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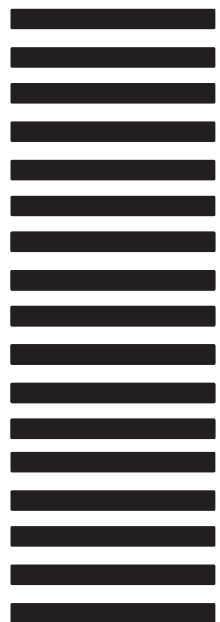
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Energy Services: Recent Trends and Future Prospects

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The two major components of the energy services sector--petroleum-related services and utility-related services--have been undergoing dramatically different market trends in recent years. While demand for petroleum-related services has declined as a result of the Asian crisis and reduced oil prices, opportunities in the utilities-related services sector have been growing rapidly due to increased demand for electricity and the sale of several state-owned electricity providers in developed countries. U.S. firms are well-positioned to compete internationally in both of these markets. This article discusses the extent of U.S. trade in energy services, evaluates the competitive position of U.S. firms in the global energy services sector, and assesses the future prospects for U.S. trade and investment in this sector.

Energy services consist of a wide variety of activities involved with energy exploration, production, and delivery. These services may be broadly divided into two categories: petroleum-related services and utility-related services. Petroleum-related services principally include oil field services, pipeline transportation and storage services, tanker services, and services provided by petroleum wholesalers and retailers. Utility-related services comprise sales of services by firms engaged in the distribution of natural gas and the generation, transmission, and/or distribution of electrical energy.² Energy services may include design and engineering; transportation; storage; trading, marketing, and brokerage; commodity and price risk management; demand-side and other customer services; as well as waste management and disposal services.³

As with most industries, energy services may be sold to foreign customers either through cross-border channels or through foreign-based affiliates. Energy services most likely to be traded on a cross-border basis include transportation; design and engineering; and some of the financially oriented activities such as energy trading, marketing, brokerage, and risk management. Services provided through foreign affiliates tend to be those that require a direct

¹ The views expressed in this article are those of the author. They are not the views of the International Trade Commission or any of the Commissioners.

² Electric power transmission involves the movement of large amounts of electricity across significant distances through high-voltage grids, whereas electric power distribution involves the delivery of lower voltage electricity to the ultimate consumer.

³ Although electricity itself is traded across borders, it is classified as a commodity and therefore recorded in the merchandise trade account.

presence in foreign markets, such as oil field services, gas pipeline transportation, or electric power generation, transmission, and distribution services. Official data on cross-border energy services transactions are unavailable principally because they are not captured by an individual service category. Instead, cross-border transactions in energy services are reflected in other data on engineering, financial, transportation, consulting, or other services. With respect to affiliate transactions, some official data are reported on sales of services by utilities and petroleum-related firms. However, as with cross-border transactions, the affiliate data do not capture energy-related sales of services by engineering, construction, or transportation companies, because such transactions cannot be distinguished from non-energy sales. Due to these data limitations, the following data discussion addresses only affiliate transactions by firms engaged directly in petroleum-related and utility businesses.

Affiliate Transactions

International services transactions by affiliates are reported based upon the industry classification of the foreign affiliate rather than the type of service sold.⁴ With respect to energy services, data are reported under two industry categories: petroleum services and public utilities. Petroleum services comprise sales of services by affiliates associated with petroleum production, transportation, and distribution. Data on public utilities include sales of services by affiliates established as electric, gas, and sanitation service providers.⁵

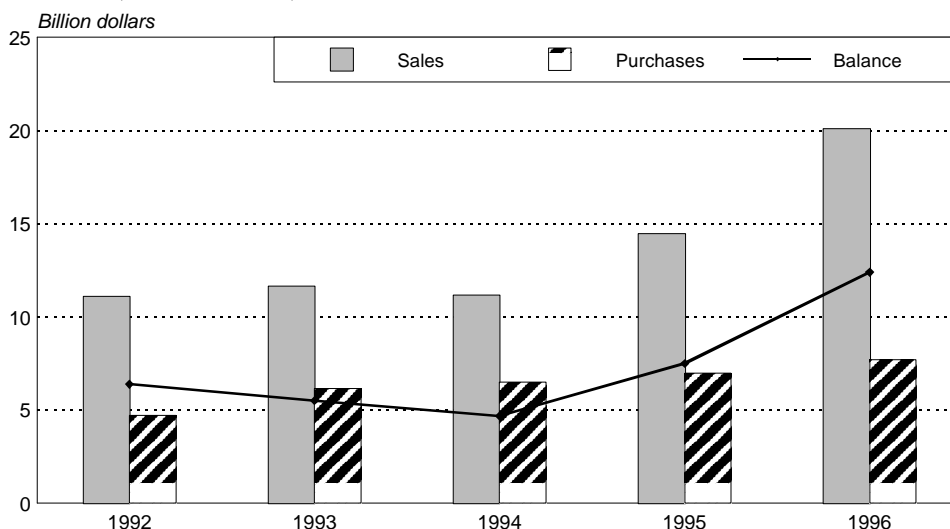
In 1996, foreign affiliates of U.S. energy service firms recorded sales of \$20.1 billion to foreign customers, reflecting a 39-percent increase from sales of \$14.5 billion in 1995 (figure 1). Such sales were almost evenly proportioned between petroleum-related services and utility services, at 48 percent and 52 percent, respectively. Sales were nearly three times the corresponding purchases of energy services by U.S. customers through U.S. affiliates of foreign firms, which were \$7.7 billion in 1996. U.S. purchases of energy services also were fairly evenly divided between petroleum-related services and services provided by utilities, at 44 percent and 56 percent, respectively. The \$12.4-billion difference between U.S. sales and purchases of energy services through affiliates reflects U.S. firms' more pronounced presence abroad.⁶

⁴ This means that sales of different kinds of services by a single affiliate can not be distinguished. For example, sales of telecommunication services by a subsidiary of a U.S. electric power company can not be distinguished from sales of electricity distribution services -- they both will be classified as services provided by electric power affiliates.

⁵ Sanitary services can not be separated from electric and gas services, which results in some overstatement of energy service transactions. However, as noted previously, energy services provided by construction, engineering, or consulting firms are not captured in the data, which results in some understatement of energy service transactions.

⁶ In 1995, foreign affiliates of U.S. energy service firms held assets measuring \$123 billion, which were nearly three times larger than the \$43 billion in assets held by U.S. affiliates of foreign energy firms. U.S. Department of Commerce (USDOC), Bureau of Economic Analysis (BEA), *Foreign Direct Investment in the United States, preliminary 1995 estimates*, June 1997, table A-1; and *U.S. Direct Investment Abroad, preliminary 1995 estimates*, Oct. 1997, Table II.A 1.

Figure 1
Energy service transactions by majority-owned affiliates: U.S. sales, purchases, and balance, 1992-96



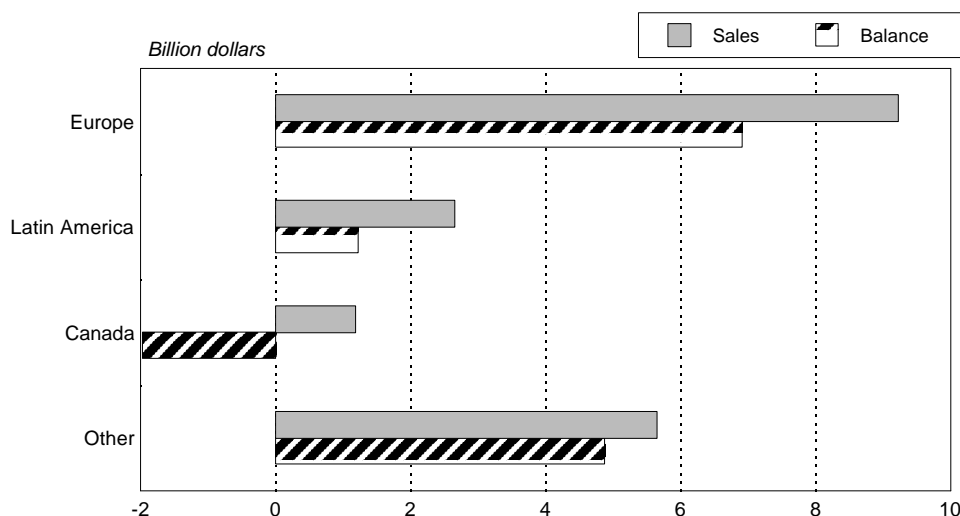
Source: U.S. Department of Commerce (USDOC), Bureau of Economic Analysis (BEA), *Survey of Current Business*, Sept. 1994, pp. 135-136; Sept. 1995, pp. 104-105; Nov. 1996, pp. 111-112; Oct. 1994, pp. 137-138; Oct. 1998, pp. 115-116; and USDOC, BEA, U.S. Direct Investment Abroad, 1994 Benchmark Survey, Final Results, table III.F 20.

As noted, sales of energy services by foreign affiliates of U.S. firms grew by 39 percent in 1996, considerably faster than the 9-percent average annual growth rate recorded during 1992-95. This growth was principally driven by an 84-percent increase in sales of services by utilities, which in turn reflected a number of major acquisitions in the United Kingdom and Australia by U.S. electric power companies.⁷ By contrast, purchases of energy services from U.S.-based affiliates of foreign firms in 1996 grew by 10 percent, slightly slower than the 14-percent average annual growth rate during 1992-95.

On a regional basis, European-based affiliates of U.S. firms accounted for 46 percent of U.S. sales of energy services through foreign affiliates in 1996 (figure 2). Affiliates in the United Kingdom alone accounted for 29 percent of such sales. The regional distribution of energy service sales varied somewhat by industry. Sales of services through petroleum-related affiliates were relatively widely distributed geographically. U.S.-owned affiliates in Europe accounted for 31 percent of such sales, almost half of which occurred in the United Kingdom, while Latin America accounted for 21 percent, and a collection of other countries in Asia and the Middle East accounted for 26 percent. By contrast, U.S. sales of services through foreign-based affiliates in the utility industry were much more concentrated in Europe. In 1996, European-based affiliates accounted for 60 percent of utility-related services sales through affiliates, with those in the United Kingdom alone accounting for 41 percent of sales. Australian-based affiliates of U.S. firms also recorded significant utility-related sales, accounting for 16 percent of U.S. sales. The predominance of affiliate

⁷ USITC, "Deregulation fosters globalization of the electric power industry," *Industry, Trade, and Technology Review*, USITC publication No. 3134, Sept. 1998, pp. 49-55.

Figure 2
Energy service transactions by majority-owned affiliates: U.S. sales and balance, by major trading partners, 1996



Source: U.S. Department of Commerce (USDOC), Bureau of Economic Analysis (BEA), *Survey of Current Business*, Sept. 1994, pp. 135-136; Sept. 1995, pp. 104-105; Nov. 1996, pp. 111-112; Oct. 1997, pp. 137-138; Oct. 1998, pp. 115-116; USDOC, BEA, U.S. Direct Investment Abroad, 1994 Benchmark Survey, Final Results, table III-F 20; and USITC staff estimates.

transactions generated in the United Kingdom and Australia was a direct result of privatization and deregulation programs undertaken by these countries, which facilitated U.S. investment in the electric power sector during the mid-1990s. In particular, new acquisitions by U.S. firms in the United Kingdom and Australia together were responsible for 93 percent of the growth in sales of services by utilities during 1996.⁸

With respect to U.S. purchases of energy-related services from U.S.-based affiliates of foreign firms in 1996, affiliates with parent firms in Canada accounted for 41 percent, while those with European parents are believed to have accounted for about 30 percent.⁹ Canadian-owned affiliates were particularly prominent in the utilities sector, accounting for 65 percent of U.S. purchases of services from U.S.-based utility affiliates of foreign firms. European-owned affiliates held a more significant position in the petroleum-related sector, where they accounted for 35 percent of U.S. purchases of petroleum-related services through affiliates in 1996, followed by 11 percent purchased through U.S.-based affiliates of Canadian firms.

⁸ Sales of services by utilities that are foreign affiliates of U.S. firms operating in the United Kingdom increased by \$3.2 billion in 1996, which accounted for 67 percent of the increase in worldwide service sales by foreign affiliates of U.S. firms in the utility sector. Similarly, sales of services by utilities that are foreign affiliates of U.S. firms operating in Australia increased by \$1.2 billion in 1996, which accounted for 26 percent of the increase in worldwide service sales by foreign affiliates of U.S. firms in the utility sector.

⁹ USITC staff estimates, based on USDOC, BEA, "Direct Investment Positions for 1997: Country and Industry Detail," *Survey of Current Business*, July 1998, p. 44.

In sum, available data on affiliate transactions indicate that sales of energy services through foreign-based affiliates of U.S. firms increased significantly in 1996, principally due to several major acquisitions by U.S. firms. Meanwhile, U.S. purchases of energy services from affiliates of foreign firms increased somewhat more slowly than in previous years, reflecting stable market conditions and the absence of major acquisitions by foreign firms. Regionally, European-based affiliates accounted for most U.S. sales of energy-related services through foreign affiliates, while Canadian-owned affiliates accounted for most U.S. purchases from affiliates.

U.S. Competitive Position in the Global Energy Services Market

With several strong, well established firms, U.S. providers of energy services are well positioned to compete internationally in both the petroleum and utility businesses. In the oil field services industry, consolidation has resulted in the formation of three powerful U.S. companies with broad international activities: Baker Hughes, Halliburton, and Schlumberger.¹⁰ Major U.S. oil companies, such as Chevron and Exxon-Mobil, are similarly well established global players that provide various services related to petroleum and natural gas extraction and distribution. Enron, a large U.S. energy concern with expertise in the natural gas sector, is also expanding in the electric utility sector, joining a number of private electric power companies that are major global competitors, including AES, CMS, Edison Mission Energy, Entergy, PP&L, Southern Energy, Texas Utilities, and Utilicorp.

U.S. firms such as these are well endowed in financial, managerial, and technological resources. Competitive threats and opportunities facing these firms are driven principally by economic and political forces that may alter the operating environment. In 1998, these forces appeared to be sending petroleum-related businesses into decline while fostering international growth in the electric power industry. During 1997-98, increases in oil supplies from non-OPEC countries, combined with diminished demand in Asian markets, reduced oil prices from a high of \$27 to \$13 per barrel.¹¹ With oil prices low, demand for services related to new exploration or relatively expensive extraction techniques is likely to decline as well. Such a decline was manifested by reductions in capital spending of 10 to 15 percent by the major oil companies in 1998, and by the November 1998 announcement of layoffs at Texaco, which plans to reduce "upstream" employment by 12 percent.¹²

¹⁰ CNN News Network, "Halliburton, Dresser merge," Feb. 26, 1998, found at Internet address <http://cnnfn.com/>, retrieved Mar. 17, 1998; Baker Hughes Company Profile, found at Internet address <http://www.bakerhughes.com/>, retrieved Nov. 10, 1998; and Standard & Poor's, "Oil & Gas: Equipment & Services," *Industry Surveys*, Sept. 11, 1997, p. 7.

¹¹ Bhushan Bahree, "Oil prices likely to stay low through next year," *Wall Street Journal*, Nov. 10, 1998, p. A2.

¹² Upstream activities include exploration, development, and production functions. Anne Marie Morrego, "Unocal, Mobil to cut capital spending, joining moves of other oil companies," *Wall Street Journal*, Nov. 12, 1998, p. A20; and Texaco, "Texaco announces worldwide upstream reorganization," press release of Nov. 12, 1998, found at Internet address

(continued...)

In contrast, government policy changes are fostering growth in international electric power services. To meet rapidly rising demand for electric energy, governments in developing countries are turning toward foreign investors, seeking their participation in build-operate-transfer programs, selling state-owned enterprises, and offering concessions to manage distribution services.¹³ Meanwhile, to drive down electricity costs and improve service quality, governments in developed countries are breaking up monopolies and introducing competition into the generation and distribution sectors.¹⁴ The net effect of these policy changes is a boom in opportunities for foreign direct investment in electricity services, which has been manifested by 107-percent average annual growth in the U.S. direct investment position in foreign utilities during 1994-96.¹⁵ In dollar terms, the United Kingdom and Australia have been the largest recipients of U.S. direct investment, reflecting U.S. acquisitions of eight electric power distribution companies in the United Kingdom and five in Australia.¹⁶

Outlook

The opposing trends of declining demand for petroleum-related services and increasing opportunities in the electric power industry suggest that future prospects for energy services trade are mixed. Growth in world oil demand is projected to slow through 1999, and prices currently are not expected to recover soon, which suggests that sales of related services will likely suffer.¹⁷ Meanwhile, U.S. electric power providers appear to be continuing with their international expansion programs, despite some retrenchments. Although PacifiCorp and Energy are exiting from foreign projects, other firms such as Utilicorp, Texas Utilities, CMS, and Enron are increasing their international activities.¹⁸ Due to the Asian economic slowdown, near-term growth in demand for electric power will likely slow and government-

¹² (...continued)

<http://www.texaco.com/>, retrieved Nov. 18, 1998.

¹³ Standard & Poor's, "Oil & Gas: Equipment & Services," *Industry Surveys*, Sept. 11, 1997, p. 8.

¹⁴ USITC, "Deregulation fosters globalization of the electric power industry," *Industry, Trade, and Technology Review*, USITC publication 3134, Sept. 1998, p. 43.

¹⁵ USDOC, BEA, *Survey of Current Business*, Sept. 1997, p. 147.

¹⁶ *Ibid.*, pp. 42-3.

¹⁷ U.S. Department of Energy, Energy Information Administration, "Asian economic downturn slows growth in oil prices through 2007," press release of Nov. 17, 1998; and Bhushan Bahree, "Oil prices likely to stay low through next year," *Wall Street Journal*, Nov. 10, 1998, p. A2.

¹⁸ Kathryn Kranhold, "PacifiCorp says it is quitting foreign projects," *Wall Street Journal*, Oct. 26, 1998, p. A4; Business Wire, "Utilicorp announces Power New Zealand transaction creating largest New Zealand electric lines company," Nov. 13, 1998, found at Internet address <http://www.energycentral.com/>, retrieved Nov. 17, 1998; Reuters, "Texas Utilities in final Australia CitiPower bids," Nov. 16, 1998, found at Internet address <http://www.energycentral.com>, retrieved Nov. 17, 1998; Reuters, "CMS says plans to invest \$800 million in Brazil," Nov. 13, 1998, found at Internet address <http://www.energycentral.com>, retrieved Nov. 17, 1998; and Reuters, "Enron Mexico aims for top energy spot," Sept. 25, 1998, retrieved through Pointcast Sept. 28, 1998.

sponsored development projects may be curtailed across Asia. Despite such adverse market conditions, U.S. firms may actually find more opportunities to establish foreign affiliates in Asia as the weakened financial condition of Asian governments may accelerate the ongoing shift to private funding of electric power sector development. In addition, Latin American countries such as Mexico and Brazil continue to seek foreign investment in the electric power industry, and the European Union's movement toward the creation of a Common Energy Market is creating new business opportunities for affiliates of U.S. energy firms.¹⁹ These factors suggest that, despite an ailing petroleum industry, sales of energy services through U.S. affiliates will likely continue to grow strongly as utilities pursue international expansion, although, it is unlikely that the very high rate of growth experienced during 1995-96 will be sustained.

U.S. purchases of energy services through affiliates of foreign firms are likely to encounter similar forces, characterized by slowing growth in purchases of services from petroleum-related affiliates and accelerating growth in purchases from utilities owned by foreign firms. The U.S. electric power industry is undergoing significant change as several states restructure their regulatory frameworks to permit competition. Such changes provide increased incentives and opportunities for new competitors, both foreign and domestic, to enter U.S. regional markets through mergers and acquisitions. For example, in November 1998, New Jersey-based GPU announced the sale of 23 power generation plants to Sitede Energies, a U.S. affiliate of the French company, Vivendi, for \$1.7 billion. The transaction allows GPU to concentrate on electricity distribution, while enabling Sitede to become the largest independent power producer in the United States. A number of other foreign companies are reportedly considering similar acquisitions in the United States, including Scottish Power and PowerGen of the United Kingdom, Statoil of Norway, and Tractebel of Belgium.²⁰ Should these acquisitions take place, U.S. purchases of energy services would likely increase significantly in the near future.#

¹⁹ Reuters, "Spain opens electricity market to REN, Electrabel," Nov. 12, 1998, found at Internet address <http://www.energycentral.com>, retrieved Nov. 17, 1998; and USITC, "Deregulation fosters globalization of the electric power industry," *Industry, Trade, and Technology Review*, p. 37.

²⁰ Statoil and Tractebel, a majority-owned affiliate of Suez Lyonnaise des Eaux of France, already own some electric power plants in the United States. Kathryn Kranhold, "Planned purchase of GPU power plants highlights push by foreigners into U.S.," *Wall Street Journal*, Nov. 10, 1998, p. A4, and Business Wire, "Sitede Energies wins bid for GPU generating assets," Nov. 9, 1998, found at Internet address <http://www.energycentral.com/>, retrieved Nov. 10, 1998.

Market Trends Affecting the U.S. Environmental Services Sector

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In recent years, slower growth in demand for environmental services in the largely compliant U.S. market has led to increased U.S. industry consolidation and a shift in emphasis to the international market among U.S. environmental service providers. This shift in focus, together with the United States' competitive position in the environmental services sector and growing demand in foreign markets, suggests that U.S. exports of environmental services will likely experience continued growth in the future. This article assesses U.S. trade performance in the environmental services sector; the effect of U.S. and foreign environmental market structures, recent trends, and foreign trade barriers on the ability of U.S. firms to compete in this sector; and future prospects for the U.S. and global environmental services sectors.

The environmental services sector² as defined by the Organization for Economic Cooperation and Development (OECD), broadly comprises those activities incidental to the cleanup, mitigation, prevention, study, and measurement of environmental damage affecting air, land, water, noise levels, and ecosystems.³ However, because of the relatively recent emergence of the environmental services industry, there is no consensus regarding the precise scope of this sector.⁴ For the purposes of this article, environmental services⁵ specifically include solid and

¹ The views expressed in this article are those of the author. They are not the views of the International Trade Commission or any of the Commissioners.

² The Bureau of Economic Analysis (BEA) does not classify and report data that indicate cross-border trade in environmental services or transactions by majority-owned affiliates in the environmental services industry in its annual report in the *Survey of Current Business* entitled "U.S. International Sales and Purchases of Private Services." Consequently, this chapter includes data compiled and reported by industry sources, primarily Environmental Business International, Inc. (EBI) and *Engineering News-Record*, published by the McGraw-Hill Companies.

³ Organization for Economic Cooperation and Development (OECD), report prepared in conjunction with OECD/Eurostat Informal Working Group on the Environment Industry, "Interim Definition and Classification of the Environment Industry" (Paris: OECD, 1996), p. 7.

⁴ United Nations Conference on Trade and Development (UNCTAD), "Strengthening Capacities in Developing Countries to Develop their Environmental Services Sector," May 12, 1998, p. 5.

⁵ The scope of the environmental services sector, as discussed herein, is that used by EBI (see footnote 2) in the compilation of trade and market data.

hazardous waste management, environmental consulting and engineering, remediation,⁶ environmental analysis, and water treatment.

Engineers, consultants, architects, and other professional service providers typically supply environmental services. National governments, local governments, and firms bound by environmental guidelines are the principal consumers of environmental services,⁷ with public sector spending accounting for the greatest share of environmental services demand in all OECD countries, except the United States and the Netherlands.⁸ Environmental goods and services are often provided as part of a single package, in which services frequently play the more important role.⁹ Although the data used in this article do not distinguish between cross-border trade and affiliate transactions, it is likely that trade in environmental services is conducted primarily through overseas affiliates, as cross-border trade is often infeasible in this sector.

U.S. Trade in Environmental Services

U.S. exports of environmental services reached \$3.5 billion in 1997, a 4-percent increase from the previous year (figure 1). This increase was lower than the average annual increase of 22 percent observed during 1994-96.¹⁰ U.S. imports rose by 43 percent to \$2 billion in 1997. This increase was in sharp contrast to the average annual decrease of 3 percent during 1994-96. As a result, although the U.S. environmental services trade surplus increased at an average annual rate of 58 percent during 1994-96, the surplus decreased by 24 percent to \$1.5 billion in 1997. These trends are likely a result of the recent consolidation of the U.S. environmental industry, which is discussed in further detail in the following section. Solid waste management services and consulting and engineering services accounted for the greatest share of U.S. exports, as well as a majority of the U.S. surplus in environmental services trade during 1994-97.¹¹ In 1997, solid waste management services and consulting and engineering services respectively accounted for exports of \$1.3 billion and \$1.7 billion, and trade surpluses of \$1.1 billion and \$1.4 billion. In that same year, U.S. hazardous waste management services and remediation and industrial services accounted for trade surpluses

⁶ Remediation services comprise the cleanup of polluted land and water sites, as well as the emergency cleanup of accidents that damage the environment, such as oil spills. UNCTAD, "Strengthening Capacities in Developing Countries to Develop their Environmental Services Sector," p. 5.

⁷ UNCTAD, "Strengthening Capacities in Developing Countries to Develop Their Environmental Services Sector," p. 5.

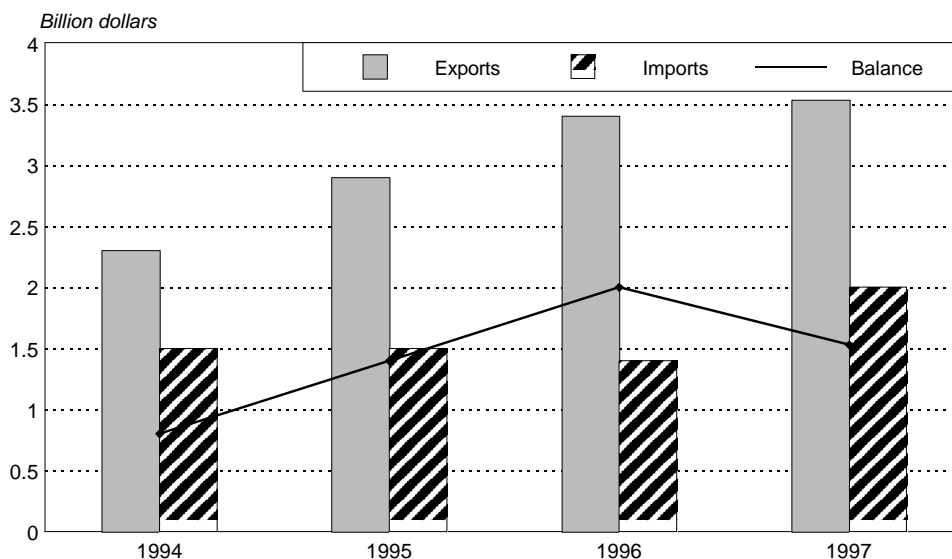
⁸ World Trade Organization (WTO), Committee on Trade and Environment, contribution by the United States, "Liberalization of Trade in Environmental Services and the Environment" (WT/CTE/W/70), Nov. 21, 1997.

⁹ UNCTAD, "Strengthening Capacities in Developing Countries to Develop their Environmental Services Sector," p. 11.

¹⁰ Environmental services trade data published by EBI are only available for the years 1994, 1995, 1996, and 1997.

¹¹ The U.S. analytical services sector registered a small surplus of \$0.03 billion in 1997. During 1994-96, no imports or exports were registered in this sector.

Figure 1
Environmental services: U.S. exports, imports, and balance, 1994-97



Source: EBI, *Environmental Business Journal*, Overview 1998, vol. 11, No. 7, p. 7; Annual Industry Overview, Aug. 1995, vol. 8, No. 8, p. 2; Apr. 1996, vol. 9, No. 4, p. 7; and Apr. 1997, vol. 10, No. 4, p. 11.

of \$0.1 billion and \$0.3 billion, respectively.¹² Waste water treatment is the only environmental service sector in which the United States registered a trade deficit, amounting to \$1.5 billion in 1997.¹³

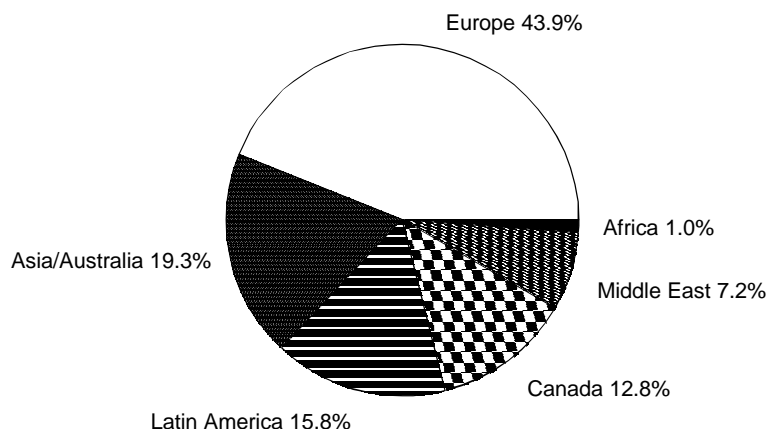
Available trade data do not indicate which countries or regions account for the greatest share of U.S. environmental services imports and exports. However, data do reveal the relative importance of certain foreign markets for the U.S. environmental industry. Europe is reportedly the largest market for U.S. environmental goods and services, accounting for 44 percent of the overseas revenue earned by the leading 200 U.S.-based environmental firms (figure 2). Asia/Australia, Latin America, and Canada are also important markets for U.S. environmental goods and services, accounting for 19 percent, 16 percent, and 13 percent of overseas revenues in 1997, respectively. By contrast, the Middle East and Africa accounted for only 7 percent and 1 percent of such revenues, respectively.¹⁴ Because environmental goods and services are often provided simultaneously, it is likely that these figures closely reflect the proportion of international revenues earned by the U.S. environmental service providers in each of these markets.

¹² In 1997, no U.S. imports were registered in the hazardous waste management and remediation and industrial services sectors.

¹³ EBI, *Environmental Business Journal*, Overview 1998, vol. 11, No. 7, p. 7; Annual Industry Overview, Aug. 1995, vol. 8, No. 8, p. 2; Apr. 1996, vol. 9, No. 4, p. 7; and Apr. 1997, vol. 10, No. 4, p. 11.

¹⁴ USITC staff estimates, based on data reported by Andrew G. Wright and Debra K. Rubin, et. al., "Despite Some Rough Spots in Asia, International Markets Forge On," *Engineering News-Record*, July 6, 1998, p. 49.

Figure 2
Environmental industry:¹ Foreign revenue of U.S.-based environmental goods/services firms, by region, 1997



¹ Data relating to the environmental industry, as presented in the *Engineering News-Record*, comprise both goods and services revenues earned by the leading 200 U.S.-based environmental firms in the following environmental sectors: hazardous waste management, nuclear waste management, water quality, wastewater treatment, environmental compliance, and other environmental markets.

Source: Compiled by USITC staff using data reported by Wright and Rubin, "Despite Some Rough Spots in Asia, International Markets Forge On," *Engineering News-Record*, July 6, 1998, p. 49.

The U.S. Environmental Services Sector

Environmental firms in the United States have traditionally focused on meeting domestic demand, which is substantial. In 1997, less than 10 percent of U.S. environmental industry revenues were generated abroad.¹⁵ The domestic market has been particularly important to the small- and mid-size firms that generate more than half of U.S. environmental industry revenues, as such firms are frequently unable to market their goods and services abroad due to insufficient resources.¹⁶ In recent years, however, the U.S. environmental sector has experienced slower growth in domestic demand, because many firms have come into compliance with present environmental law, and little new legislation has been introduced. This slowdown in the U.S. market has led to greater competition and declining industry profits.¹⁷ Consequently, U.S. firms are pursuing mergers and acquisitions more aggressively,

¹⁵ David R. Berg and Grant Ferrier, "The U.S. Environmental Industry Meeting the Challenge: U.S. Industry Faces the 21st Century," Sept. 1997, found at Internet address <http://www.gnet.org/>, retrieved July 8, 1998; and EBI, *Environmental Business Journal*, Overview 1998, vol. 11, No. 7, p. 15.

¹⁶ UNCTAD, "Strengthening Capacities in Developing Countries to Develop their Environmental Services Sector," May 12, 1998, p. 6; and Berg and Ferrier, "The U.S. Environmental Industry Meeting the Challenge: U.S. Industry Faces the 21st Century," Sept. 1997.

¹⁷ Berg and Ferrier, "The U.S. Environmental Industry Meeting the Challenge: U.S. Industry (continued...)

in an effort to broaden their companies' expertise and increase growth potential.¹⁸ Slowing growth in demand for environmental services also has precipitated market exit by many small environmental services firms.¹⁹

As a result of domestic trends, U.S. firms have shown increasing interest in the overseas environmental market, which is growing more rapidly than the domestic market for environmental services.²⁰ Increasing international orientation is well illustrated by the fact that U.S. exports of environmental services grew at an average annual rate of 15 percent during 1994-97, while the domestic U.S. environmental services market registered average annual growth of 1 percent during that same period.²¹

The relatively large number of small- and mid-size companies in the U.S. environmental sector, together with the traditional industry focus on domestic compliance, have had a negative effect on the overall competitiveness of the U.S. environmental goods and services industry.²² The U.S. environmental goods industry lags behind competitors from countries such as Germany and Japan in certain equipment sectors.²³ However, with the exception of services incidental to water treatment works--in which France and the United Kingdom reportedly have a competitive advantage--U.S. firms are competitive in all areas of the environmental services industry.²⁴

The Global Environmental Services Market

The growing need for environmental goods and services in developing countries--caused by increasing population, urbanization, and industrialization--could precipitate the rapid growth of their environmental markets. However, potential market growth in the developing world is hampered by limited resources and a lack of environmental regulation, enforcement mechanisms, and knowledge.²⁵ Currently, industrialized countries reportedly remain the most important overseas markets for U.S. environmental goods and services firms. Europe had the fastest growing market for environmental services in 1997 (figure 3). Between 1996 and 1997, European revenues for the leading 200 U.S.-based environmental

¹⁷ (...continued)

Faces the 21st Century," Sept. 1997.

¹⁸ Wright and Rubin, "Booming Economy Keeps Green Markets Afloat," p. 38.

¹⁹ Cary Perket, "Environmental Service Demands Shrink, Close Smaller Shops," *World Wastes*, May 1998, found at Internet address <http://www.umi.com/proquest/>, retrieved June 30, 1998.

²⁰ Berg and Ferrier, "The U.S. Environmental Industry Meeting the Challenge: U.S. Industry Faces the 21st Century," Sept. 1997.

²¹ EBI, *Environmental Business Journal*, Apr. 1997, vol. 10, No. 4, p. 11; Apr. 1996, vol. 9, No. 4, p. 7; and Aug. 1995, vol. 8, No. 8, p. 2.

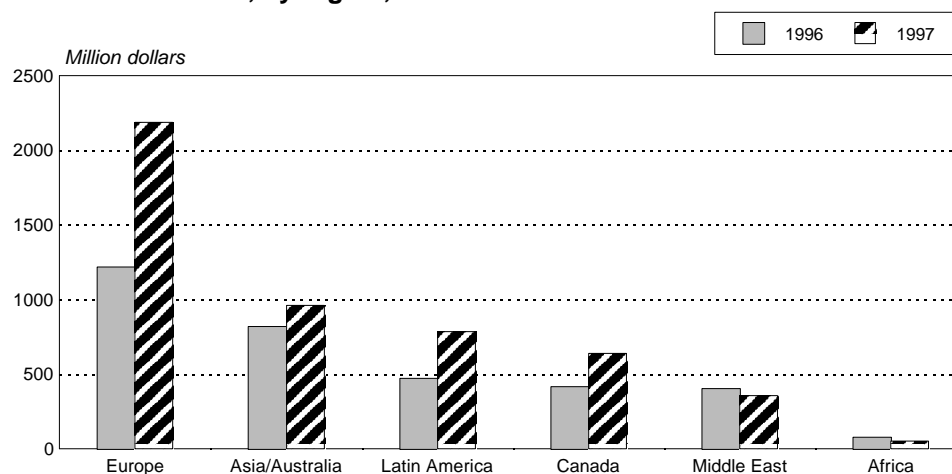
²² Berg and Ferrier, "The U.S. Environmental Industry Meeting the Challenge: U.S. Industry Faces the 21st Century," Sept. 1997.

²³ Ibid.

²⁴ Ibid.

²⁵ UNCTAD, "Strengthening Capacities in Developing Countries to Develop their Environmental Services Sector," p. 7.

Figure 3
Environmental industry:¹ Foreign revenue of U.S.-based environmental goods/services firms, by region, 1996 and 1997



¹ Data relating to the environmental industry, as presented in the *Engineering News-Record*, comprise both goods and services revenues earned by the leading 200 U.S.-based environmental firms in the following environmental sectors: hazardous waste management, nuclear waste management, water quality, wastewater treatment, environmental compliance, and other environmental markets.

Source: Wright and Rubin, "Despite Some Rough Spots in Asia, International Markets Forge On," *Engineering News-Record*, July 6, 1998, p. 49.

goods and services firms increased by 80 percent, from \$1.2 billion in 1996 to \$2.2 billion in 1997. This growth has been attributed to the low risk and relatively solid economic climate that have encouraged investment in the European market. The Latin American and Canadian revenues of leading U.S. environmental firms also grew significantly in 1997, registering increases of 66 percent and 53 percent, respectively. Though environmental business in Asia has slowed due to the recent currency crisis,²⁶ the Asia-Pacific revenues of leading U.S. environmental firms also rose by 18 percent in 1997.²⁷ By contrast, revenues generated by U.S. firms in Africa and the Middle East that year decreased by 34 percent and 12 percent, respectively.²⁸

²⁶ Industry representatives indicate that business has decreased substantially in both Asia and Latin America as a result of the crisis, while another has suggested the possibility that the Asian crisis could have a delayed impact on the environmental industry. Moreover, the Asian crisis has reportedly resulted in an unwillingness to borrow funds for environmental projects from multilateral development banks, such as the Inter-American Development Bank. Wright and Rubin, "Despite Some Rough Spots in Asia, International Markets Forge On," *Engineering News-Record*, July 6, 1998, p.49; and industry representatives, facsimile responses to questions posed by USITC staff, received Oct. 15, 1998, Nov. 16, 1998, and Dec. 18, 1998.

²⁷ Wright and Rubin, "Despite Some Rough Spots in Asia, International Markets Forge On," *Engineering News-Record*, July 6, 1998, p. 49.

²⁸ Ibid.

Trade Barriers

The ability of U.S. environmental firms to provide services abroad is dependent on various factors. For example, government procurement regulations, as well as the transparency of these rules, can have a considerable effect on environmental services providers, as federal and local governments are frequently the purchasers of environmental services. In some countries, government procurement restrictions place foreign firms at a competitive disadvantage, or prohibit their participation in the procurement process.²⁹ Because engineers, architects, consultants, and other professionals provide many environmental services, restrictions on the presence of foreign professionals, the failure to recognize professional degrees, and other barriers to professional services provision also have a chilling effect on the foreign provision of environmental services.³⁰ Barriers to commercial presence, a principal mode of environmental services supply, can also impede foreign provision of such services.³¹

Moreover, access to financing is crucial. For example, firms that can secure project financing reportedly are more likely to win business in the water and wastewater treatment sector.³² Countries such as Canada, France, Germany, Japan, Korea, the Netherlands, and the United Kingdom reinforce the international competitiveness of their environmental industries by offering incentives such as “tied aid”³³ and generous financing packages to potential customers.³⁴ In addition, European environmental firms occasionally provide analysis or management services inexpensively or at no charge in an effort to attract business.³⁵ U.S. services providers, on the other hand, can obtain financing from U.S. agencies such as the Export-Import Bank of the United States (Eximbank) and the Small Business Administration (SBA).³⁶ Creative financing techniques, such as build-operate-

²⁹ UNCTAD, “Strengthening Capacities in Developing Countries to Develop their Environmental Services Sector,” May 12, 1998, p. 21.

³⁰ *Ibid.*, p. 2. Additional information on recent trends in professional services provision can be found in chapters 5 and 21 of *Recent Trends in U.S. Services Trade* (USITC publication 3198; May 1999).

³¹ *Ibid.*, p. 17.

³² “Frost & Sullivan—Regulations and Infrastructure Developments Drive Mexican Water and Wastewater Treatment Market,” Frost & Sullivan, received by NewsEDGE/Lan, Oct. 19, 1998; and industry representative, facsimile response to questions posed by USITC staff, received Nov. 16, 1998.

³³ Tied aid is project financing to which certain conditions are attached. Recipients of tied aid are often required to procure goods and services from firms based in the country that provides the aid.

³⁴ Berg and Ferrier, “The U.S. Environmental Industry Meeting the Challenge: U.S. Industry Faces the 21st Century,” Sept. 1997.

³⁵ Industry representative, facsimile response to questions posed by USITC staff, received Nov. 16, 1998.

³⁶ “Export Financing for Service Industries,” *Business America*, Apr. 1998.

transfer (BOT),³⁷ have also been used in the environmental services sector.³⁸ However, because BOT projects are perceived as being risky, few U.S. environmental firms pursue such projects.³⁹ Client countries can also obtain project financing from various international agencies.

Future Prospects

If current trends persist, growth will likely continue in the world environmental services market in spite of the recent economic downturn caused by the Asian currency crisis. Increasing environmental awareness, the return of economic growth, and new environmental legislation may cause demand for environmental services to rise in the developing world. For instance, China has recently demonstrated heightened environmental awareness and a greater willingness to enforce environmental regulations in response to poor environmental conditions caused by years of rapid industrialization. Government officials have adopted new laws and fines, closed a large number of small factories, and advocated media exposure of polluters.⁴⁰ Reportedly, business opportunities for U.S. environmental services firms in Eastern Europe are relatively abundant as a result of increasingly strict environmental regulations and a high regard for U.S. technologies in that region.⁴¹ In Mexico, decreasing supplies of potable water, together with a growing population and expanding industrial sector, likely will lead to increased demand for water and wastewater treatment goods and services in the near future.⁴²

The Kyoto Protocol and efforts to comply with ISO 14000 standards also could increase business opportunities for U.S. environmental services providers. Under the Kyoto Protocol, industrialized countries would be required to reduce greenhouse gas emissions significantly.⁴³ ISO 14000 is a set of standards according to which providers of environmental auditing services can certify the environmental management systems (EMS) of firms in various goods and services industries. Firms that obtain ISO 14000 certification may gain a competitive

³⁷ When operating under a BOT contract, a firm builds and operates a facility for a certain period of time, gradually transferring ownership to a public authority. UNCTAD, "Strengthening Capacities in Developing Countries to Develop their Environmental Services Sector," p. 22.

³⁸ *Ibid.*, p. 22.

³⁹ Industry representative, facsimile response to questions posed by USITC staff, received Dec. 18, 1998.

⁴⁰ Jennifer Lin, "China awakes to the fact that its growth has created an environmental disaster," Knight Ridder/Tribune Information Services, received by NewsEDGE/Lan, Nov. 7, 1998.

⁴¹ Industry representative, facsimile response to questions posed by USITC staff, received Dec. 18, 1998.

⁴² "Frost & Sullivan—Regulations and Infrastructure Developments Drive Mexican Water and Wastewater Treatment Market," Frost & Sullivan, received by NewsEDGE/Lan, Oct. 19, 1998.

⁴³ Obligations could also be satisfied through various other means, including emissions reducing projects in developing countries and the purchase of pollution permits. Though not in effect, this protocol has been agreed to by 160 countries. "Administration pushes Kyoto Protocol despite strong industry opposition," *Chemical Marketing Reporter*, Aug. 31, 1998, found at Internet address <http://www.umi.com/proquest/>, retrieved Nov. 5, 1998.

advantage among potential customers who prefer to do business with environmentally responsible companies. Though these standards are voluntary, approximately 1,500 firms around the world already have become ISO 14000 certified.⁴⁴ #

⁴⁴ Glenn Hasek, "ISO's green standards take root," *Industry Week*, Feb. 16, 1998, found at Internet address <http://www.umi.com/proquest/>, retrieved Mar. 10, 1998; and Charles W. Thurston, "Latin America finds profit in ISO 14000," *Chemical Marketing Reporter*, Feb. 16, 1998, found at Internet address <http://www.umi.com/proquest/>, retrieved Nov. 5, 1998.

Health Care Services: Strong Fundamentals and Innovations Foreshadow Growth in U.S. Exports and Foreign Direct Investment

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Health care services encompass a broad range of activity provided by medical professionals and health care institutions.² Substantial visitation by foreign individuals to the United States for medical treatment and rising foreign direct investment in U.S. health care institutions testify to the vitality of U.S. health care services, despite pressures of high health care costs. Admittedly, the most recently reported official data reflect a slowdown in U.S. health care export growth in 1997 and a sudden, steep decline in transactions by foreign health care affiliates of U.S. firms in 1996. This article examines the principal factors contributing to the slowdown as well as market factors that suggest a likely increase in U.S. exports and direct investment in health care services in the United States and abroad.

Today, U.S. medical facilities and health insurers are expanding international marketing efforts, and “telemedicine” via telecommunication technologies is proliferating across national boundaries. At the same time, opportunities for mergers and acquisitions are likely to continue to attract foreign investors to the U.S. health care market, and some large U.S. investors seem willing to explore market niches gradually opening abroad.

U.S. health professionals provide services to foreign patients and health care facilities both through cross-border transactions and through affiliates established in foreign markets. Cross-border trade consists of the treatment of citizens of one country by health care providers

¹ The views expressed in this article are those of the author. They are not the views of the International Trade Commission or any of the Commissioners.

² For the purpose of this article, health care services include services provided to patients by hospitals and hospital chains; offices and clinics of medical doctors and other health care professionals; nursing homes and other long-term care providers; rehabilitation facilities; home health care providers; certain health maintenance organizations (HMOs); medical and dental laboratories; kidney dialysis centers; and specialty outpatient facilities. This discussion encompasses HMOs or similar organizations that provide medical or other health care services to members, but does not include organizations that provide only insurance for hospitalization or medical costs, as these services are captured under insurance services.

in another country.³ Affiliate transactions reflect health care services provided to persons or facilities in their home countries by affiliates also based there, but whose parent firm is based in another country. Cross-border transactions account for the greatest proportion of U.S. receipts (exports) for providing health care services, while affiliate transactions account for most U.S. purchases (imports). This indicates that most U.S. transactions in health care services involve the provision of treatment within the territory of the United States, as cross-border receipts are driven by patients traveling to the United States for treatment; and purchases through affiliates are driven by foreign firms acquiring or establishing health care facilities in the United States, which subsequently provide treatment to U.S. citizens.

Recent Trends

Cross-Border Trade

In 1997, U.S. cross-border exports of health care services amounted to \$888 million. Corresponding imports of health care services are not available because data on medical services are not reported by official data collection agencies.⁴ U.S. cross-border exports of health care services increased by 2 percent in 1997, slower than the 5-percent average annual rate of growth recorded during 1992-96. Slowing growth of health care services exports is likely a result of currency devaluations in Asia, Latin America, and Canada, which made traveling to the United States for elective procedures considerably more expensive in 1997. Although official data do not identify exports of health care services by country, Canada is believed to be the dominant export market for U.S. health care services.⁵ Other sizable markets for U.S. cross-border exports of health care services include the United Kingdom, Germany, Mexico, Australia, and Japan.

Affiliate Transactions

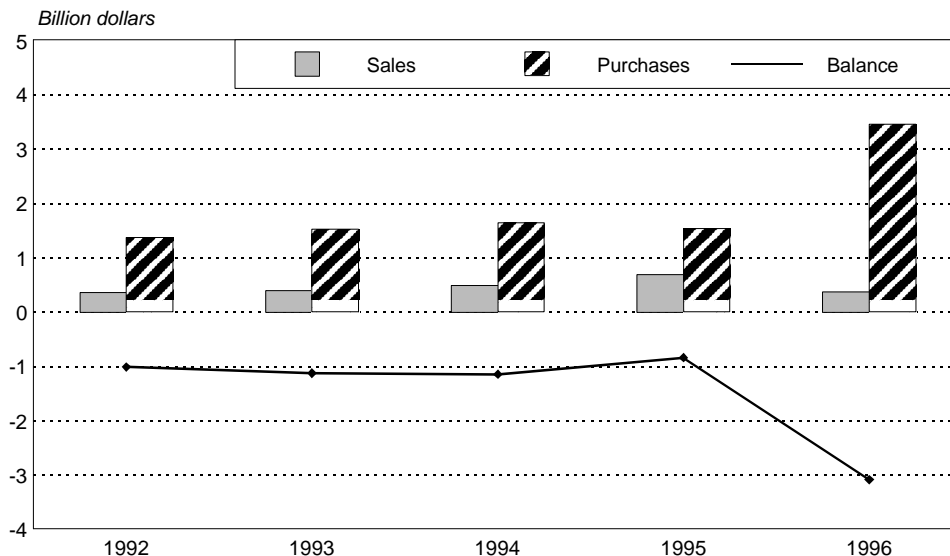
Sales of services by foreign-based affiliates of U.S. health care companies fell to \$360 million in 1996, while purchases of services through U.S.-based affiliates of foreign health care companies increased to \$3.5 billion (figure 1). The \$3.1-billion difference between U.S. sales and purchases of services through affiliates reflects the fact that the United States offers considerably greater opportunities for private-sector participation in the health care sector than most other countries. As a result, foreign firms have acquired or established health care facilities in the United States to a much larger extent than U.S. firms have abroad.

³ Cross-border exports largely consist of the treatment of foreign persons in the United States by hospitals, clinics, medical doctors, and other health care service professionals. Cross-border imports comprise the treatment of U.S. citizens overseas by foreign health care service providers.

⁴ Reportedly, such data are very difficult to capture and presumed to be quite small. Bureau of Economic Analysis representative, telephone interview by USITC staff, Nov. 24, 1998.

⁵ U.S. industry representatives, telephone interviews by USITC staff, Oct. 27-29, 1997.

Figure 1
Health care service transactions by majority-owned affiliates: U.S. sales, purchases, and balance, 1992-96



Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, Sept. 1995, pp. 104-105; Nov. 1996, pp. 111-112; Oct. 1997, pp. 137-136; and Oct. 1998, pp. 115-116.

Sales of services by foreign affiliates of U.S. health care companies declined by 47 percent in 1996, which represents a significant reversal from the trend of 25-percent average annual growth recorded during 1992-95. This dramatic reduction in sales reflects a retrenchment by U.S. health care service providers, particularly Tenet Healthcare, Columbia/HCA, and Transitional Hospitals Corporation (formerly Community Psychiatric Centers).⁶ Each of these companies has undertaken substantial restructuring programs to better focus resources on core business activities in the home market.⁷ By contrast, foreign firms increased their

⁶ In 1996, Tenet Healthcare sold two hospitals in Singapore, a 30-percent interest in a Malaysia hospital, a 52-percent interest in Australian Medical Enterprises, a 40-percent interest in a hospital in Thailand, and a 42-percent interest in Westminster Health Care Holdings of the United Kingdom. These sales represented a divestiture of \$464 million in assets. Columbia/HCA sold 50 percent of four hospitals it owned in the United Kingdom to PPP Healthcare Group (now a unit of Guardian Royal Exchange Group). Community Psychiatric Centers sold Priory Hospitals, an acute psychiatric company in the United Kingdom, to Foray 911 Ltd., for \$135 million. Foray 911 is a new British company formed by Mercury Development Capital, a division of Mercury Asset Management, Plc. Corporate annual report filings with the U.S. Securities and Exchange Commission, retrieved from <http://www.sec.gov>, Dec. 2-4, 1998.

⁷ In the case of Tenet, the restructuring was driven in part by major lawsuits brought by the U.S. Department of Justice concerning inappropriate business practices. In June 1994, Tenet, which at the time was named National Medical Enterprises, listed more than 50 percent of its hospitals in a guilty plea to criminal conduct (fraud). Under the settlement terms, Tenet was fined \$379 million and required to sell 75 percent of its U.S. hospitals. With respect to

(continued...)

level of participation in the U.S. market substantially in 1996. As a result, purchases of health care services through U.S.-based affiliates of foreign firms increased by 126 percent in 1996, reflecting a major jump from the 4-percent average annual rate of growth recorded during 1992-95.⁸ Much of this increase may be explained by two major acquisitions by the German firms Paracelsus Healthcare and Fresenius AG. In August 1996, Paracelsus Healthcare merged with Champion Healthcare, a U.S. firm, to form a for-profit hospital management company that owns and operates 31 acute care and psychiatric hospitals in eight states.⁹ Meanwhile, Fresenius became the world's largest fully integrated renal health care company in September 1996 when Fresenius AG acquired National Medical Care, Inc., formerly a subsidiary of W.R. Grace.¹⁰

As the foregoing discussion suggests, Germany appears to account for the majority of U.S. purchases of health care services through affiliates, followed by Canada.¹¹ Australia and Japan are the only other countries from which purchases through U.S.-based affiliates were reported in 1996, but such purchases amounted to only \$14 million and \$5 million, respectively. U.S. sales of services through foreign-based health care affiliates were concentrated in the United Kingdom, which accounted for 51 percent of total sales through foreign affiliates in 1996. Switzerland also appears to account for significant U.S. sales of health care services through affiliates, although the actual value is not officially reported in order to avoid disclosing financial data concerning individual firms.

Market Outlook

U.S. international trade in health care services reflects the widely recognized capabilities of U.S. medical institutions. Significant numbers of foreign individuals travel to the United States each year to receive medical treatment at U.S. facilities. As a result, the United States is believed to consistently record a substantial surplus in cross-border trade of health care

⁷ (...continued)

Community Psychiatric Centers, changes in the structure of the psychiatric care industry resulted in reduced profitability, prompting the company to exit the business and focus instead on the provision of long term acute care services under the new corporate identity of Transitional Hospitals Corp. In 1996, Columbia/HCA was focusing its resources on continuing its aggressive, acquisition-driven expansion in the United States. By 1997, however, Columbia/HCA had become the target of a U.S. Department of Justice investigation that prompted major management changes and the sale of several institutions. J.M. Wynne, "The Corporate Scene in Health," found at Internet address <http://www.uow.edu.au>, retrieved Dec. 4, 1998; corporate annual report filings with the U.S. Securities and Exchange Commission, retrieved from <http://www.sec.gov>, Dec. 2-4, 1998; and Columbia/HCA press releases, found at Internet address <http://www.columbia-hca.com>, retrieved Dec. 4, 1998.

⁸ The slower growth trend reflects a decline of 6 percent recorded in 1995, which partially offset the modest growth recorded during 1992-94.

⁹ Weiss, Peck, & Greer Private Equity, "Paracelsus Healthcare Corporation," found at Internet address <http://www.wpgequity.com>, retrieved Dec. 1, 1998.

¹⁰ Fresenius Medical Care, *Annual Report 1996*, found at Internet address <http://www.fmc-ag.com>, retrieved Dec. 2, 1998.

¹¹ USITC staff estimates.

services. With respect to affiliate transactions, the strength and diversity of the U.S. health care industry has prompted foreign firms to enter the U.S. market by acquiring or establishing health care facilities. By contrast, U.S. firms typically have had relatively few investment opportunities abroad, where government agencies often control the entire health care system or where financing is unavailable for the provision of services by private institutions. The disparity between investment opportunities in the United States and abroad is manifested by the substantially greater volume of U.S. health care purchases through affiliates of foreign firms relative to U.S. sales by foreign affiliates.

Since cross-border trade in health care services is largely dependent upon the ability of foreign individuals to travel to the United States and typically to finance their treatment through personal resources, this trade is heavily influenced by changes in currency values. Consequently, the Asian financial crisis, which resulted in currency devaluations in Asia and Latin America, had a dampening effect on U.S. exports of health care services in 1997. Transactions through affiliates respond to different forces, as these are driven by new international investments and the microeconomic conditions of countries in which affiliates are located. In 1996, affiliate transactions reflected retrenchment by U.S. health care firms and further expansion by foreign firms into the U.S. market. In both cases, these actions appear to have been driven by individual corporate objectives rather than broader economic factors.

Strategically, the U.S. health care industry is well positioned with respect to international competitors. The industry enjoys the strengths of a large, wealthy domestic market with advanced capabilities in technology and expertise, while suffering from few, if any, functional weaknesses. The large volume of individuals who travel to the United States for medical treatment and the substantial level of foreign direct investment testify to the vitality of U.S. health care sectors. The principal challenges to the industry are financial and philosophical. Rising health care costs have become increasingly difficult to sustain in the United States and abroad, forcing governments, insurance companies, and health care institutions to adopt policies such as managed care programs.¹² Such policy shifts apply financial pressure to various segments of the market and force adaptation, as demonstrated by the rise of health maintenance organizations and the consolidation of hospitals into health care systems in the United States. The philosophical challenge confronting the industry lies in the common belief that health care is a fundamental right to which all members of society are entitled. In many countries, this provides the rationale for the government to serve as the principal provider of health care services. As a result, private health care companies are excluded from many of the world's markets, which limits international growth opportunities for U.S. firms.

Despite these challenges, international prospects for the U.S. health care industry are promising. The flow of patients into the United States for treatment is likely to continue growing, as medical centers are expanding their international marketing efforts. For example, a number of hospitals in the Boston area have begun working cooperatively to attract patients

¹² "Health Care in America: Medicine for Export," *The Economist*, Mar. 7, 1998, and Standard & Poor's, *Industry Surveys, Healthcare: Facilities*, Nov. 19, 1998, p. 2.

from around the world to their facilities.¹³ The development of new health insurance products may further foster cross-border exports of health care services. In December 1998, International Health Alliance introduced a global medical plan that allows policy holders to travel anywhere in the world for treatment.¹⁴ This program is specifically marketed to non-U.S. citizens as well as to those who travel frequently for extended periods. A third factor that may influence cross-border trade in health care services is the increasing use of telemedicine, which involves providing health care services via telecommunication technology. For example, diagnostic images such as x-rays or magnetic resonance images may be transmitted via the Internet for examination by specialists in another country.¹⁵ The proliferation of applications of telemedicine has spurred formation of demonstration projects and associations of telemedicine practitioners worldwide.¹⁶ As a leading provider of both health care technology and medical expertise, the United States could benefit significantly by the development of telemedicine applications. U.S. organizations such as Telequest, the University of California San Francisco, and Telemedicine Applications Company, have already engaged in telemedicine ventures in India.¹⁷ Meanwhile, issues concerning the scope of practice, ethics, licensing, liability, and payment, among others, are currently subject to debate largely in the absence of regulations specifically formulated for such rapidly developing health care services.¹⁸

International trade of health care services through foreign affiliates is likely to undergo continued growth as well. The United States remains an attractive market for foreign investors, particularly in discrete market segments such as dialysis treatment, while financing constraints are likely to create opportunities for additional merger and acquisition activity.¹⁹ Abroad, the investment climate seems to be showing signs of promise. Many countries are beginning to embrace participation by private institutions in at least some segments of their market. At the same time, some of the larger U.S. health care companies appear to have strengthened their domestic position to the extent that they are now exploring international opportunities more earnestly. As a result of these factors, U.S. firms appear to be gradually increasing their international activities. For example, in October 1997, HealthSouth acquired the Cedar Court Physical Rehabilitation Hospital in Melbourne, Australia; and in April 1998, Columbia/HCA acquired 54 percent of the Instituto Dexeus, a private, 110-bed tertiary-care hospital located in Barcelona, Spain.²⁰

¹³ "Boston area hospitals seek global market," *Marketing News*, Mar. 3, 1997.

¹⁴ "International Health Alliance offers first online global plans," *PR Newswire*, Dec. 15, 1998.

¹⁵ Ernest D. Plock, "Telemedicine is emerging as a cost-effective health care alternative," *Business America*, Jan. 1998.

¹⁶ Official of American Telemedicine Association, interview by USITC staff, Washington, DC, June 8, 1999.

¹⁷ "BeeZee Launches Telemedicine Centre in Mumbai," *Economic Times*, Jan. 2, 1998; and K.S. Nayar, "U.S. Firm Offering Care via Telemedicine," *India Abroad*, Apr. 4, 1997.

¹⁸ Official of American Telemedicine Association, interview by USITC staff, Washington, DC, June 8, 1999.

¹⁹ Standard & Poor's, *Industry Surveys, Healthcare: Facilities*, Nov. 19, 1998, pp. 2 and 6.

²⁰ HealthSouth Corporation, "HealthSouth acquires Australian Rehabilitation Hospital," press (continued...)

While there are some inherent impediments to trading health care services, and current global economic conditions appear to be having a deleterious effect, the overall outlook for health care trade is promising. The United States continues to hold a leadership role in technology and quality of care, which should translate into additional international opportunities. Financial limitations pose the principal constraint on the health care field, as even wealthy countries are increasingly having difficulty paying for high-quality treatment for all of their citizens. However, such financial constraints may also present opportunities for private firms that can develop management techniques or serve a market niche so as to offer cost savings without compromising the quality of care.#

²⁰ (...continued)

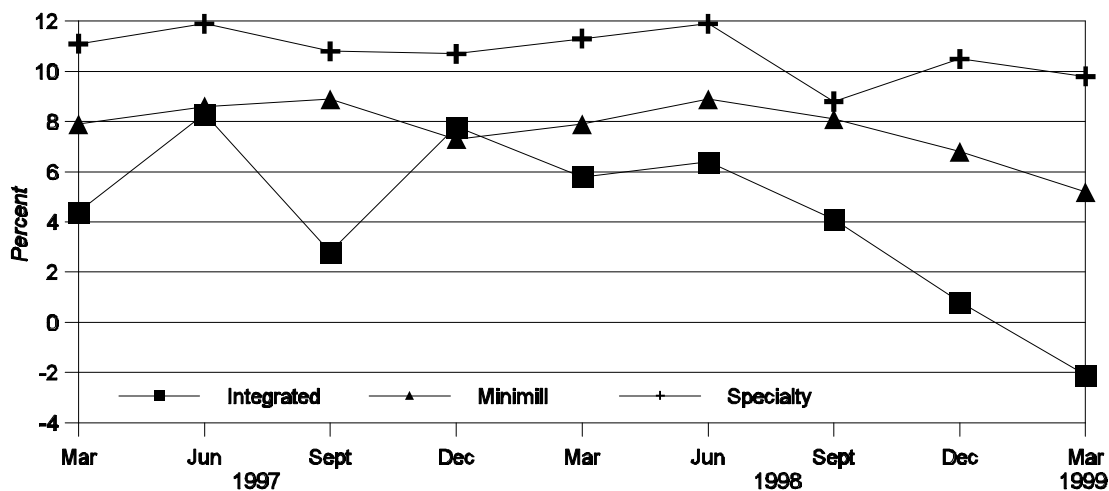
release of Dec. 5, 1997, found at Internet address <http://www.healthsouth.com>, retrieved Dec. 1, 1998; and "Columbia completes acquisition of majority interest in Instituto Dexeus in Barcelona, Spain," *PR Newswire*, Apr. 25, 1998.

APPENDIX A
KEY PERFORMANCE INDICATORS OF SELECTED
INDUSTRIES

- STEEL** (Tracy Quilter, 202-205-3437/tquilter@usitc.gov)
- AUTOMOBILES** (Laura A. Polly, 202-205-3408/polly@usitc.gov)
- ALUMINUM** (Karl Tsuji, 202-205-3434/tsuji@usitc.gov)
- FLAT GLASS** (James Lukes, 202-205-3426/lukes@usitc.gov)
- SERVICES** (Tsedale Assefa, 202-205-2374/assefa@usitc.gov)

STEEL

Figure A-1
Steel industry: Profitability by strategic group¹



¹Operating profit as a percent of sales. Integrated group contains 9 firms. Minimill group contains 8 firms. Specialty group contains 4 firms.

Source: Individual company financial statements.

- All three groups of steelmakers reported lower profitability for the first quarter of 1999 compared to the first quarter 1998, with integrated steel producers reporting negative profitability. Steel companies cited lower average selling prices and increased imports as factors contributing to increasingly competitive markets for steel mill products.
- Qualitech Steel Corp. of Indiana filed for Chapter 11 bankruptcy protection in late March 1999. The mill began rolling operations in May 1998 and produced its first steel in July 1998, but suffered setbacks due to production difficulties, weak markets for the company’s special bar quality and iron carbide products, a fire, and increased import competition.¹

¹Darrel Hassler, “Sell-offs eyed to rescue Qualitech,” *American Metal Market*, Mar. 25, 1999, p. 1.

Table A-1
Steel mill products, all grades

Item	Q1 1999	Percentage change, Q1 1999 from		Percentage change, YTD 1999 from	
		Q1 1998 ¹	YTD 1999	YTD 1998 ¹	YTD 1998 ¹
Producers’ shipments (1,000 short tons)	24,046	-12.0	24,046	-12.0	-12.0
Imports (1,000 short tons)	7,849	2.6	7,849	2.6	2.6
Exports (1,000 short tons)	1,161	-28.3	1,161	-28.3	-28.3
Apparent supply (1,000 short tons)	30,733	-7.9	30,733	-7.9	-7.9
Ratio of imports to apparent supply (percent)	25.5	² 2.6	25.5	² 2.6	² 2.6

¹Based on unrounded numbers.

²Percentage point change.

Note.—Because of rounding, figures may not add to the totals shown.

Source: American Iron and Steel Institute.

STEEL

Table A-2
Steel service centers

Item	Dec. 1998	Mar. 1999	Percentage change, Mar. 1999 from Dec. 1998 ¹	Q1 1999	Q1 1998
Shipments (1,000 net tons)	2,143	2,692	25.6	7,343	7,666
Ending inventories (1,000 net tons)	8,544	8,109	-5.1	8,109	7,435
Inventories on hand (months)	4.0	3.3	(²)	3.3	2.9

¹Based on unrounded numbers.

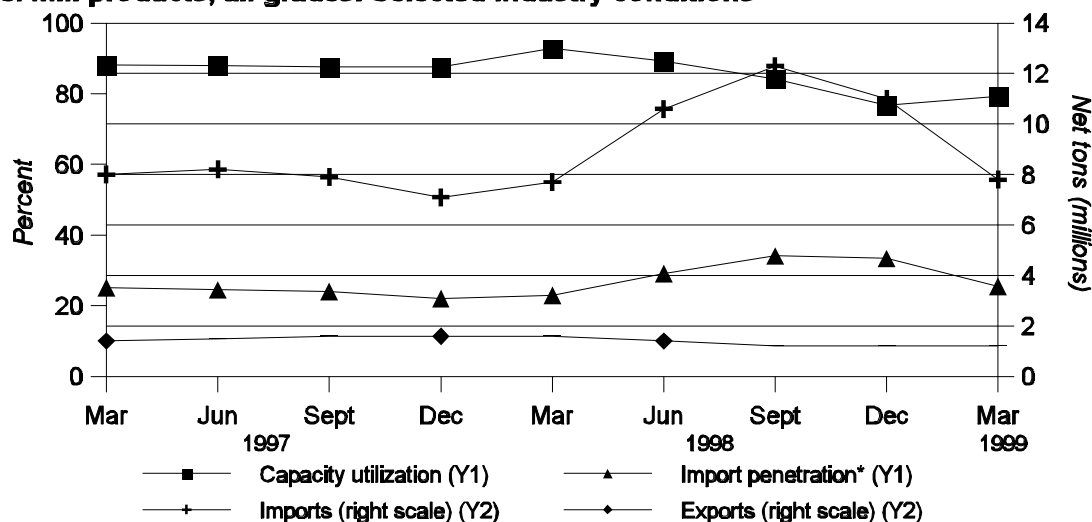
²Not applicable.

Note.—Because of rounding, figures may not add to the totals shown.

Source: Steel Service Center Institute.

- The Steel Service Center Institute (SSCI) reported a decrease in shipments and an increase in inventories for Q1 1999 compared with Q1 1998. However, inventories declined throughout the quarter to 8.1 million tons at the end of March 1999, and shipments increased over 25 percent in the recent quarter, reflecting continued strong demand for steel products.
- Total U.S. steel imports decreased for the second consecutive quarter to 11.6 million tons; however, imports remained 3 percent above the levels reported for Q1 1998. Import penetration declined from 33 percent for Q4 1998 to 26 percent for Q1 1999.
- Capacity utilization averaged 79.3 percent for Q1 1999, which is an improvement from the average of 76.7 percent reported for Q4 1998.

Figure A-2
Steel mill products, all grades: Selected industry conditions



*Import share of apparent open market supply.
 Source: American Iron and Steel Institute.

AUTOMOBILES

Table A-3

U.S. sales of new automobiles, domestic and imported, and share of U.S. market accounted for by sales of total imports and Japanese imports, by specified periods, January 1998-March 1999

Item	Jan.-Mar. 1999	Percentage change	
		Jan.-Mar. 1999 from Oct.-Dec. 1998	Jan.-Mar. 1999 from Jan.-Mar. 1998
U.S. sales of domestic autos (1,000 units) ¹	1,645	1.6	6.3
U.S. sales of imported autos (1,000 units) ²	371	5.4	13.9
Total U.S. sales (1,000 units) ^{1,2}	2,016	2.3	7.7
Ratio of U.S. sales of imported autos to total U.S. sales (percent) ^{1,2}	18.4	3.0	5.8
U.S. sales of Japanese imports as a share of the total U.S. market (percent) ^{1,2}	9.3	0.0	7.5

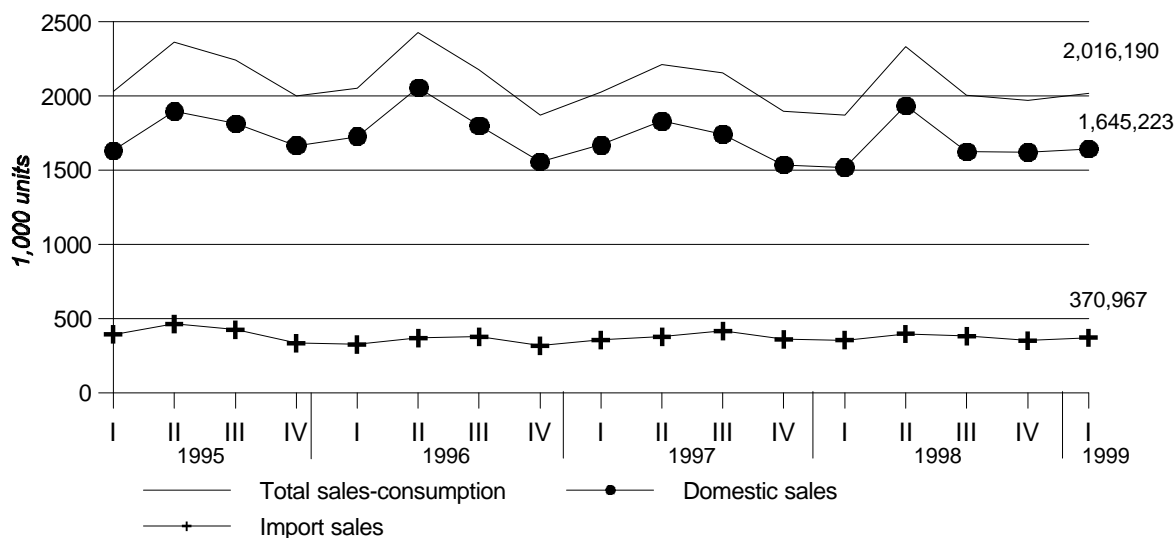
¹ Domestic automobile sales include U.S.-, Canadian-, and Mexican-built automobiles sold in the United States.

² Does not include automobiles imported from Canada and Mexico.

Source: Compiled from data obtained from *Automotive News*.

Figure A-3

U.S. sales of new passenger automobiles, by quarter

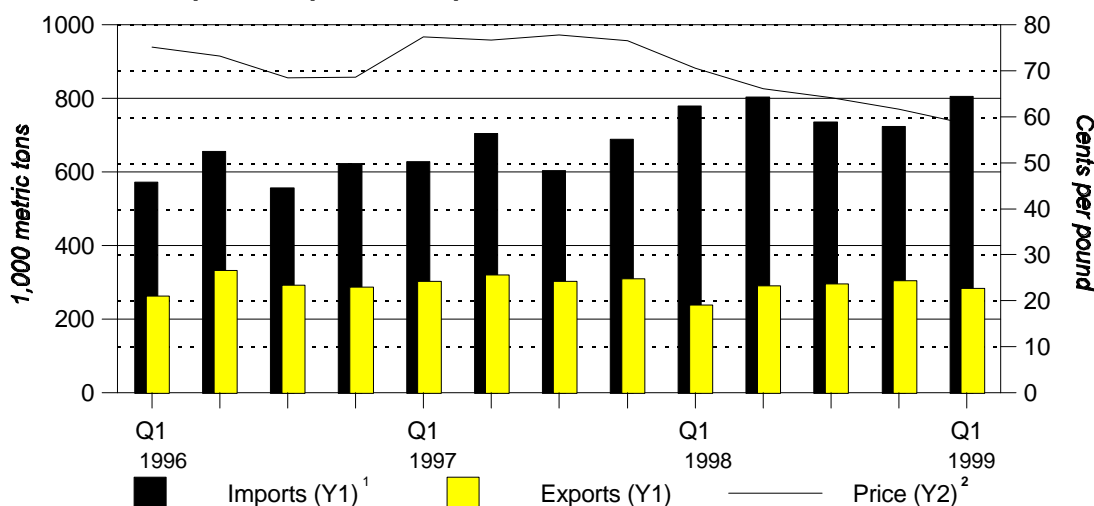


Note.--Domestic sales include all automobiles assembled in Canada and imported into the United States under the United States-Canadian automobile agreement; these same units are not included in import sales.

Source: *Automotive News*; prepared by the Office of Industries.

ALUMINUM

Figure A-4
Aluminum: U.S. imports, exports, and price



¹ Crude forms (metals and alloys) and mill products (e.g., plates, sheets, and bars) for consumption.
² Quarterly average of the monthly U.S. market price of primary aluminum ingots.

Source: U.S. Geological Survey.

- Announced capacity closures failed to spark the global aluminum market in first quarter 1999, as demand outside the United States and Western Europe remained weak. The supply-demand imbalance was reflected in rising London Metal Exchange (LME) inventories to the highest levels in 2 years, and declining prices for primary ingot by 3.2 cents per pound from the previous quarter's level.
- Total U.S. output increased slightly over the previous quarter's level; this, coupled with growth in domestic demand for aluminum mill products in transportation and construction markets caused a slight drop in import penetration, despite increased net U.S. imports.
- The Venezuelan Government announced in late March, 1999, a fourth attempt at privatizing its aluminum smelting sector, although bauxite and alumina production would remain under state ownership.

Table A-4
U.S. production, secondary recovery, imports, import penetration, exports, average nominal price, and inventory level of aluminum, for first quarter 1998, fourth quarter 1998, and first quarter 1999

Item	Q1 1998	Q4 1998	Q1 1999	Percentage change	
				Q1 1999 from Q1 1998	Q1 1999 from Q4 1998
Primary Production (1,000 metric tons)	901	939	922	2.3	-1.8
Secondary Recovery (1,000 metric tons)	863r	881r	901	4.4	2.3
Imports (1,000 metric tons)	779	724	805	3.3	11.1
Import Penetration (percent) ¹	34.6r	33.4r	32.5	² -2.1	² -0.8
Exports (1,000 metric tons)	271	305	284	4.8	-6.9
Average Nominal Price (¢/lb)	70.5	61.6	58.4	-17.2	-5.3
LME Inventory Level (1,000 metric tons)	546	636	818	49.8	28.6

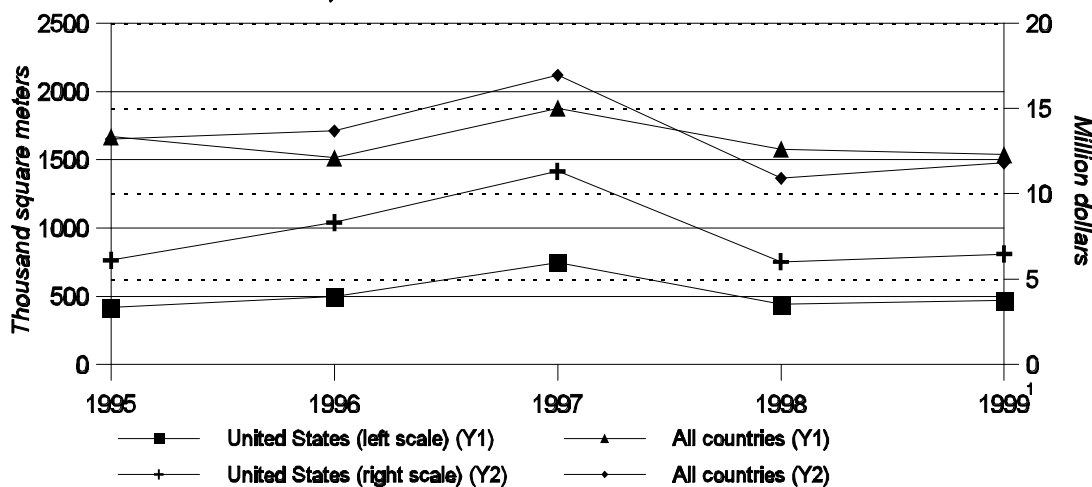
¹Calculations based on unrounded data.
²Percentage point change.

Note.-- revised data indicated by "r"

Sources: Compiled from data obtained from U.S. Geological Survey and World Bureau of Metal Statistics.

FLAT GLASS

Figure A-5
Average monthly Japanese imports of flat glass, by quantity and value, from the United States and all countries, 1995-99¹



¹ Data for 1999 include Jan.-Feb.

Source: Compiled from official statistics of the Ministry of Trade and Industry, Japan.

Background

- The U.S.-Japanese agreement on Japanese market access for imports of flat glass¹ seeks to increase access and sales of foreign flat glass in Japan through such means as increased adoption of nondiscriminatory standards and expanded promotion of safety and insulating glass.² The agreement covers the 1995-99 period.
- Japanese demand for imported glass began weakening in the second half of 1997. The Asian financial crisis and an increase in the Japanese consumption tax from 3 to 5 percent likely were contributing factors.³

Current

- Japanese demand for imported glass has continued to weaken, although the U.S. share of the market has improved. The average monthly quantity of Japanese imports from all countries decreased by 3 percent for the first two months of 1999 to 1.5 million square meters, while the average monthly value of such imports increased by 8 percent to \$11.8 million as the average unit value of imports increased by 11 percent. Imports from the United States in Jan.-Feb. 1999 increased 6 and 8 percent to 468,000 square meters (\$6.5 million), respectively. The shift to an increase in imports from the United States occurred as the U.S. dollar appreciated against the Japanese yen, and the average unit value of imports from the United States increased by 1 percent, compared with an average increase of 16 percent for imports from other countries.
- Flat glass continues to be considered a key sector in efforts by the U.S. Government to obtain genuine deregulation of the Japanese economy and greater market opening.⁴

¹ Flat glass is largely unworked; safety glass (tempered or laminated) and insulating glass are also covered under the U.S.-Japanese agreement on flat glass.

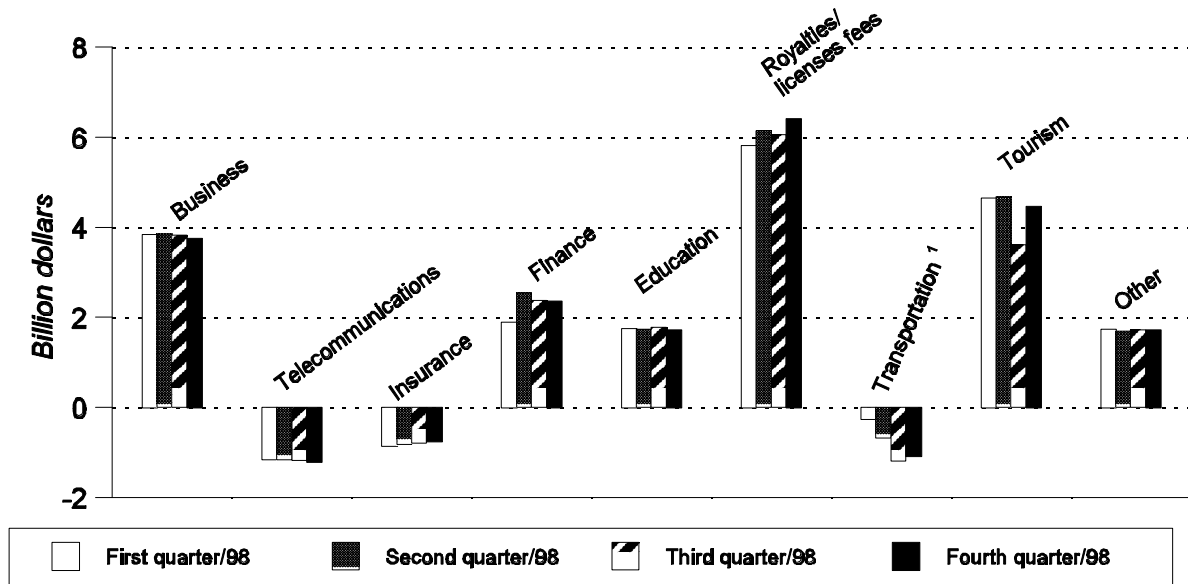
² USITC, "Flat glass," *Industry, Trade, and Technology Review*, Oct. 1997, p. 42.

³ USITC, "Flat glass," *Industry, Trade, and Technology Review*, June 1998, p. 37.

⁴ U.S. Trade Representative, "1999 Trade Policy Agenda," downloaded from <http://www.ustr.gov/tpa/1999/index.html> on Mar. 18, 1999.

SERVICES

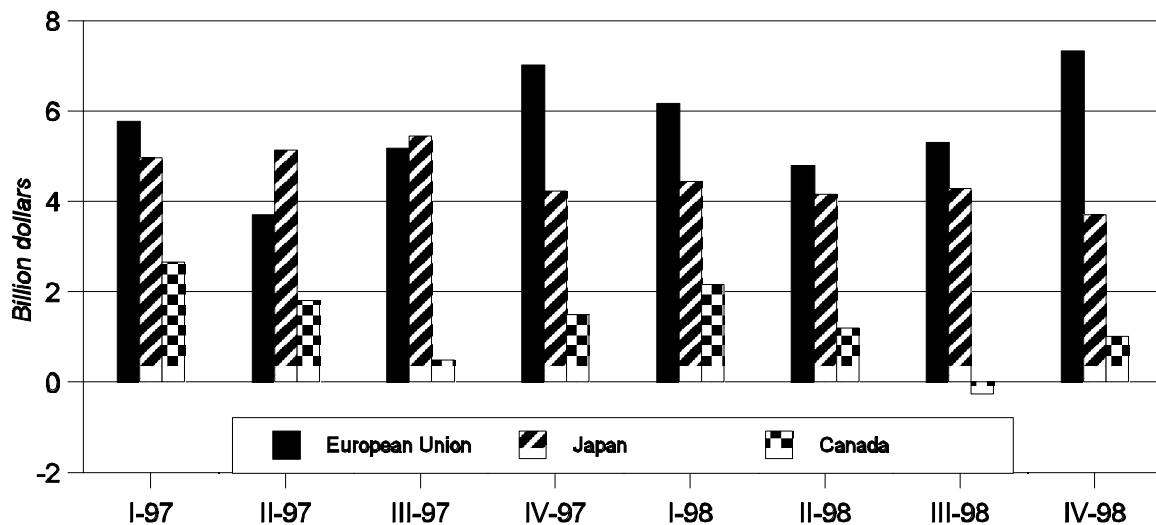
Figure A-6
 Balance on U.S. service trade accounts, by quarter, 1998



¹ Includes port fees.

Source: Bureau of Economic Analysis, *Survey of Current Business*, Apr. 1999, p. 52.

Figure A-7
 Surpluses on cross-border U.S. service transactions with selected trading partners, by selected quarters, 1997-98¹



¹ Figures reflect private-sector transactions only; military shipments and other public-sector transactions have been excluded.
 Source: Bureau of Economic Analysis, *Survey of Current Business*, Apr. 1999, pp. 60-63.