

Chapter 4

# **OTA Estimates of International Service Activity**

# OTA Estimates of International Service Activity

Given the sources of error in the Federal Government's data on services, OTA undertook an independent estimate of impacts on the balance of payments. This chapter summarizes the aggregated results based on both the geographic (balance of payments) and ownership (foreign revenues) definitions for service activity given in chapter 2. Chapter 5 presents detailed estimates on a sector-by-sector basis,

OTA's figures were compiled using the best available data from sources including:

- reports and surveys of the Department of Commerce (Bureau of Economic Analysis, the Census Bureau, the International Trade Administration, the Travel and Tourism Administration, and the National Telecommunications and Information Administration);
- BEA's inbound and outbound surveys of foreign direct investment (FDI);
- reports and surveys by other government agencies [the Federal Reserve Board, the Departments of Transportation, Education, Labor, and Treasury, the International Trade Commission, the Federal Communications Commission];
- company annual reports and 10-K data reported to the Securities and Exchange Commission;
- previous reports of the Office of Technology Assessment;

- reports and articles in the general and business press (e.g., *Wall Street Journal*, *Financial Times*, *Fortune*), as well as the specialized trade press;
- other private sector surveys and publications—e.g., by trade associations; and
- interviews with people having knowledge and expertise concerning the industry in question, including Commerce Department and other government officials, private sector and trade association representatives, independent consultants, and academics.

For each sector, the data judged most reliable were used to construct an estimate of the value of U.S. service exports and imports, as well as sales through foreign affiliates, for the years 1982 to 1984. OTA relied exclusively on the official U.S. balance of payments data only for those sectors (notably licensing and transportation) where no alternative sources of information were available. Where no precise estimate was possible—often the case—ranges reflect the degree of uncertainty. A detailed discussion of the sources, methods, and assumptions used to construct the estimates that follow here and in chapter 5 is available from NTIS.<sup>4</sup>

<sup>4</sup>"Services in the U.S. Balance of Payments, 1982-84: Documentation of OTA Estimates," July 1986, available from the National Technical Information Service (NTIS), Springfield, VA

## BALANCE OF PAYMENTS IN SERVICES

Table 4 and figures 6 and 7 present OTA's estimates of the impact of service activity on the U.S. balance of payments for the period 1982-84, indicating that the U.S. current account ("BEA estimate" in figures 6 and 7) understates both imports and exports of services. Evidently, the understatement for exports exceeds that for imports. The U.S. surplus on services trade (i. e., net exports), in consequence, appears to be greater than reflected in the offi-

cial statistics. As table 4 shows, OTA puts 1984 service exports at an estimated \$69 to \$91 billion, while the corresponding figure in the U.S. balance of payments was \$43.8 billion. Table 4 thus suggests an omission of \$25 to \$47 billion in service exports in that year's current account.

Imports were understated to a lesser extent, although the total understatement represents

Table 4.—OTA Estimates of Service Balance of Payments, 1982-84<sup>a</sup>

	Exports (receipts) (billions of dollars)			Imports (payments) (billions of dollars)			Net exports <sup>b</sup> (billions of dollars)		
	1982	1983	1984	1982	1983	1984	1982	1983	1984
Accounting, .....	\$0.2-0.5	\$0.2-0.5-	\$0.2-0.5	— <sup>c</sup>	— <sup>c</sup>	— <sup>c</sup>	\$0.2-0.5	\$0.2-0.5	\$0.2-0.5
Advertising . . . . .	0.1-0.5	0.1-0.5	0.1-0.5	— <sup>c</sup>	— <sup>c</sup>	— <sup>c</sup>	0.1-0.5	0.1-0.5	0.1-0.5
Construction . . . . .	5.6	4.8	4.0-6.0	0.0-2.2	0.0-1.7	0.0-2.0	3.4-5.6	3.1-4.8	2.0-6.0
Data processing . . . . .	0.1-1.2	0.1-1.2	0.1-1.2	0.0-2.0	0.0-2.0	0.0-2.0	(1.9)-1.2	(1.9)-1.2	(1.9)-1.2
E d u c a t i o n . . . . .	1.5-2.2	1.6-2.3	1.8-2.5	0.1-0.3	0.1-0.3	0.1-0.3	1.2-2.1	1.3-2.2	1.5-2.4
Engineering . . . . .	1.2-1.7	1.1-1.6	1.0-1.4	0.1-0.3	0.1-0.3	0.1-0.3	0.9-1.6	0.8-1.5	0.7-1.3
Franchising . . . . .	0.2-1.0	0.2-1.1	0.2-1.2	— <sup>c</sup>	— <sup>c</sup>	— <sup>c</sup>	0.2-1.0	0.2-1.1	0.2-1.2
H e a l t h . . . . .	1.0-2.5	1.0-2.5	1.0-2.5	— <sup>c</sup>	— <sup>c</sup>	— <sup>c</sup>	1.0-2.5	1.0-2.5	1.0-2.5
Information . . . . .	0.0-2.6	0.0-2.9	0.0-3.1	0.0-1.0	0.0-1.0	0.0-1.0	(1.0)-2.6	(1.0)-2.9	(1.0)-3.1
Insurance . . . . .	5.6-7.7	6.1-8.2	6.9-9.1	6.3-8.6	6.7-9.1	7.4-9.8	(1.1)-(0.5) <sup>d</sup>	(1.1)-(0.4) <sup>d</sup>	(0.9)-(0.2) <sup>d</sup>
Investment banking/ brokerage . . . . .	2.1-4.8	3.2-6.4	3.2-8.5	3.6-4.1	4.3-4.8	4.3-5.6	(2.0)-1.2	(1.6)-2.1	(2.4)-4.2
Leasing . . . . .	0.2-1.2	0.2-1.2	0.2-1.2	0.0-1.0	0.0-1.0	0.0-1.0	(0.8)-1.2	(0.8)-1.2	(0.8)-1.2
L e g a l . . . . .	0.0-2.0	0.0-2.0	0.0-2.0	0.0-1.0	0.0-1.0	0.0-1.0	(1.0)-2.0	(1.0)-2.0	(1.0)-2.0
Licensing . . . . .	5.2	5.2	5.5	0.7	0.8	1.0	4.5	4.4	4.5
Management/ consulting . . . . .	0.5-1.1	0.6-1.4	0.6-1.6	0.6-1.1	0.6-1.1	0.6-1.1	(0.6)-0.5	(0.5)-0.8	(0.5)-1.0
Motion pictures . . . . .	1.6	1.9	1.9	0.1-1.4	0.1-1.7	0.2-2.7	0.2-1.5	0.2-1.8	(0.8)-1.7
R e t a i l i n g . . . . .	— <sup>c</sup>	— <sup>c</sup>	— <sup>c</sup>	— <sup>c</sup>	— <sup>c</sup>	— <sup>c</sup>	— <sup>c</sup>	— <sup>c</sup>	— <sup>c</sup>
Software . . . . .	1.6-1.7	2.5-2.6	2.8-2.9	0.0-1.7	0.0-2.2	0.0-2.7	(0.1)-1.7	0.3-2.6	0.1-2.9
Telecommunications . . . . .	1.1	1.3	1.3	1.9	2.0	2.4	(0.8)	(0.7)	(1.1)
Transportation . . . . .	16.7	17.1	18.5	17.7	19.1	22.8	(1.0)	(2.0)	(4.3)
Travel . . . . .	15.7	14.1	13.7	13.7	15.8	16.4	2.0	(1.7)	(2.7)
Miscellaneous . . . . .	4.7	5.3	5.7	1.8	1.9	2.1	2.9	3.4	3.6
<b>O T A t o t a l</b>	<b>\$65-81</b>	<b>\$67-84</b>	<b>\$69-91</b>	<b>\$47-61</b>	<b>\$52-66</b>	<b>\$57-74</b>	<b>\$6.3-32.8<sup>b</sup></b>	<b>\$2.7-30.7<sup>b</sup></b>	<b>\$(3.5)-31.5<sup>b</sup></b>
OTA mid-range estimate . . . . .	\$73	\$76	\$80	\$54	\$59	\$66	\$20	\$17	\$14
<b>IBEA total, . . . . .</b>	<b>\$41.7</b>	<b>\$41.8</b>	<b>\$43.8</b>	<b>\$32.6</b>	<b>\$35.4</b>	<b>\$41.5</b>	<b>\$ 9.1</b>	<b>\$6.4</b>	<b>\$ 2.3</b>

<sup>a</sup>Commercial banking is excluded from this table, for reasons discussed on p 40

<sup>b</sup>p,th,s indicates negative balance

<sup>c</sup>Negligible

<sup>d</sup>Range of estimates for net exports not that implied by ranges for exports and imports, for reasons explained on p 76

SOURCES: OTA estimates—ch 5 of this report, BEA estimates—Survey of Current Business, various issues

a substantial fraction of total service imports. OTA places 1984 imports at \$57 to \$74 billion, compared with unofficial figure of \$41.5 billion. This implies an understatement of service imports in the range of \$16 to \$33 billion. Taking the middle of the range for OTA's estimates of exports and imports suggests a U.S. service surplus in 1984 of about \$14 billion, while the official balance of payments surplus for the corresponding categories was reported as slightly over \$2 billion (figure 8),

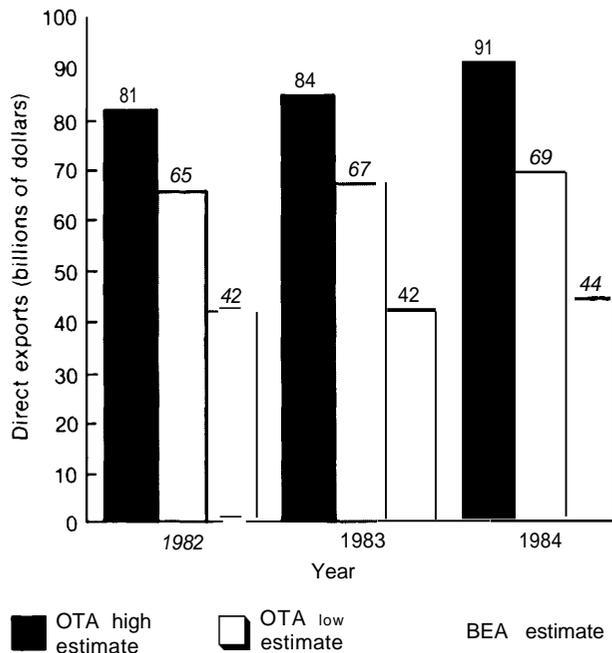
Similarly for 1982 and 1983, OTA's midrange estimates suggest surpluses of \$20 billion and \$17 billion respectively (figure 8), while the official figures were reported as surpluses of \$9 billion in 1982 and slightly more than \$6 billion in 1983. The current account, when compared to the midrange estimates, thus understated the U.S. service surplus by about \$11 billion in both 1982 and 1983, and \$12 billion in 1984. Note that, in spite of this understatement of services trade, both the official balance

of payments data and the midrange estimates of table 4 reflect a decline in the U.S. service surplus over the period 1982-84 (figure 8).

Three qualifications must be added. The first concerns the ranges spanned by OTA's estimates, which point to very large remaining uncertainties. The difference between upper and lower bound on the export estimate for 1984 was \$22 billion; for imports the range was \$17 billion. Comparisons based on midrange estimates provide a reasonable if somewhat arbitrary indicator of possible errors in the services account, but have no claim to statistical validity. (Nor can BEA's figures have any such claim; the Bureau does not report on possible errors in services accounts.)

A second qualification is necessary because neither the BEA nor OTA totals presented in table 4 include banking services. Given that the official estimates for banking are commingled with investment income in the balance of pay-

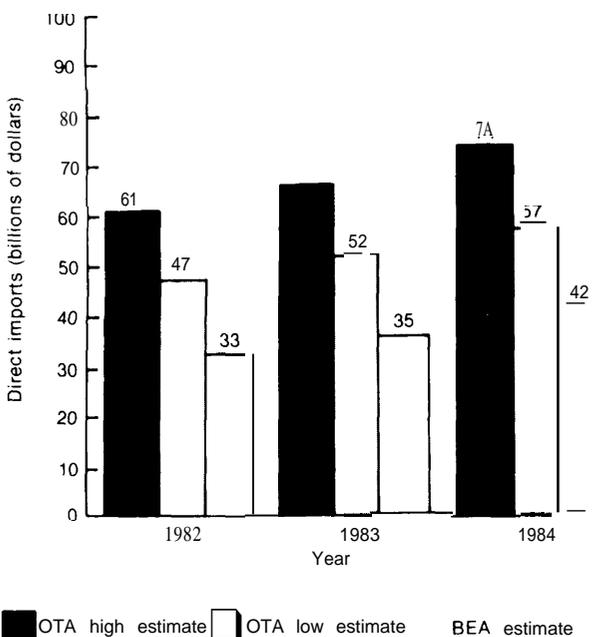
Figure 6.— U.S. Service Exports, 1982-84



NOTE All estimates rounded to nearest billion dollars

SOURCES OTA estimates—Table 4 BEA estimates—R C Krueger, "U S International transactions, First Quarter 1985, Survey of Current Business, June 1985, pp. 34-71.

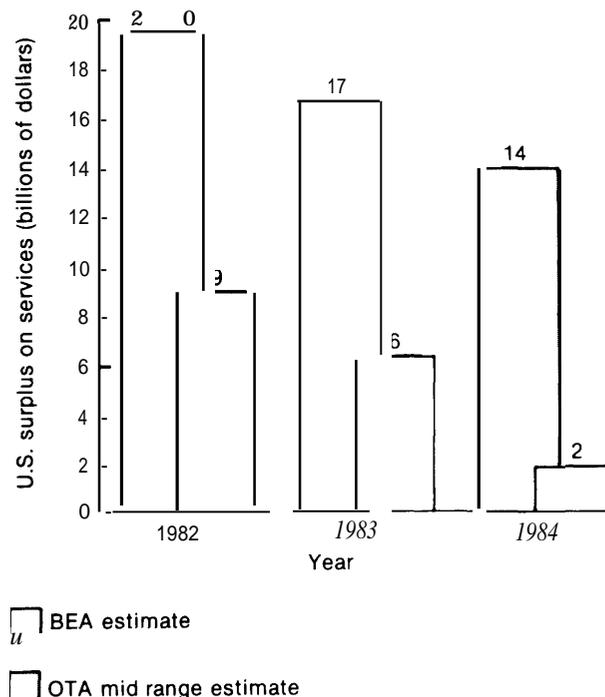
Figure 7.— U.S. Service Imports, 1982-84



NOTE All estimates rounded to nearest billion dollars

SOURCES OTA estimates—Table 4 BEA estimates—R C Krueger, U S International transactions, First Quarter 1985 Survey of Current Business June 1985, pp 34-71

Figure 8.— U.S. Balance of Payments Surplus in Services, 1982-84



NOTE: All estimates rounded to nearest billion dollars

SOURCES\* OTA estimates—Table 4 BEA estimates—R C Krueger, "U S International transactions, First Quarter 1985 Survey of Current Business, June 1985, pp 34-71

ments, there is no way to estimate the services portion of banking in the current account data. Even if banking services could be isolated in the balance of payments, the reported figures could not be checked because the government has no comprehensive data on banking imports. The United States apparently realized a substantial but declining current account surplus (in the range of \$16 to \$20 billion annually) in banking over the years 1982 to 1984. However, much of this represents gross international interest payments rather than value-added services according to the definitions adopted in this report (see box A, as well as "Commercial Banking" in ch. 5).

Finally, OTA's figures must be qualified because some balance of payments flows in services could not be estimated and have therefore been omitted. The primary omissions are exports of services in some industries by U.S. affiliates of foreign firms and U.S. imports from

minority-owned foreign affiliates of U.S. firms (data are available for majority-owned affiliates only), BEA's direct investment surveys do not provide data on these flows. In sectors where

substantial trade in these categories is known to occur, OTA has made rough estimates; otherwise such transactions are not reflected in OTA's figures.

### Box A Measuring Banking Services

Banking includes transactions that are conceptually different from most other service transactions. Beyond this, banking data in a few crucial areas of international activity are very poor. For these reasons, banking and financial services demand special attention when measuring the balance of payments.

Typically, measurements of the level of trade in services begin with company receipts: a company receives a fee for performing a service; the fee represents the market value of the service. There are exceptions. For transactions between affiliated firms, receipts cannot be assumed to represent market values and therefore do not adequately describe the impact of service transactions on the international economy. International transactions in insurance introduce a different sort of complexity, involving not only fee payments to insurers (premiums) but also claims paid to policyholders. While premium receipts may be the appropriate measure of the value of the insurance service provided, claims paid must also be included in measuring impacts on the balance of payments.

For most industries, any such discrepancies between fee receipts and overall impact on the balance of payments (i.e., fee receipts plus other transactions affecting the balance of payments) will be negligible, but not for commercial banking services. When a bank charges a fee for performing a service, that fee is the appropriate measure of the service's value, as it would be for any service product. The majority of international receipts and payments in banking, however, are not fee-based services but rather gross interest receipts and payments on loans and other cross-border assets and liabilities. A complete description of the effect of banking on the balance of payments must include these payments, as well as those for fee-based value-added services. For interest and related charges, the net margin is the appropriate measure of the value of the service. In other words, if a bank raises funds at 8 percent and lends them at 10 percent, the banking service should be valued at 2 percent of the amount lent, not 10 percent.

Nonetheless, it is fee-based services plus gross interest receipts and payments that affect the balance of payments figures themselves. A bank may borrow money in the United States and lend it overseas—meaning that only a portion of the overall loan transaction will be a balance of payments entry. In an case, such measures cannot be computed with any precision because the data are inadequate (see *ci.* 5]. If they could, they would show without doubt that: 1) banking has a greater effect on the balance of payments than any other service activity; and 2) the U.S. banking surplus in the balance of payments has been declining in recent years.

In this report, to put banking on a basis more comparable to other services, OTA bases its estimates on fees for value-added banking services and *net* interest receipts. Estimated in this way, foreign revenues in banking are substantial but do not overshadow other service industries. In cases where the gross receipts/payments measure would be appropriate—i.e., in the tables and figures summarizing the full effect of services on the balance of payments (table 4, figures 6, 7, and 8)—OTA has omitted banking entirely because the data do not permit useful estimates. Except where banking services have been specifically excluded, all other data presented in this report which include banks use the net interest definition.

## FOREIGN REVENUES IN SERVICES

A second major question concerns direct trade in services contrasted with sales through foreign affiliates. Tables 5 and 6 give OTA's estimates of the foreign revenues of U.S. service firms and U.S. revenues of foreign service firms based on the ownership definition of trade (ch. 2).

Note that, for several reasons, the totals for service exports in tables 4 and 5 do not match. The foreign revenues definition, as reflected in table 5, excludes exports from the United States by foreign-owned U.S. firms, while these exports are included in the balance of payments definition that provides the basis for table 4. Similarly, table 5 excludes imports of services to the United States from U.S.-owned firms abroad; these are included in table 4. Tables 5 and 6 also exclude trade between parent and affiliate firms, because the nationality of owner-

ship is the same for buyer and seller. Such a transaction does not constitute international trade on an ownership basis, although it does impact the balance of payments and thus appears in table 4. One final difference between table 4 and tables 5 and 6: the latter also include data on banking. Banking was excluded from the balance of payments figures in table 4 to permit comparison with BEA balance of payments data, in which banking services cannot be isolated from nonservice invisible transactions.

As table 5 and figure 9 indicate, total U.S. service sales on an ownership basis came to an estimated \$164 to \$180 billion in 1982 and \$161 to \$178 billion in 1983. (Data that would permit estimates for 1984 were not available when OTA was preparing this report.) Of these totals, direct exports by U.S.-owned firms lo-

**Table 5.—OTA Estimates of Foreign Revenues of U.S. Service Firms, 1982-84**

	Direct exports (billions of dollars)			Affiliate sales (billions of dollars)			Total foreign-revenues (billions of dollars)			
	1982	1983	1984	1982	1983	1984	1982	1983	1984	
Accounting,	\$0.2-0.5	\$0.2-0.5	\$0.2-0.5	\$3.6-3.9	\$3.7-4.0	\$3.9-4.2	\$3.8-4.4	\$3.9-4.5	\$4.1-4.7	
Advertising ..	0.1-0.5	0.1-0.5	0.1-0.5	1.6	1.7	1.8	1.7-2.1	1.8-2.2	1.9-2.3	
Construction ..	5.6	4.8	40-6.0	3.2-3.6	2.9-3.3	NA	8.8-9.2	7.7-8.1	NA	
Data processing	0.1-1.2	0.1-1.2	0.1-1.2	2.3-3.4	2.5-3.7	NA	2.4-4.6	2.6-4.9	2.7-5.1	
Education .....	1.5-2.2	1.6-2.3	1.8-2.5	0.0-0.1	0.0-0.1	NA	1.5-2.3	1.6-2.4	NA	
Engineering ..	1.2-1.7	1.1-1.6	1.0-1.4	3.6	4.0	NA	4.8-5.3	5.1-5.6	NA	
Franchising ..	0.2-1.0	0.2-1.1	0.2-1.2	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	0.2-1.0	0.2-1.1	0.2-1.2	
Health .....	1.0-2.5	1.0-2.5	1.0-2.5	0.9	1.1	NA	1.9-3.4	2.1-3.6	NA	
Information, ..	0.0-2.6	0.0-2.9	0.0-3.1	0.0-2.6	0.0-2.9	0.0-3.1	2.6	2.9	3.1	
Insurance .....	2.6-3.5	2.7-3.6	2.8-3.7	9.4-11.3	10.1-12.1	11.0-13.0	12.0-14.8	12.8-15.7	13.8-16.7	
Investment banking/ brokerage	0.5-1.5	10-2.0	1.0-2.5	10.8	7.7	NA	11.3-12.3	8.7-9.7	NA	
Leasing .....	0.2-1.2	0.2-1.2	0.2-1.2	3.6-5.3	3.7-5.4	3.8-5.5	4.4-5.5	4.5-5.6	4.6-5.7	
Licensing .....	0.0-2.0	0.0-2.0	0.0-2.0	0.1	0.1	NA	0.1-2.1	0.1-2.1	NA	
Licensing .....	5.2	5.2	5.5	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	5.2	5.2	5.5	
Management/ consulting	0.5-1.1	0.6-1.4	0.6-1.6	1.2	1.2	NA	1.7-2.3	1.8-2.6	NA	
Motion pictures ..	1.6	1.9	1.9	1.5	2.0	NA	3.1	3.9	NA	
Retailing .....	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	27.3	25.4	NA	27.3	25.4	NA	
Software .....	1.6-1.7	2.5-2.6	2.8-2.9	3.0-4.1	3.2-4.4	3.4-4.7	4.6-5.8	5.7-7.0	6.2-7.6	
Telecommunications	1.1	1.3	1.3	1.2	1.3	NA	2.3	2.6	NA	
Transportation	16.7	17.1	18.5	13.5	10.9	NA	30.2	28.0	NA	
Travel .....	15.7	14.1	13.7	0.0	0.0	0.0	15.7	14.1	13.7	
Miscellaneous .....	4.7	5.3	5.7	5.5	6.0	NA	10.2	11.3	NA	
Subtotal (excluding banking)	\$603	-73.8	\$610-751	\$62.5 -79.4	\$92.3 -102.0	\$87.5-97.3	NA	\$156-172	\$152-169	NA
Banking .....	NA	NA	NA	NA	NA	NA	\$8.6	\$9.4	\$12.2	
Total .....	NA	NA	NA	NA	NA	NA	\$164-180	\$161-178	NA	

<sup>a</sup>Negligible

NA = not available

SOURCE Ch 5 of this report

Table 6.—OTA Estimates of U.S. Revenues of Foreign Service Firms, 1982-84

	Direct imports (billions of dollars)			Affiliate sales (billions of dollars)			Total U.S. revenues (billions of dollars)		
	1982	1983	1984	1982	1983	1984	1982	1983	1984
Accounting . . . . .	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	\$0.6-0.8	\$0.7-0.9	\$0.8-1.0	\$0.6-0.8	\$0.7-0.9	\$0.8-1.0
Advertising . . . . .	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	0.2	0.2	NA	0.2	0.2	NA
Construction . . . . .	\$0.0-2.2	\$0.0-1.7	\$0.0-2.0	3.5	3.2	NA	3.5-5.7	3.2-4.9	NA
Data processing . . . . .	0.0-2.0	0.0-2.0	0.0-2.0	0.0-0.2	0.0-0.2	NA	0.0-2.2	0.0-2.2	NA
Education . . . . .	0.1-0.3	0.1-0.3	0.1-0.3	— <sup>a</sup>	— <sup>a</sup>	NA	0.1-0.3	0.1-0.3	NA
Engineering . . . . .	0.1-0.3	0.1-0.3	0.1-0.3	1.0	0.9	NA	1.1-1.3	1.0-1.2	NA
Franchising . . . . .	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>
Health . . . . .	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	NA <sup>b</sup>	0.4	NA	— <sup>a</sup>	0.4	NA
Information . . . . .	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-2.0	0.0-2.0	0.0-2.0
Insurance . . . . .	4.2	4.5	4.8	16.9-19.0	14.7-16.5	15.2-20.3	21.2-23.2	19.2-21.0	20.0-25.1
Investment banking/ brokerage . . . . .	0.0-0.5	0.0-0.5	0.0-0.5	4.9-6.6	6.7-8.9	NA	4.9-7.1	6.7-9.4	NA
Leasing . . . . .	0.0-1.0	0.0-1.0	0.0-1.0	0.2-0.3	0.2-0.3	0.2-0.3	0.2-1.3	0.2-1.3	0.2-1.3
Legal . . . . .	0.0-1.0	0.0-1.0	0.0-1.0	— <sup>a</sup>	— <sup>a</sup>	NA	0.0-1.0	0.0-1.0	NA
Licensing . . . . .	0.7	0.8	1.0	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	0.7	0.8	1.0
Management/ consulting . . . . .	0.0-0.5	0.0-0.5	0.0-0.5	— <sup>a,b</sup>	0.1	0.0-0.5	NA	0.1-0.6	NA
Motion pictures . . . . .	0.1-1.4	0.1-1.7	0.2-2.7	0.8	1.0	NA	0.9-2.2	1.1-2.7	NA
Retailing . . . . .	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	31.8	32.1	NA	31.8	32.1	NA
Software . . . . .	0.0-1.7	0.0-2.2	0.0-2.7	0.0-0.2	0.0-0.2	NA	0.0-1.9	0.0-2.4	NA
Telecommunications . . . . .	1.9	2.0	2.4	0.2	0.0-0.6	NA	2.1	2.0-2.6	NA
Transportation . . . . .	17.7	19.1	22.8	4.8	5.1	NA	22.5	24.2	NA
Travel . . . . .	13.7	15.8	16.4	— <sup>a</sup>	— <sup>a</sup>	— <sup>a</sup>	13.7	15.8	16.4
Miscellaneous . . . . .	1.8	1.9	2.1	2.8-3.5	3.2	NA	4.6-5.3	5.1	NA
Subtotal (excluding banking) . . . . .	\$40.3-51.9	\$44.4-56.3	\$49.9-63.5	\$67.7-73.9	\$68.5-74.8	NA	\$108-125	\$113-131	NA
Banking . . . . .	NA	NA	NA	NA	NA	NA	\$4.4-13.5	\$5.0-15.8	\$6.1-18.1
Total . . . . .	NA	NA	NA	NA	NA	NA	\$112-139	\$118-147	NA

<sup>a</sup>Negligible

<sup>b</sup>Data not available but felt to be negligible

NA = not available.

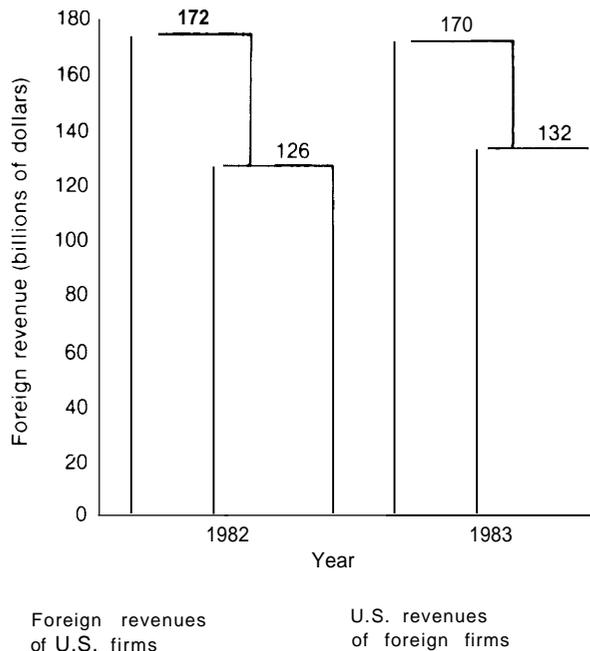
SOURCE Ch 5 of this report

cated in the United States came to \$60 to \$74 billion (excluding banks) in 1982 and \$61 to \$75 billion in 1983—less than half of total nonbank foreign revenues. Sales of foreign affiliates (excluding their sales to the United States) accounted for the remainder. The midrange estimates suggest that direct exports accounted for about 40 percent of total nonbank foreign revenues in 1982 and 45 percent in 1983. Note, however, that table 5 overstates by some unknown amount the contribution of foreign affiliates to total foreign revenues because the data do not, in most cases, permit affiliate sales to be compiled on an equity-share basis. Table 5 also presents data on banking services, although the share of banking services represented by direct exports as opposed to affiliate sales cannot be estimated,

In terms of total foreign revenues, the leading U.S. service sectors in 1983 were transportation, retailing, insurance, and travel services, each generating in excess of \$10 billion. Service categories in the \$5 to \$10 billion range included commercial banking, investment banking, construction, computer software, licensing, engineering, and leasing.

Table 6 presents the results for the U.S. service revenues of foreign firms. Total revenues came to \$112 to \$139 billion in 1982 and \$118 to \$147 billion in 1983. Midrange estimates from table 6 indicate that direct imports to the United States by foreign-owned firms (excluding banks) accounted for roughly 40 percent of the U.S. non bank service revenues of foreign firms in both 1982 and 1983. Service activ-

**Figure 9.— Foreign Revenues in Services, 1982.83**  
(OTA midrange estimates)



NOTE All estimates rounded to nearest billion dollars

SOURCES Foreign revenues of U.S. firms—computed from table 5  
U.S. revenues of foreign firms—computed from table 6

ities which generated \$10 billion or more in U.S. revenues during 1983 included retail trade, transportation, insurance, and travel services,<sup>z</sup>

Table 7 gives the ratios of direct exports to total foreign revenues of U.S. owned and controlled firms for the services covered in this report, based on the midrange estimates of table 5. These ratios illustrate the wide variability across sectors in the contribution of direct exports to total foreign revenues. The 22 sectors in table 7 can be divided into three distinct groups:

<sup>2</sup>Note that while retailing is a major factor in foreign revenues of U.S. firms and U.S. revenues of foreign firms, table 4 shows no import or export activity associated with either. While Sales figures would appear to suggest that retailing is extremely important, such figures reflect the value of goods sold and do not, even roughly, measure the value-added by the retailer in connection with sales, which is likely to be a small fraction of reported revenues. For these reasons, retailing is not really comparable with other service industries and has not been included in ch. 5.

**Table 7.— Ratio of U.S. Exports to Total Foreign Revenues,<sup>a</sup> 1983<sup>b</sup>**

Travel . . . . .	1.00 <sup>b</sup>
Franchising . . . . .	1.00 <sup>d</sup>
Licensing . . . . .	1.00 <sup>d</sup>
Education . . . . .	<b>0.98</b>
Legal . . . . .	<b>0.95</b>
Health . . . . .	<b>0.61</b>
Transportation . . . . .	<b>0.61</b>
Construction . . . . .	<b>0.61</b>
Information . . . . .	<b>0.50</b>
Telecommunications . . . . .	<b>0.50</b>
Motion pictures . . . . .	<b>0.50</b>
Miscellaneous . . . . .	<b>0.47</b>
Management/consulting . . . . .	<b>0.45</b>
Software . . . . .	<b>0.40</b>
Engineering . . . . .	<b>0.25</b>
Insurance . . . . .	<b>0.22</b>
Data processing . . . . .	<b>0.17</b>
Investment banking/brokerage . . . . .	<b>0.16</b>
Advertising . . . . .	<b>0.15</b>
Leasing . . . . .	<b>0.14</b>
Accounting . . . . .	<b>0.08</b>
Retailing . . . . .	.
Total . . . . .	<b>0.42</b>
Banking . . . . .	NA

NA = not available

<sup>a</sup>Based on midrange estimates of table 5

<sup>b</sup>Direct export totals equal foreign revenue totals by definition

SOURCE Table 5

1. those for which direct exports accounted for 95 percent or more of total foreign revenues: travel, franchising, licensing, education, and legal services;
2. those for which direct exports represented 40 to 60 percent of total foreign revenues: health, transportation, construction, information, telecommunications, motion pictures, miscellaneous, consulting, and computer software; and
3. those for which direct exports represented 25 percent or less of foreign revenues: engineering, insurance, data processing, investment banking, advertising, leasing, accounting, and retail trade.

Plainly, some U.S. service industries do most of their overseas business through affiliates that may contribute little to the U.S. balance of payments and to domestic jobs, while others, those that export services in substantial volume, contribute much more directly to the Nation's economy,