Exports                                       | Imports | Current transfers (net) <sup>1</sup> | Current-account balance |
| 1991.... | 491              | 2,467   | 0                       | -1,976                  | 794   | 2,797   | 27                                   | -1,976                  |
| 1992.... | 682              | 1,324   | 0                       | -642                    | 710   | 2,731   | 1,379                                | -642                    |
| 1993.... | 1,020            | 3,095   | 0                       | -2,075                  | 528   | 2,168   | -435                                 | -2,075                  |
| 1994.... | 1,676            | 4,034   | 0                       | -2,358                  | 669   | 2,417   | -610                                 | -2,358                  |
| 1995.... | 1,296            | 5,360   | 0                       | -4,064                  | 1,085   | 3,247   | -1,901                               | -4,064                  |
| 1996.... | 2,168            | 3,885   | 0                       | -1,717                  | 1,371   | 3,561   | 473                                  | -1,717                  |
| 1997.... | 2,473            | 5,873   | 0                       | -3,400                  | 1,683   | 3,874   | -1,209                               | -3,400                  |
| 1998.... | 2,224            | 9,240   | 0                       | -7,016                  | 2,333   | 6,310   | -3,039                               | -7,016                  |
| 1999.... | 1,299            | 3,206   | 0                       | -1,907                  | 2,406   | 7,522   | 3,209                                | -1,907                  |
| 2000.... | 2,412            | 9,189   | 0                       | -6,777                  | 2,651   | 8,968   | -460                                 | -6,777                  |
| 2001.... | 3,209            | 1,341   | 0                       | 1,868                   | 3,006   | 10,146  | 9,008                                | 1,868                   |

1. For any given year, equal to the sum of credit entries for exports and imports in table 2 minus the sum of debit entries for exports and imports in table 2.

**Table 2. Insurance Entries Under Current Recording Based on Actual Claims and Under Alternative Recording Based on Average Claims**  
[Millions of dollars]

|                                       | Premiums | Claims | Share of premiums not paid out in claims |  | Measure of exports or imports        |  | Addendum: Current transfers under alternative recording <sup>5</sup> |        |
|---------------------------------------|----------|--------|--|--|--------------------------------------|--|--|--------|
|                                       |          |        | Current year <sup>1</sup><br>(percent)   | Average for last 5 years <sup>2</sup><br>(percent) | Under current recording <sup>3</sup> | Under alternative recording <sup>4</sup> | Credit   | Debit  |
|                                       |          |        |  |  |                                      |  |  |        |
| <b>Insurance sold (exports):</b>      |          |        |  |  |                                      |  |  |        |
| 1986.....                             | 3,424    | 2,039  | 40.4                                     | .....  | 1,385                                | .....                                    | .....  | .....  |
| 1987.....                             | 3,615    | 2,042  | 43.5                                     | .....  | 1,573                                | .....                                    | .....  | .....  |
| 1988.....                             | 3,534    | 2,687  | 24.0                                     | .....  | 847                                  | .....                                    | .....  | .....  |
| 1989.....                             | 3,117    | 3,015  | 3.3                                      | .....  | 103                                  | .....                                    | .....  | .....  |
| 1990.....                             | 3,388    | 3,158  | 6.8                                      | .....  | 230                                  | .....                                    | .....  | .....  |
| 1991.....                             | 3,365    | 2,874  | 14.6                                     | 23.6   | 491                                  | 794                                      | 2,571  | 2,874  |
| 1992.....                             | 3,852    | 3,170  | 17.7                                     | 18.4   | 682                                  | 710                                      | 3,142  | 3,170  |
| 1993.....                             | 3,981    | 2,961  | 25.6                                     | 13.3   | 1,020                                | 528                                      | 3,453  | 2,961  |
| 1994.....                             | 4,921    | 3,245  | 34.1                                     | 13.6   | 1,676                                | 669                                      | 4,252  | 3,245  |
| 1995.....                             | 5,491    | 4,195  | 23.6                                     | 19.8   | 1,296                                | 1,085                                    | 4,406  | 4,195  |
| 1996.....                             | 5,929    | 3,761  | 36.6                                     | 23.1   | 2,168                                | 1,371                                    | 4,558  | 3,761  |
| 1997.....                             | 6,118    | 3,645  | 40.4                                     | 27.5   | 2,473                                | 1,683                                    | 4,435  | 3,645  |
| 1998.....                             | 7,278    | 5,054  | 30.6                                     | 32.1   | 2,224                                | 2,333                                    | 4,945  | 5,054  |
| 1999.....                             | 7,282    | 5,983  | 17.8                                     | 33.0   | 1,299                                | 2,406                                    | 4,876  | 5,983  |
| 2000.....                             | 8,898    | 6,486  | 27.1                                     | 29.8   | 2,412                                | 2,651                                    | 6,247  | 6,486  |
| 2001.....                             | 9,855    | 6,646  | 32.6                                     | 30.5   | 3,209                                | 3,006                                    | 6,849  | 6,646  |
| <b>Insurance purchased (imports):</b> |          |        |  |  |                                      |  |  |        |
| 1986.....                             | 7,217    | 5,017  | 30.5                                     | .....  | 2,200                                | .....                                    | .....  | .....  |
| 1987.....                             | 8,538    | 5,297  | 38.0                                     | .....  | 3,241                                | .....                                    | .....  | .....  |
| 1988.....                             | 8,954    | 6,326  | 29.4                                     | .....  | 2,628                                | .....                                    | .....  | .....  |
| 1989.....                             | 9,909    | 9,086  | 8.3                                      | .....  | 823                                  | .....                                    | .....  | .....  |
| 1990.....                             | 10,222   | 8,312  | 18.7                                     | .....  | 1,910                                | .....                                    | .....  | .....  |
| 1991.....                             | 11,207   | 8,740  | 22.0                                     | 25.0   | 2,467                                | 2,797                                    | 8,740  | 8,410  |
| 1992.....                             | 11,738   | 10,414 | 11.3                                     | 23.3   | 1,324                                | 2,731                                    | 10,414   | 9,007  |
| 1993.....                             | 12,093   | 8,998  | 25.6                                     | 17.9   | 3,095                                | 2,168                                    | 8,998  | 9,925  |
| 1994.....                             | 14,075   | 10,041 | 28.7                                     | 17.2   | 4,034                                | 2,417                                    | 10,041   | 11,658 |
| 1995.....                             | 15,284   | 9,925  | 35.1                                     | 21.2   | 5,360                                | 3,247                                    | 9,925  | 12,037 |
| 1996.....                             | 14,522   | 10,637 | 26.8                                     | 24.5   | 3,885                                | 3,561                                    | 10,637   | 10,961 |
| 1997.....                             | 15,211   | 9,338  | 38.6                                     | 25.5   | 5,873                                | 3,874                                    | 9,338  | 11,337 |
| 1998.....                             | 20,398   | 11,158 | 45.3                                     | 30.9   | 9,240                                | 6,310                                    | 11,158   | 14,088 |
| 1999.....                             | 21,568   | 18,362 | 14.9                                     | 34.9   | 3,206                                | 7,522                                    | 18,362   | 14,046 |
| 2000.....                             | 27,923   | 18,734 | 32.9                                     | 32.1   | 9,189                                | 8,968                                    | 18,734   | 18,955 |
| 2001.....                             | 32,021   | 30,680 | 4.2                                      | 31.7   | 1,341                                | 10,146                                   | 30,680   | 21,875 |

1. (Column 1–column 2) / column 1) x 100.

2. Excludes the current year.

3. Column 1–column 2.

4. Column 1 x column 4.

5. Entries for current transfers under alternative recording. For insurance sold, credit entries are premiums received less the alternative measure of exports (that is, column 1–column 6); debit entries are claims paid

(column 2). For insurance purchased, credit entries are claims recovered (column 2); debit entries are premiums paid less the alternative measure of imports (that is, column 1–column 6). As noted in the text, under the current-recording method, insurance-related transfer credits and debits net to zero, and so no entry appears for net current transfers in the international transactions accounts. For this reason, columns are not shown in the table for current transfers under the current-recording method. If they were, the figures for both credits and debits would equal those shown as claims in column 2.

(excluding term insurance) separately, to allow the entries in the above examples that were recorded in current transfers to instead be recorded in the financial account of the ITA's. However, these transactions probably do not account for a very large share of U.S. cross-border trade in insurance. Moreover, whole life insurance cannot be separately identified in the currently available source data.<sup>15</sup>

**Investment income.** Just as charges for the services associated with checking accounts would be imposed, or would be higher, if banks could not lend out or invest the funds of their depositors, insurance premiums would be higher if insurance carriers were unable to earn income on funds held in reserve against future claims. In recognition of this fact, the 1993 SNA included income on technical reserves in its recommended measure of output of the insurance industry.<sup>16</sup> The income is treated as accruing to the policyholders, who pay it back to the insurers as supplements to premiums. To date, BEA has not reflected this income in

its measures of insurance services, either domestically or internationally.

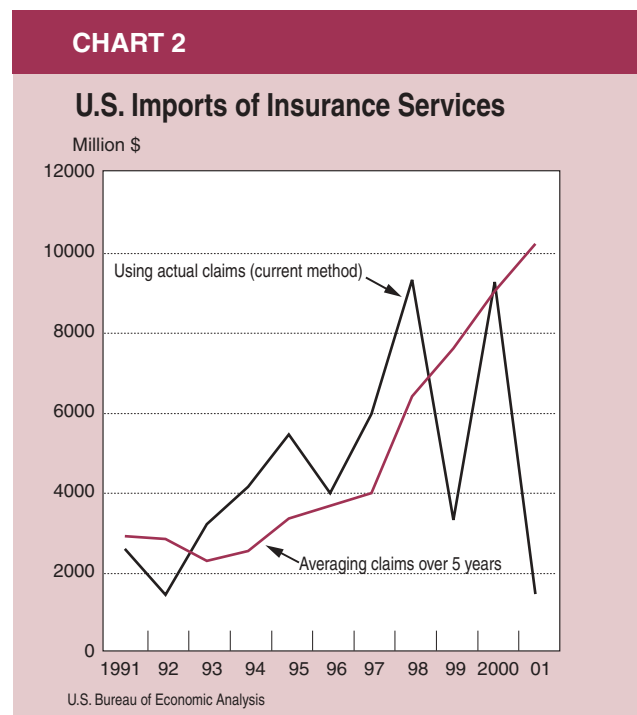
The reason for treating income on technical reserves as a component of insurance trade is to improve the accuracy of estimates of the insurance services provided to, or procured from, nonresidents. Because the economic value of these services is unrelated to the source of the income, the income on reserves that would be added to trade in insurance services does not itself have to be derived from or directly paid to nonresidents. If some or all of the reserves are invested with nonresident institutions, then the associated income flows would be recorded in the ITA's as separate transactions that would have their own offsets in the financial account of this double-entry system of accounts.<sup>17</sup>

Despite its potential significance, both the 1993 SNA and BPM5 allow income on technical reserves to be disregarded in insurance transactions between residents and nonresidents because of estimation problems, particularly for imports. Nonetheless, it must be acknowledged that excluding this income imparts some downward bias to the estimates. Further research

15. On BEA's survey of international insurance transactions, reporters identify their principal line of insurance (life, property and casualty, or "other"), but many companies provide multiple lines of insurance, and many companies whose principal line is reported as life insurance primarily provide term insurance, whose recodation in the accounts should parallel that of property and casualty insurance.

16. The SNA (paragraph 7.123) indicates that technical reserves "consist of the actuarial reserves against outstanding risks in respect of life insurance policies, including reserves for with-profit policies which add to the value on maturity of with-profit endowments or similar policies, prepayments of premiums and reserves against outstanding claims." The SNA excludes income derived from the investment of the insurance company's own funds from its measure of insurance output.

17. For U.S. exports of insurance, for example, a share of U.S. insurance companies' income on technical reserves (perhaps calculated in proportion to premiums from foreigners relative to total premiums) would be treated as a part of exports of insurance and would be offset in the accounts by an imputed payment of investment income to nonresidents. This method of recording these transactions would reflect the view that the income accrues to the foreign policyholders (hence the entry under payments of income), who then use it to provide supplements to premiums to the domestic (U.S.) insurance carriers, thus raising the measure of insurance services exported.





into data sources and estimation techniques would appear worthwhile.

**Commissions and other auxiliary services.** Under BPM5, insurance services include agent commissions related to insurance transactions. MSITS, in a more detailed definition of insurance, includes not only commissions but also other services auxiliary to insurance, such as for claims adjustment, actuarial services, and administration of salvage and recovery services.<sup>18</sup> Currently, none of these elements are recorded in the U.S. accounts as recommended; however, changes in data collection have been implemented that will allow the recommended treatment to be used in the future. Because the situation is different for commissions than for the other services, they will be considered separately.

Prior to the survey covering transactions in 2001, the BEA survey on which most international insurance transactions are reported required that premiums be reported net of commissions paid between residents and nonresidents. Suppose, for example, that an insurance policy was sold to a foreigner by a U.S. carrier through a foreign agent and that the agent retained (or received separately from the U.S. carrier) a \$5 commission out of the foreign customer's payment of a \$100 premium. In this case, \$95 would have been reported to BEA as premiums net of commissions and—ignoring any claims—would have been recorded as a U.S. export of insurance. Under BPM5 and MSITS, in contrast, a \$100 export of insurance and a \$5 import of insurance would have been recorded, the latter representing the U.S. carrier's purchase of services auxiliary to insurance from the foreign agent. The latter treatment is consistent with the general principle—reflected in both BPM5 and MSITS—of recording current-account transactions on a gross basis. It is also necessary to avoid an underestimation of total exports and imports of goods and services, as well as of exports and imports of insurance.

Beginning with transactions in 2001, premiums are being reported gross of commissions on BEA's survey of international insurance transactions. In addition, a new reporting category has been created in its survey of selected services transactions for services auxiliary to insurance. The new category will also collect data on other services auxiliary to insurance, such as actuarial services and claims adjustment services. Previously, these services had been covered in a fragmentary way as parts of other services.<sup>19</sup>

18. Although auxiliary services other than commissions are not specifically mentioned in BPM5, the MSITS characterizes its definition as "a disaggregation of the BPM5 classification."

19. For example, data on claims adjustment services were collected as a part of legal services, and data on actuarial services were collected as part of a residual ("other") category that also included other services.

### Sales through affiliates

As explained in the section "Data on U.S. International Services," "sales of services" through affiliates are defined as services-related sales or gross operating revenues and are derived from questions that request a breakdown of sales into goods, services, and investment income (to the extent it is included in operating revenues). These data are disaggregated according to the primary industry of the affiliate, but information on the specific types of services sold is unavailable. Thus, sales in insurance must be represented by sales of services through affiliates classified in the insurance industry. In reality, however, affiliates classified in other industries may have secondary activities in insurance, while affiliates in insurance may have secondary activities in other industries.

From this description, a number of similarities and differences can be noted among the measure of insurance available from BEA data on sales of services through affiliates, the BEA measure of cross-border insurance transactions, and the measures suggested by international statistical guidelines. First, the measure of sales through affiliates is a measure of sales of services by firms classified in the insurance industry and, unlike the other measures discussed, is not a direct measure of insurance services provided. Nonetheless, in the absence of data by type of service, it may be viewed as a proxy for such a measure. Second (and overlooking the first difference), the measure reflects premiums on a gross basis, with no deduction for claims. In this regard, it differs from the measures of insurance-company output recommended for economic-accounting purposes and used in BEA's data on cross-border trade. Third, the measure includes revenues derived from the provision of services auxiliary to insurance, and in this regard, it is consistent with the treatment recommended in BPM5 and in the MSITS and with the above-described changes in data collection for cross-border trade. Fourth, it excludes investment income, and in this regard, it is consistent with the BEA measure of cross-border trade, with international standards for measuring external transactions in insurance (which allow this income to be excluded for practical reasons), and with the NIPA treatment of property and casualty insurance.<sup>20</sup> However, it is

20. The inclusion of investment income in the measure of sales of services by affiliates in insurance could raise sales significantly, judging from the data for 1999 on sales by affiliates. These data show that, for majority-owned foreign affiliates classified in insurance, investment income accounted for \$19 billion of gross operating revenues of \$68 billion, and for majority-owned U.S. affiliates classified in insurance, investment income accounted for \$35 billion of gross operating revenues of \$133 billion. While some of these amounts could have been derived from operations in secondary industries, such as finance, or may not qualify as "income on technical reserves," they nonetheless point to the significance of this type of income.

inconsistent with the SNA recommendation for measuring insurance output domestically.

From this discussion, it can be seen that the BEA measure of sales through affiliates in insurance lacks comparability with other measures with which it might be compared. Compared with either U.S. cross-border trade in insurance or the NIPA measures of insurance output, it would tend to exaggerate the relative importance of sales through affiliates, both as a mode of international supply and relative to the output of domestic firms. In addition, inasmuch as it does not correspond to insurance-company output, the measure is difficult to compare with data on sales of services through affiliates in other industries. For these industries (with the notable exceptions of wholesale and retail trade and of finance, discussed in subsequent sections), sales differ from output only in that they do not include inventory change, which for services is generally insignificant.

How important are these differences? As can be seen from table 2, in recent years U.S. insurance exporters have paid out in claims roughly two-thirds of every dollar received in premiums. Ignoring other differences, measures of affiliate sales that could be compared with those on cross-border trade would thus probably be about a third as large as those now published. For 1999, for example, sales of services to foreigners by majority-owned foreign affiliates in insurance were \$48 billion; taking claims into account would reduce the measure to about \$16 billion. Sales of services in the United States by majority-owned U.S. affiliates of foreign companies would be similarly reduced, from \$79 billion to about \$26 billion. Even with these reductions, sales through affiliates would still be larger than cross-border trade, though not by nearly as much.

If constructing measures that correspond more closely to output is desirable, is there any way it could be done using currently available data? One possible substitute measure would be gross product (value added). However, this measure—while available—has several limitations: It does not distinguish between deliveries to U.S. customers and deliveries to foreign customers, it does not distinguish between value added in goods and value added in services, and it does not reflect the contribution of inputs purchased from outside the firm, such as advertising, utilities, and computer services. These limitations might be partly overcome through efforts to construct estimates of output by supplementing data reported for affiliates with information from such sources as financial reports, reports to regulatory agencies, and the input-output accounts, but high-quality estimates clearly require reported data on premiums and claims. As a

first step, BEA is proposing to collect data on premiums and claims from U.S. affiliates of foreign companies on the next benchmark survey of foreign direct investment in the United States, which will cover 2002. If this initial data collection effort is successful, these items would also be requested on the follow-on annual survey of foreign direct investment in the United States and, beginning with the benchmark survey for 2004, on the counterpart surveys of U.S. direct investment abroad.

### **Wholesale and retail trade**

Wholesale and retail trade are important service industries in the U.S. economy. These industries provide distributive services—that is, selling, or arranging for the sale of, goods to intermediate and final users. In 2000, the output of these industries accounted for almost 16 percent of total GDP and for 24 percent of all private services produced in the United States.<sup>21</sup> In contrast, wholesale and retail trade services are almost unnoticeable in the data on U.S. international sales and purchases of private services. However, this does not indicate a lack of importance of these industries. Rather, it reflects the fact that the value of the distributive services they provide is embedded in the value of goods they sell through international channels, either in the value of exports and imports of goods or in the value of sales of goods through affiliates.

### **Cross-border trade**

While it is not identified as such for statistical purposes, cross-border trade in distributive services could be said to occur, for example, when a wholesaler exports a good. Although a significant portion of U.S. exports and imports of goods may be arranged or otherwise facilitated by wholesalers and retailers, particularly the former, the estimates of cross-border trade in services do not include estimates of the distributive services provided by exporters because those services are included in the value of trade in goods. Exports are valued at the f.a.s. (free alongside ship) value of the merchandise at the U.S. port of exportation, including inland freight, insurance, and other charges incurred in placing the merchandise alongside the carrier at the U.S. port. Imports are valued at the price paid or payable for merchandise at the foreign port of exportation. Thus, any distributive services (as well as the value of other services that facilitate trade, such as transportation from the factory to the port), are included in the accounts for cross-border trade in goods and not in those for cross-border trade in services.

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21. Sherlene K.S. Lum and Brian C. Moyer, "Gross Domestic Product by Industry for 1998-2000," *SURVEY 81* (November 2001): 20.

The inclusion of these services in the value of exports of goods follows the treatment recommended in BPM5 and MSITS and reflects the fact that data on cross-border trade are collected by product. In this case, the product is an export of a good, and its value includes the distributive services used to arrange for its export. However, it may be useful for some analytical purposes to know the value of distributive services rendered in support of trade in goods. A rough estimate of these services can be constructed using data on the share of exports in U.S. wholesalers' total sales. These rough estimates suggest that, in 2001, about \$26 billion of the value of exports of goods is accounted for by the distributive services supplied by U.S. wholesalers in arranging for the export of the goods and about \$41 billion of the value of imports of goods is accounted for by the services supplied by foreign wholesalers in arranging the sale of goods to the United States.<sup>22</sup>

### Sales through affiliates

The estimates of sales through affiliates show that, for both the foreign affiliates of U.S. companies and the U.S. affiliates of foreign companies, wholesalers and retailers accounted for less than 1 percent of all services provided in 1999. However, as with the data on cross-border trade, this result is more a reflection of the statistical conventions employed than a true indication of the importance of these industries in the delivery of services to international markets through the channel of affiliates' sales. In particular, the estimates of services provided by wholesalers and retailers do not include the value of their distributive services but, instead, cover only secondary activities of the affiliates. For example, the repair services provided by a car dealer are included in the estimates of sales of services, but the distributive services the dealer provides in selling cars are not. The value of the distributive services is included in the estimates of sales of goods because the data currently collected do not separate the value of these services from the value of the goods being sold.

22. According to the 1997 Economic Census (U.S. Census Bureau, Wholesale Trade Subject Series, *Miscellaneous Subjects*, EC97W42S-SB, Washington, DC, 2001), U.S. wholesalers exported about 37 percent of total U.S. exports of goods. Under the assumption that U.S. wholesalers accounted for the same share of exports of goods in 2001 as they did in 1997, it is estimated that in 2001 U.S. wholesalers arranged for the export of about \$270 billion of goods. Assuming that the rate of 9.6 cents of distributive services for every \$1 of sales estimated for U.S. affiliates (derived in the "Technical Note") applies to these wholesalers, the value of distributive services supplied by wholesalers in the support of goods exports was about \$26 billion. No data are available for the share of imports arranged by foreign wholesalers. However, under the assumption that the same share of goods was imported through foreign wholesalers as was exported through U.S. wholesalers, then foreign wholesalers arranged about \$425 billion of imports of goods in 2001. Assuming the same rate of 9.6 cents of distributive services for every \$1 of sales for foreign wholesalers implies distributive services of about \$41 billion.

When the data collection system for sales of services through affiliates was established, BEA defined sales of services as those typical of a specified group of industries. BEA chose to treat sales in wholesale and retail trade as sales of goods because most of the value of the sales is attributable to the goods being sold and not to the distributive services. Therefore, wholesalers and retailers are actually more important suppliers of services than the data suggest.

As discussed in the section "Data on U.S. International Services," the data on sales of services through affiliates are classified by the primary industry of the affiliate and not by the type of service. For most industries, sales of services reflect the gross output of services by affiliates classified in that industry, where gross output includes the value added by affiliates and their purchases of intermediate inputs. However, because the value of distributive services is included in the value of the goods sold, the sales of services data for affiliates classified in wholesale and retail trade omit the major portion of the services provided by these affiliates. Thus, while the inclusion of distributive services in the value of goods sold is consistent with the treatment of cross-border trade, the construction of a measure of services supplied by affiliates that includes these distributive services would be valuable to data users.

In the remainder of this section, estimates of the distributive services provided by affiliates are constructed that suggest the importance of these services in the data on affiliates' sales. However, the estimates had to be constructed indirectly, under the assumption that affiliates' operations are similar to those of all U.S. wholesalers and retailers. The estimates were constructed using the same definitions of output in wholesale and retail trade as are used in BEA's input-output (I-O) accounts:

- *Wholesale trade* has one primary product—distributive services for the sales of goods to retailers, intermediate users, and final users (other than persons). Distributive services provided by wholesalers include merchandise handling, stocking, selling, and billing.
- *Retail trade* has one primary product—distributive services for the sale of goods primarily to persons.

The distributive services are measured as trade margins—wholesale or retail sales of goods less the cost of goods resold. In estimating the gross output of the wholesale and retail trade industries, the goods for resale are excluded from the value of intermediate inputs consumed in production by wholesalers and retailers because these goods are subject to only minimal processing, such as cleaning or packaging.

The most direct way to measure the value of distributive services provided by affiliates would be to subtract the cost of goods resold from total sales of goods in these industries. However, the cost of goods for resale is not collected separately from other costs and expenses on BEA's surveys of affiliate operations. There are two methods by which the data currently collected for affiliates can be used together with information from other sources to construct estimates of the value of distributive services. In the first method, data on affiliates' value added are used with data from the U.S. I-O accounts to estimate the trade margins of affiliates. In the second method, the data on sales are used with margin rates published by the Census Bureau to estimate trade margins. (See the "Technical Note" for detailed derivations of the estimates.)

These two methods yield estimates for the value of the distributive services of wholesalers provided to U.S. residents by U.S. affiliates of \$41.2 billion and \$85.0 billion. These estimates indicate that distributive services may be among the most important services provided by affiliates; even the lower estimate would rank affiliates in wholesale trade among the larger suppliers of services to U.S. residents. However, the large difference between the two estimates demonstrates that, with the data currently available, it is not possible to construct an estimate of the value of distributive services provided by affiliates within an acceptable level of confidence. Instead, it is necessary to collect the data needed to estimate their values directly.

BEA is proposing to add two questions to the 2002 benchmark survey of foreign direct investment in the United States to collect data on the cost of goods purchased for resale, and on changes in inventories of goods for resale. With these data, the margin output of all wholesale and retail trade operations of affiliates can be estimated. Because it would be problematic to assume that foreign affiliates of U.S. companies behaved similarly to their U.S. counterparts, BEA also plans to propose that these two questions be added to the 2004 benchmark survey of U.S. direct investment abroad.

### **Financial services**

Financial services are an important contributor to the U.S. surplus on trade in services. In 2001, U.S. exports of financial services were \$14.5 billion; U.S. imports of financial services were much smaller, at \$3.9 billion.

Sales by affiliates classified in finance are an important component of sales of services through affiliates. In 1999, sales to foreigners by foreign affiliates in finance were \$25.4 billion, or 7.6 percent of total sales of services to foreigners by foreign affiliates. Sales to U.S. residents by U.S. affiliates in finance were \$15.3

billion, or 5.3 percent of total sales of services to U.S. residents by U.S. affiliates.

BEA's data on financial services cover those services for which explicit fees or commissions are charged. However, the data only partly capture the value of services for which payment is implicit—that is, reflected in differences between rates charged to borrowers and rates paid to depositors and other lenders or in differences between buying and selling rates for financial assets. In addition, the data on cross-border trade include services provided by banks, but the data on sales through affiliates do not.

### **Cross-border trade**

BEA's data on trade in financial services include explicit commissions and fees for a wide variety of services, including funds management, credit card services and other credit-related activities, and transactions in securities. The estimates of cross-border trade also include the value of two services that are only measured indirectly: Implicit commissions and fees for bond trading and underwriting. For example, the services provided by an underwriter, who brings securities to market by buying them from the issuer at an agreed price and reselling them to investors, are remunerated by the margin generated from these transactions.

Other implicitly charged financial services are not included in BEA's estimates of cross-border trade in financial services. For example, one of the ways in which financial institutions charge implicitly for services is by paying lower interest rates to those who lend them money (in the form of deposits and loans) than they charge to those who borrow from them. The resulting net receipts of interest are used to defray expenses and provide an operating surplus. Because financial institutions do not charge explicitly for these services, their values must be imputed.

The guidance for compiling statistics on trade in services offered by the SNA, BPM5, and the MSITS differs on the treatment of these unpriced financial services. The SNA, which refers to these unpriced financial services as "financial intermediation services indirectly measured" (FISIM), states:

The total value of FISIM is measured in the System as the total property income receivable by financial intermediaries minus their total interest payable, excluding the value of any property income receivable from the investment of their own funds, as such does not arise from financial intermediation. Whenever the production of output is recorded in the System the use of that output must be explicitly accounted for elsewhere in the System. Hence, FISIM must be recorded as being disposed of in one or more of the following ways—as intermediate consumption by enterprises, as

final consumption by households, or as exports to non-residents.<sup>23</sup>

The allocation to nonresidents would appear as exports of FISIM in the foreign transactions account of the SNA.<sup>24</sup>

In compiling the NIPA's, BEA imputes a value for "services furnished without payment by financial intermediaries except life insurance carriers and private noninsured pension plans," which consists of the net property income received by depository institutions less the monetary interest paid by them to depositors.<sup>25</sup> BEA then allocates a portion of the imputed value of the "services provided without payment by financial intermediaries" to the rest of the world.<sup>26</sup> In 2001, this allocation was \$22.9 billion; including it in the estimate of exports of financial services would have more than doubled that estimate from \$14.5 billion.

In contrast to the SNA, BPM5 excludes the imputed value of "services provided without payment by financial intermediaries" from exports and imports of financial services because of concerns that it would be impractical to collect the necessary data to impute a value for cross-border trade in these unpriced services. Including these unpriced services in the estimates of trade in financial services in the ITA's would raise the value of exports and imports of financial services and would result in offsetting adjustments to the receipts and payments of interest.<sup>27</sup> Consistent with BPM5 recommendations, BEA excludes "services provided without payment by financial intermediaries" in its recording of cross-border trade in financial services in

the ITA's. (However, consistent with the recommendations of the SNA, it includes the allocation of these unpriced services to the rest of the world in the foreign transactions account of the NIPA's.)

MSITS provides memorandum items for "services provided without payment by financial intermediaries" and for financial services including these unpriced services. These items were included both to provide as complete a picture as possible of trade in financial services—irrespective of whether the services are charged explicitly—and because of concerns that, over time, financial institutions may change how they charge for some services.<sup>28</sup> In addition, the memorandum items should facilitate international comparisons because financial institutions in some countries may charge explicitly for services that are only charged implicitly by institutions in other countries.

BEA is currently conducting research directed at improving the estimates of "services provided without payment by financial intermediaries" that are allocated to nonresidents in the NIPA's (that is, exports of these services) and is considering whether and how to introduce estimates of these services in the ITA's. In addition, BEA will consider the issues involved in estimating imports of "services provided without payment by financial intermediaries," which would be required if estimates of these unpriced financial services were to be included in the ITA's.

### Sales through affiliates

The data on sales through affiliates, like those on cross-border trade, include explicit commissions and fees for financial services and implicit commissions and fees for underwriting and bond trading. To allow for a more comprehensive estimate of the value of "services provided without payment by financial intermediaries," BEA is proposing to collect data on the total interest received and paid by U.S. bank affiliates on the 2002 benchmark survey of foreign direct investment in the United States. BEA is also considering adding these data items to the 2004 benchmark survey of U.S. direct investment abroad in order to estimate the value of

23. SNA, paragraph 6.125.

24. For cross-border trade in services, a parallel imputation would be made of imports of FISIM by residents from nonresident financial institutions. However, it is not necessary to estimate imports of FISIM when estimating GDP, because imports of FISIM are not included in the source data for consumption. (Generally, when estimating GDP, it is necessary to remove the value of imports from the estimates of private and government consumption and investment because the source data of these components include purchases of imports.)

25. BEA also includes in the NIPA's the imputed values of other services provided by financial intermediaries without explicit charge, such as services furnished without payment by domestic securities dealers and the expenses of handling life insurance and private pension plans. For details on these imputations, see Bureau of Economic Analysis, *Personal Consumption Expenditures*, Methodology Paper MP-6, Washington, DC, June 1990: 9-12 ([www.bea.gov/bea/mp.htm](http://www.bea.gov/bea/mp.htm)).

26. The allocation to the rest of the world is based on the share of checking and savings deposits that are foreign-owned. BEA assumes that financial intermediaries pay, as interest, the difference between the property income earned on the investment of deposits and the interest paid to depositors, who then use it to purchase the services for which they do not pay an explicit service charge. That is, the depositors, and not the borrowers, pay all implicit service charges. Therefore, a corresponding upward adjustment (equal to the exports of "services provided without payment by financial intermediaries") is made to income payments to the rest of the world representing these imputed payments of interest to foreign depositors. For more on the estimation and allocation of these unpriced services, see Brent R. Moulton, "Measurement of Banking Services in the U.S. National Income and Product Accounts: Recent Changes and Outstanding Issues," presented to the BEA Advisory Committee, May 5, 2000 ([www.bea.gov/bea/papers/bank.pdf](http://www.bea.gov/bea/papers/bank.pdf)).

27. This discussion assumes that both borrowers and depositors purchase "services provided without payment by financial intermediaries." For purchases of these unpriced services by borrowers, some of the interest nonresident borrowers pay on their loans would be recharacterized as purchases of these unpriced financial services. For purchases of "services provided without payment by financial intermediaries" by depositors, it would be assumed that depositors receive, as interest, an amount equal to their purchases of these unpriced services. The imputed values for interest paid to depositors and their purchases of these unpriced services would raise the estimates of both receipts of interest and payments for financial services (or payments of interest and receipts for financial services) by equal amounts.

28. For example, if financial institutions begin to charge explicitly for services that had previously been charged implicitly, financial services excluding these unpriced services would show growth greater than if there had been no change in charging policies.

services provided without payment by foreign bank affiliates.

The estimates of sales of services through affiliates cover nonbank affiliates only. Because most of the information on bank affiliates that is needed for policy-making purposes is already reported to other U.S. Government agencies, BEA collects only limited data from bank affiliates in its surveys of direct investment. However, the absence of banks in the data causes a potentially large gap in the coverage of financial services sold through affiliates and an understatement in total sales of services. To close this gap, BEA is proposing that data on sales of services through U.S. bank affiliates be collected, beginning with the 2002 survey of foreign direct investment in the United States. Parallel coverage of services sold through foreign affiliates in banking will be considered for the 2004 benchmark survey of U.S. direct investment abroad.

### Construction

For cross-border trade, construction services currently are combined with a number of other services—specifically, engineering, architectural, and mining services. In 2000, U.S. exports of these services had a combined value of \$5.3 billion, computed as \$7.9 billion in gross operating revenues less foreign expenses of \$2.3 billion and less \$0.4 billion of related U.S. exports of goods.<sup>29</sup> U.S. imports were \$0.4 billion, which represents gross operating revenues paid to the foreign providers of these services, without deductions for U.S. expenses or related U.S. imports of goods.

Sales by affiliates in construction are recorded as gross operating revenues, unreduced by any items of expenses. In addition, they are recorded as sales of goods rather than as sales of services, reflecting the tangible nature of the outputs produced as well as the treatment of construction in the NIPA's. In the data on sales through affiliates, "sales of services" by affiliates classified in construction reflect sales in secondary, nonconstruction, industries. In 1999, U.S. companies' majority-owned foreign affiliates in construction sold to foreign persons \$14.2 billion of goods and \$0.7 billion of services. For foreign companies' majority-owned U.S. affiliates in construction, sales of goods to U.S. persons were an estimated \$24.1 billion, and sales of services were \$2.5 billion.<sup>30</sup>

For construction, three measurement issues are considered: (1) Differences between the data on cross-border trade and the data on sales through affiliates in the treatment of construction as a good or a service,

(2) the combination of construction with other activities in the data on cross-border trade, and (3) differences between the two data sets in methods of recording (gross or net). These are discussed in turn below.

As noted, construction is treated as a service in the data on cross-border trade, while in the data on sales by affiliates, sales in construction are treated as sales of goods. This inconsistency has arisen from differences in the standards and precedents being followed in the respective series. In the international guidelines for recording cross-border trade, construction is treated as a service. In contrast, construction is treated as a goods-producing industry in BEA's GDP-by-industry series. The treatment of construction as goods-producing in national accounts statistics is made in recognition of the tangible and visible nature of the industry's outputs (buildings, highways, *et cetera*). The treatment of construction as a service in statistics on cross-border trade reflects traditional rules for balance of payments accounting, which include, with only a few exceptions, as trade in goods only those transactions that pass through customs. Further, construction is often treated as a service activity in other contexts. For example, within U.S. Government agencies responsible for trade policy, construction is covered by offices that deal with trade in services, perhaps because trade in construction often involves the movement of people as well goods across borders and because construction is grouped with services in trade negotiations. In addition, construction is listed as a service in a sectoral classification list used in connection with the General Agreement on Trade in Services (GATS).<sup>31</sup> To meet the various needs of diverse users, while at the same time maintaining consistency with practices in national accounts, one possibility would be to include memorandum lines in the annual services article that show sales of goods by affiliates in construction.

A second measurement issue involving construction concerns its grouping with other types of economic outputs in the data on cross-border trade. Up until now, the grouping of construction with architectural, engineering, and mining services has been necessitated by the combination of these activities in BEA's benchmark and annual surveys of selected services transactions between U.S. persons and unaffiliated foreigners, which are the sources of data on U.S. cross-border imports of construction. For several years, these activi-

29. The apparent discrepancy is due to rounding.

30. Sales of goods by U.S. affiliates are not collected according to the location of the customer, but an estimate was made by subtracting exports of goods from total sales of goods.

31. See GATT Secretariat, "Services Sectoral Classification List," document MTN.GNS/W/120, Geneva, GATT, 1991. (The list is reproduced in MSITS, Annex 6.) The GATS, which became effective in January 1995, is the principal World Trade Organization agreement on trade in services. It has been described as "the first set of legally enforceable disciplines and rules ever negotiated and agreed at the world level to cover international trade in services" (MSITS, paragraph 2.5).

ties have been collected separately for U.S. cross-border exports. Beginning with the benchmark survey covering 2001, imports of these services are also being reported in three separate categories, covering (1) construction, (2) engineering, architectural, and surveying services, and (3) mining services. After the collected data have been evaluated, BEA will consider whether construction can be shown separately from the other services, as is recommended by international guidelines and as done in the series on sales through affiliates.

A third issue for construction relates to the method of recording. For U.S. cross-border exports, construction is recorded not as the gross receipts from performing construction work abroad, but as gross receipts less expenses or disbursements made abroad—such as for labor, materials, purchased services, and taxes—and less U.S. exports of goods made in connection with the projects being reported. Although this method of recording could be said to highlight the services aspects of the transactions, it is inconsistent with international guidelines and with BEA statistics on construction imports, which are recorded on a gross basis. (Data on the U.S. expenses and goods imports of foreign contractors operating in the United States are not directly collected but are believed to be small.) Construction sales through affiliates, while treated as sales of goods, likewise are recorded on a gross basis, unreduced by any items of expense.

The two international guidelines for recording cross-border services transactions—BPM5 and MSITS—each recommend that construction transactions be recorded on a gross basis and in a separate category. These recommendations can be outlined for the case of construction abroad by domestic contractors. Both BPM5 and MSITS call for recording the contractors' gross operating revenues derived from the fulfillment of foreign contracts as exports of construction services. In addition, they recommend that the values of any project-related exports of goods that are reflected in these revenues be deducted from exports of goods, to avoid duplication. Finally, they recommend that the contractors' foreign expenses be recorded as services imports. Construction in the domestic economy carried out by foreign contractors is treated symmetrically.

The differences among BEA's current method and the methods of BPM5 and MSITS can be illustrated using U.S. data on exports for the combination of services for which estimates currently are provided. In 2000, U.S. exports of engineering, architectural, construction, and mining services were recorded as net receipts of \$5.3 billion, which was derived as gross operating revenues of \$7.9 billion less exports of goods

of \$0.4 billion and foreign expenses of \$2.3 billion. Under both the BPM5 and MSITS recommendations, exports of these services would be recorded as the \$7.9 billion in gross operating revenues, and exports of goods would be reduced by \$0.4 billion. The \$2.3 billion in foreign expenses would be recorded as a services import.<sup>32</sup>

It could be argued that the methods recommended by the international guidelines better portray the two-way nature of cross-border construction activities and are more consistent with gross output definitions and with the general principle of recording current-account transactions on a gross basis. However, one issue that must be considered before such a method is adopted concerns the deduction of project-related exports from exports of goods. For some purposes, there may be value in recording all exports of goods together, whether related to construction projects or not. In this way, it is possible to discern the portion of domestic goods production that is being supplied to foreign countries, irrespective of how the goods are used abroad. One option that would meet the international guidelines, while at the same time maintaining information on total U.S. shipments of goods, would be to continue to present the current measure of exports and then enter an adjustment to eliminate the construction-related exports.

### Utilities

The utilities sector comprises businesses engaged in the provision of electric power, natural gas, water supply, and sewage treatment. The output of this sector is composed of the goods provided (for example, electric power or natural gas) and the services provided in delivering those goods to consumers. BEA's estimates of cross-border trade and those of sales through affiliates differ in their treatment of utilities. In the estimates of cross-border trade, BEA follows the recommendation of BPM5 and treats trade in products such as electricity and natural gas as trade in goods. However, in the estimates of sales through affiliates, the sales of the utilities sector are treated in their entirety as sales of services. In 1999, sales of services to U.S. residents by majority-owned U.S. affiliates in utilities were \$19.0 billion. In 1998, sales of services to foreigners through majority-owned foreign affiliates in utilities were \$27.3 billion.<sup>33</sup>

BEA is attempting to refine its treatment of utilities in its data on sales through affiliates in order to sepa-

32. Under BPM5, the expenses would be recorded as an import of "other business services." Under MSITS, they would be recorded as an import of construction services, listed opposite the operating revenues under the heading "construction abroad."

33. The 1998 estimate of these sales is given because the 1999 estimate had to be suppressed to avoid the disclosure of data of individual companies.

rate—to the extent possible—the value of goods provided from the value of services provided by this sector. On the 2002 benchmark survey of foreign direct investment in the United States, BEA is proposing that utilities that can break out the value of transmission and distribution services report these as sales of services and report the value of the product that is distributed as sales of goods. If this initial effort were successful, BEA would also plan to incorporate these changes in the surveys of U.S. direct investment abroad, beginning with the benchmark survey for 2004.

### Conclusion

This article has attempted to address a number of measurement issues with respect to BEA's data on U.S. international sales and purchases of services. It focused on five categories of services—insurance, wholesale and retail trade, finance, construction, and utilities. In several cases, options for improving the data were identified. In some of these, additional data collection that would support implementation of the improvements has recently begun or has been proposed. In others, suggestions have been made for changes in definition and methodology that would result in more useful measures; some of these changes would require close coordination with the NIPA's and with BEA's industry accounts. Finally, some of the issues have been discussed in the article with the objective of providing methodological information for the benefit of data users. As time and resources permit, BEA will continue to improve its data on international services.

### Technical Note

This technical note consists of two parts. First, the method for recording nonlife insurance in the ITA's under an average-claims methodology is illustrated. Second, detailed descriptions of the two methods used to estimate the value of distributive services in wholesale trade provided by U.S. affiliates are presented.

#### ITA recording mechanisms for insurance

As explained in the section on insurance, if insurance services are estimated using an average-claims methodology, entries must be made not only under the account for trade in services but also under another account. According to existing international guidelines, this other account is, for nonlife insurance, “current transfers” and, for life insurance, the “financial account.” Because most U.S. international insurance transactions involve nonlife insurance and because life insurance cannot be separately identified using cur-

rently available source data, it has been assumed in illustrating how the various insurance-related transactions would be entered in the ITA's under the existing guidelines that all of the insurance is nonlife insurance.<sup>34</sup>

If, as with the measure currently used by BEA, insurance exports or imports are measured as premiums less *actual* claims, then the required entries in transfers consist of equal debit and credit entries, because the transfers to and from the insurance companies are the same.<sup>35</sup> Because current transfers are shown in the U.S. accounts on a net basis, whether or not these offsetting entries are made is immaterial, as they would neither appear in published tables nor affect larger aggregates. However, if insurance services are measured as premiums less *average* claims, then these entries become essential to avoid statistical gaps. An example will illustrate what is involved.

Take the following case of nonlife insurance sold by domestic carriers to foreigners:

|  |                                      |
|--|--------------------------------------|
| Premiums received:   | \$100                                |
| Claims paid:   | \$80                                 |
| Banking flows:   | –\$100 (debit)<br>and +\$80 (credit) |
| Assumed average share, computed over some time period, of premiums not paid out in claims: | 35 percent                           |

Using the current measure of insurance services—premiums less actual claims—but making the entries in current transfers that are called for by BPM5 would yield the following entries in the ITA's:

|                    | Credits | Debits |
|--------------------|---------|--------|
| Current account:   |         |        |
| Insurance exports  | \$20    |        |
| Current transfers  | \$80    | \$80   |
| Financial account: |         |        |
| Banking flows      | \$80    | \$100  |
| Sum of all flows   | \$180   | \$180  |

As can be seen, the debit and credit entries for current transfers are identical, so their entry is immaterial in a presentation that shows only net current transfers.

34. Were the nonservice entries to be treated differently (see footnote 12), similar entries would still be made, but in different accounts.

35. Transfers to insurance companies consist of the portion of premiums not recorded as insurance exports or imports—that is, premiums minus the difference between premiums and claims. Algebraically, this amount is simply equal to claims, which represent transfers from insurance companies.



Under an average-claims methodology, the entries would be:

|                    | Credits | Debits |
|--------------------|---------|--------|
| Current account:   |         |        |
| Insurance exports  | \$35    |        |
| Current transfers  | \$65    | \$80   |
| Financial account: |         |        |
| Banking flows      | \$80    | \$100  |
| Sum of all flows   | \$180   | \$180  |

Here, the debit and credit entries for current transfers are no longer equal. Rather, there is a \$15 difference between the \$65 in credits (derived as premiums (\$100) minus exports (\$35)) and the \$80 in debits (claims paid). Because of this difference, the transfers must be recorded—whether on a net or a gross basis—to avoid a statistical discrepancy.<sup>36</sup>

Table 2 illustrates the two methods using U.S. data for 1986–2001 and measuring the average share of premiums not paid out in claims as a 5-year moving average. Table 3 summarizes the current-account entries and includes the current-account balance for insurance under both methods for the years for which the alternative recording method could be applied. The table also shows the current-account balance for insurance, which is the same under both methods of recording.

### Estimates of distributive services in wholesale trade provided by affiliates

As discussed in the section on wholesale and retail trade, two alternative methodologies were used to generate estimates of the distributive services in wholesale trade provided by U.S. affiliates of foreign companies. Detailed derivations of these estimates are presented below. Similar estimates could be constructed for the value of distributive services in retail trade provided by U.S. affiliates.

The two estimates are constructed using data collected in the 1997 benchmark survey of foreign direct investment in the United States. Because many affiliates have operations in multiple industries, it is necessary to use the data reported by industry of sales, rather than the sales data based on the primary industry of the affiliates. In the classification by industry of sales, an affiliate's sales are distributed across all industries in which it operated. For affiliates classified in wholesale or retail trade, the industry of sales data separate the sales in wholesale or retail trade from the

sales associated with other activities. Likewise, for affiliates that are classified in other industries but have secondary operations in wholesale or retail trade, the industry of sales data can be used to estimate sales that are attributable to their wholesale trade operations.

*Method 1:* Distributive services can be measured either as sales of goods less the cost of goods resold or as the sum of value added and the cost of intermediate inputs (excluding the cost of goods resold). BEA estimates the value added of affiliates but is unable to estimate the cost of intermediate inputs with the data currently collected, because the cost of goods resold is commingled with other costs and expenses. However, a measure of the cost of intermediate inputs can be constructed using the I-O accounts for the U.S. economy.

The "Use of Commodities" table from the I-O accounts decomposes total U.S. industry output into two components—value added and intermediate inputs (excluding the cost of goods resold).<sup>37</sup> The estimates for wholesale trade from the annual I-O accounts for 1997 are shown below:

|                       | Billions of dollars | Percentage of the total |
|-----------------------|---------------------|-------------------------|
| Intermediate inputs   | 271.8               | 33.8                    |
| Value added           | 532.5               | 66.2                    |
| Total industry output | 804.3               | 100.0                   |

The I-O accounts show that for every \$1 of value added, the typical wholesaler used \$0.51 of intermediate inputs. Under the assumption that the relationship between intermediate inputs and value added was the same for U.S. affiliates as for domestic industries, this ratio and the estimates of value added of affiliates in wholesale trade can be used to estimate the margin output of these affiliates.<sup>38</sup>

The estimate of margin output is constructed in two phases. First, the trade margin of affiliates in wholesale trade is estimated. Then, the trade margin of affiliates that are classified in other industries but have secondary operations in wholesale trade is estimated.

Affiliates classified in wholesale trade in 1997 had value added of \$49.4 billion. However, some of the affiliates in wholesale trade had sizable secondary operations in other industries, primarily in manufacturing. Therefore, it is necessary to estimate the portion of value added that was attributable solely to wholesale trade operations. For this purpose, the share of whole-

37. The "Use of Commodities" table shows the commodities that are consumed in production by each industry.

38. Even if the relationship between intermediate inputs and value added of affiliates differs significantly from that of domestic industries, the impact will be lessened by the fact that the intermediate inputs—the portion of output that must be estimated—represent only about one-third of total output.

36. The ITA's are based on double-entry accounting principles, under which all of the entries related to a given transaction must sum to zero.

sale trade in the affiliates' total employment was taken as an indicator of this industry's share of total value added. In 1997, affiliates in wholesale trade reported 54 percent of their employment in wholesale trade; the remainder was in other industries. Multiplying the \$49.4 billion in total value added by 0.54 yields \$26.7 billion of estimated value added attributable to the affiliates' wholesale trade operations.

To estimate the intermediate inputs, the value added in wholesale trade operations is multiplied by the industry-wide ratio of intermediate inputs to value added from the U.S. I-O accounts (\$0.51 of intermediate inputs for every \$1 of value added). This yields an estimate of the intermediate inputs for U.S. affiliates of \$13.6 billion. The estimate of the value of distributive services for affiliates in wholesale trade is then the sum of the value added and the intermediate inputs, or \$40.3 billion. Sales in wholesale trade by these affiliates were \$421.1 billion. Therefore, for every \$1 in sales by affiliates in wholesale trade, 9.6 cents is estimated to be attributable to distributive services.

Wholesale trade sales by affiliates classified in other industries amounted to \$68.3 billion in 1997. Under the assumption that the rate of 9.6 cents of distributive services for every \$1 of sales also applies to these sales, the distributive services for these operations is estimated at \$6.5 billion. Adding the two estimates of distributive services yields a total of \$46.8 billion.

Once the total value of distributive services provided by U.S. affiliates has been estimated, it is necessary to estimate the portion provided to U.S. residents. Because distributive services are tied to the sale of goods, it can be assumed that the portion of distributive services provided to U.S. residents is proportionate

to the share of local sales in the total sales of goods. In 1997, affiliates in wholesale trade sold 88 percent of their goods locally and exported the remaining 12 percent. Applying the former percentage to the estimate of distributive services yields an estimate of \$41.2 billion of distributive services provided to U.S. residents.

*Method 2:* An alternative way to estimate the trade margins of U.S. affiliates' wholesale trade operations is by combining the data collected by BEA on affiliates' sales by industry with the Census Bureau's estimates of margin rates.

Column 1 of table 4 shows the Census Bureau estimates of margin rates by four-digit North American Industry Classification System (NAICS) industry.<sup>39</sup> These industries correspond to the NAICS-based classifications used by BEA in its surveys of foreign direct investment. The margin rate is defined as gross margin as a percentage of sales, where gross margin is total sales less the cost of goods resold. The rates vary across industries within wholesale trade. For example, motor vehicle wholesalers had lower margin rates than furniture wholesalers.

Because the estimate uses data on sales by subindustries within wholesale trade, it is not necessary to assume that the distribution of U.S. affiliates across the wholesale trade industries was the same as the distribution of domestic firms across these industries, but it is necessary to assume that U.S. affiliates operated with the same margin rates as domestic firms in the same industry. However, there are reasons for believing that affiliates' margin rates may differ from those of their

39. See U.S. Census Bureau, Current Business Reports, Series BW/01-A, *Annual Benchmark Report for Wholesale Trade: January 1992 to February 2002*, Washington, DC, 2002.

**Table 4. Margin Rates, Sales of U.S. Affiliates, and Estimated Distributive Services of U.S. Affiliates by Wholesale Trade Industry, 1997**

|  | Margin rates (percent) | Billions of dollars           |                       |
|--|------------------------|-------------------------------|-----------------------|
|  |                        | Affiliates' sales by industry | Distributive services |
|  | (1)                    | (2)                           | (3)                   |
| <b>Total</b> .....   | <b>n.a.</b>            | <b>489.4</b>                  | <b>96.6</b>           |
| Motor vehicles and motor vehicles parts and supplies.....      | 21.1                   | 98.7                          | 20.8                  |
| Furniture and home furnishings.....                            | 29.2                   | 1.6                           | 0.5                   |
| Lumber and other construction material.....                    | 18.5                   | 8.4                           | 1.6                   |
| Professional and commercial equipment and supplies.....        | 23.5                   | 38.9                          | 9.1                   |
| Metals and minerals (except petroleum).....                    | 20.2                   | 39.5                          | 8.0                   |
| Electrical goods.....  | 22.3                   | 51.6                          | 11.5                  |
| Hardware, and plumbing and heating equipment and supplies..... | 24.8                   | 5.0                           | 1.2                   |
| Machinery, equipment, and supplies.....                        | 27.9                   | 38.3                          | 10.7                  |
| Miscellaneous durable goods.....                               | 24.2                   | 21.6                          | 5.2                   |
| Paper and paper products.....                                  | 22.6                   | 9.1                           | 2.1                   |
| Drugs and druggists' sundries.....                             | 14.0                   | 12.0                          | 1.7                   |
| Apparel, piece goods, and notions.....                         | 31.3                   | 7.5                           | 2.4                   |
| Grocery and related products.....                              | 16.2                   | 30.6                          | 5.0                   |
| Farm product raw materials.....                                | 8.5                    | 32.1                          | 2.7                   |
| Chemical and allied products.....                              | 24.5                   | 17.8                          | 4.4                   |
| Petroleum and petroleum products.....                          | 9.2                    | 55.5                          | 5.1                   |
| Beer, wine, and distilled alcoholic beverages.....             | 24.6                   | 5.4                           | 1.3                   |
| Miscellaneous nondurable goods.....                            | 21.9                   | 15.7                          | 3.4                   |

n.a. Not applicable.

Note. Estimates of distributive services for U.S. affiliates from method 2 using margin rates estimated by the U.S. Census Bureau.

domestic counterparts. For example, the average U.S. affiliate of a foreign company is likely to be larger than the average domestic firm, so if wholesalers with a higher volume of sales operate with narrower margins, then affiliates may have lower margin rates than their domestic counterparts.

Column 2 of table 4 shows the sales of U.S. affiliates in each wholesale trade industry, and column 3 shows the value of distributive services calculated by multiplying the sales by the margin rates. The total estimated value of the distributive services is \$96.6 billion. To estimate the share provided to U.S. residents, this total is multiplied by 0.88 (the share of goods sold locally by affiliates in wholesale trade), yielding an estimate of the value of distributive services of \$85.0 billion, or slightly more than double the \$41.2 billion estimate constructed under the first method.

The difference between the two estimates reflects methodological differences as well as differences in the data that were available to generate the estimates. The first method, which used data on value added reported by U.S. affiliates and estimated their intermediate inputs, yielded an estimated margin rate of 9.6 percent, which is much lower than the margin rates for all U.S. wholesalers that were assumed to apply to the U.S. affiliates under the second method. Because the first method uses data reported by the affiliates on their value added (which is estimated to account for a majority of their total output) and because U.S. affiliates probably operate with lower margins than their domestic counterparts, it is likely that the actual value of the distributive services provided by U.S. affiliates is closer to the lower figure and that the \$85.0 billion estimate is an overestimate. Nevertheless, the disparity between the two estimates suggests that directly collected data are required for accurate estimates of the value of distributive services provided by affiliates to be constructed.

### **Appendix: Improvements to BEA's Data on U.S. International Services, 1982–2001**

1982: Sales by affiliates were broken down between sales of goods and sales of services for the first time in the 1982 benchmark survey of U.S. direct investment abroad. Industry codes for this survey and other BEA surveys of direct investment were revised to provide additional detail for services industries.

1984: Legislation under which data on investment had been collected—the International Investment Survey Act of 1976—was broadened to cover trade in services. The Act was redesign-

nated as the International Investment and Trade in Services Survey Act.

1986: A new benchmark survey of selected services transactions between U.S. persons and unaffiliated foreign persons was conducted for this year. The initial survey covered 18 types of services—mainly business, professional, and technical services—for which coverage was lacking or was incomplete. (Over time, more types of services have been added to this survey and its annual follow-on survey (see below).)

1987: An annual follow-on survey to the benchmark survey of selected services transactions was instituted.

Other BEA services surveys were brought under the International Investment and Trade in Services Survey Act.

Estimates of medical services receipts were introduced into the ITA's, based on information obtained through consultations with the industry.

A survey that previously had covered only reinsurance transactions was expanded to cover sales of primary insurance.

1989: Estimates of expenditures of foreign students in the United States and of U.S. students abroad were introduced into the ITA's. A variety of outside sources were used to derive the estimates.

1990: In the presentation of the current account, "services" were redefined to exclude investment income. This redefinition aligned the term more closely with general usage and was consistent with work then underway to harmonize the classification systems of foreign sector accounts in the International Monetary Fund's *Balance of Payments Manual* and the United Nations' *System of National Accounts*.

The first of what became an annual series of articles on U.S. international sales and purchases of services was published in the September issue of the *SURVEY OF CURRENT BUSINESS*. The article provided more detail than that found in the ITA's, and it included data on ser-

vices delivered through foreign affiliates as well as data on services trade in the conventional sense of exports and imports.

1992: Trade in services between affiliated enterprises began to be recorded on a gross basis. Previously, services transactions between U.S. parent companies and their foreign affiliates had been netted and recorded under services exports, while similar transactions between U.S. affiliates of foreign companies and their foreign parents had been netted and recorded under services imports. This treatment obscured the two-way flows of intrafirm services trade and caused an understatement of total exports and imports of services. The adoption of a gross methodology for recording these transactions was implemented both for royalties and license fees and for transactions recorded in the “other private services” account.

Better source data improved the coverage and accuracy of the travel, passenger fares, and transportation accounts. Partner-country data began to be used in developing estimates of travel transactions with Mexico. New estimates of U.S. international cruise transactions, of interline settlements between U.S. and foreign airlines, and of U.S. rail carriers’ revenues for transporting foreign-owned goods shipped through the United States from one foreign destination to another were introduced.

Results of the second benchmark survey of “Selected Services Transactions with Unaffiliated Foreign Persons,” covering 1991, were presented. The coverage of the benchmark survey was expanded by introducing a new exemption criterion and by adding several new types of services.

1994: Monthly estimates of U.S. international services transactions were introduced in a joint news release with the Bureau of Census on “U.S. International Trade in Goods and Services.” The release, which replaced a Census Bureau release on trade in goods, responded to the increased emphasis placed on services by economic analysts and policymakers and the need for more timely measures of services activity. It provided a few highly aggregated

series on services, which were mainly estimated using indicator series.

1995: Estimates of freight charges for the transportation of goods by truck between the United States and Canada were introduced. The addition of these charges recognized the following: The impact of deregulation in the United States and Canada in the 1980s, which opened truck transportation in each country to the other’s carriers; the growing importance of transportation of goods by truck as the volume of U.S.-Canadian trade expanded; and the encouragement of commerce between the United States and Canada due to the U.S.-Canada Free Trade Agreement (1989) and the North American Free Trade Agreement (1993).

1996: More accurate and complete estimates of transactions in financial services were introduced, based on BEA’s first “Benchmark Survey of Financial Services Transactions Between U.S. Financial Services Providers and Unaffiliated Foreign Persons.” The estimates replaced partial estimates that had been prepared by indirect methods. The benchmark survey covered 1994 and was to be repeated every 5 years. A less comprehensive annual survey of financial services was instituted beginning with 1995 to provide survey coverage for non-benchmark years.

1997: Results of the third “Benchmark Survey of Selected Services Transactions with Unaffiliated Foreign Persons” were released. The survey, which covered 1996, provided data that filled gaps in several new, growing, and volatile services categories.

Several improvements to the transportation estimates were made by incorporating newly available source data. Census Bureau data on freight charges for the transportation of goods by truck between the United States and Canada replaced BEA projections that were previously used to estimate truck receipts and payments. In addition, estimates of foreign-operated ocean carriers’ expenses in U.S. ports were revised to reflect newly available detail—obtained from a BEA survey of ocean transportation—on the types of expenses incurred in U.S. ports by foreign ocean carriers.

1998: Computer software royalties and license fees were reclassified to royalties and license fees from “other private services.” The purpose of the reclassification was to better reflect the nature of these transactions as involving intangible assets and to combine them with other such transactions.

“Operational leasing of transportation equipment without crew” was reclassified from the transportation accounts to “other private services.” This reclassification consolidated most types of operational leasing in one account, and it is consistent with international guidelines. The reclassification reflected the availability of improved source data—from BEA’s surveys of selected services—on leasing of other types of equipment.

New detail on intrafirm trade in services that identified some of the specific types of services traded within multinational firms was published. This detail was first collected in the 1994 benchmark survey of U.S. direct investment abroad and was presented in the final data publication for that survey. An annual series was introduced in the 1998 article on U.S. international sales and purchases of services. (Similar data for U.S. affiliates were first collected on the 1997 benchmark survey of foreign direct investment in the United States.)

1999: Compensation of employees, which was previously included indistinguishably in services, was reclassified to the income account to achieve consistency with international guidelines.

Improved estimates of medical services provided to foreign residents at U.S. hospitals were introduced. The new estimates used both an improved methodology and newly available source data.

Estimates of U.S. residents’ expenditures while traveling overseas were revised to incorporate the results of a one-time survey by D.K. Shifflet & Associates covering 1998. The results of the survey, which was completed by U.S. residents after they returned from their trip, were compared with the results of the International Trade Administration’s in-flight survey, which BEA uses to estimate U.S. travelers’ expenditures and which is completed by travelers upon their departure. BEA used the data from the Shifflet survey to develop adjustment factors that can be applied to the in-flight survey data.

2000: Improved estimates were introduced for several items, including financial services, non-compensation expenditures of foreign embassies and consulates and of international organizations in the United States, and expenditures of temporary nonagricultural workers in the United States. The improvement in the estimates of financial services reflected the incorporation of the 1999 benchmark survey of financial services transactions.

2001: For the benchmark survey of selected services transactions with unaffiliated foreigners covering 2001, the instructions were revised to make clear that transactions related to e-commerce and Internet-related transactions were to be covered. A new category was added for trade-related services to cover such services as online auctions. Instructions on other services surveys were similarly revised, as appropriate, when they came up for renewed clearance.

Estimates of intrafirm trade in services for U.S. affiliates of foreign companies were presented for the first time, and a new table of intrafirm trade in services by type that better integrated these data with the ITA’s was introduced.