United States
International Trade Commission

INDUSTRY TRADE AND TECHNOLOGY REVIEW

OFFICE OF INDUSTRIES

USITC Publication 3762

December/January 2005

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Radioisotopes: Medical Breakthroughs But Concerns About Availability, Foreign Dependence, and National Security[1]

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In the United States, the U.S. Department of Energy (USDOE), private firms, major research universities, and medical facilities produce most of the radioisotopes used in medical, research, and industrial applications. However, the USDOE stopped producing many specific isotopes. Given the provisions of existing law, the increasing demand on its facilities for multiple applications, and the more stringent cost recovery requirements, industry sources have expressed concern that the USDOE isotope production and distribution enterprise does not adequately meet all U.S. medical needs and is not sufficiently competitive. The industry sees the United States becoming dependent on foreign sources for many radioisotopes, including technetium-99m, the most widely used isotope in medicine. In addition, the already highly regulated U.S. radioisotopes industry faces new challenges with stricter security requirements following the events of September 11, 2001. However, buoyed by new growth opportunities and the significant potential for medical breakthroughs, both private industry and the USDOE, in association with nuclear medicine specialists, are addressing these challenges and opportunities. This article examines the applications and market-size potentials, challenges to the U.S. industry, and industry efforts to overcome barriers to expanded use of medical and industrial isotopes in the future.

The isotope industry consists of establishments producing or enriching elements to create various isotopes for commercial, research, and medical applications. Isotopes may be stable or radioactive, depending on whether their nuclei are stable or whether the nuclei decay over time to form other isotopes, with the release of energy in the form of radiation (box 1). Because radioisotopes decay, they may need to be provided to the end-user as rapidly as possible depending on the duration of their half-lives. Although both stable and radioactive isotopes are used directly by the end-user, most stable isotopes are produced as precursors or target materials for the production of radioisotopes. Therefore unless otherwise noted, this article will primarily address radioisotopes. An isotope may be chemically linked with other atoms to form either a simple or complex molecule referred to as a radiochemical and, if the radiochemical is approved for internal medical use, the substance is referred to as a radiopharmaceutical. A list of commonly used radioisotopes, half-lives, production methods, along with their applications is in box 2.

* The views expressed in this article are those of the author. They are not the views of the USITC as whole or of any individual Commissioner. The author is an international trade analyst in the Energy, Chemicals, and Textile Division, Office of Industries.

Box 1
Background on isotopes

Matter is composed of atoms with nuclei composed of protons and neutrons. It is the number of protons that determines whether the atom is carbon, gold, oxygen, or one of the other 115 currently known elements. Atoms of the same element, however, may have different numbers of neutrons in their nuclei. The various forms of an element that differ only in the number of neutrons are referred to as "isotopes" of the element. In most cases, a single element may have many different isotopes.

As an example, all atoms of carbon contain six protons in their nuclei. Whereas most also have six neutrons, others have five, seven, or eight. An isotope is identified by element name and its atomic weight (i.e., the sum of the protons and neutrons in its atoms). Thus, carbon atoms with six neutrons in their nuclei have an atomic weight of 6+6=12 and are referred to as carbon-12. Carbon atoms with five, seven, or eight neutrons in their nuclei are referred to as carbon-11, carbon-13, and carbon-14, respectively.

Many radioisotopes are produced artificially from the bombardment of a stable isotope either with neutrons in a nuclear reactor or with protons or other charged particles in an accelerator.[1] The path of the charged particle in an accelerator may be linear, as in a linear accelerator, or spiral, as in a cyclotron. Alternatively, some radioisotopes are recovered as a byproduct from the fission (decay) of uranium and other radioisotopes.

Although all radioisotopes suitable for medical and industrial applications disintegrate over time, there is an enormous range in how rapidly such decay occurs; some radioisotopes disintegrate so slowly that they are practically considered "stable" whereas others will effectively vanish in a manner of minutes. To measure the relative stability/instability of radioisotopes, scientists employ the concept of "half-life," the time for one-half of the isotope initially present to decay to other nuclear forms. The half-life is a constant for each radioisotope.

[1] Useful radioisotopes, e.g., cesium-137 and strontium-90 are also produced as fission products or through further decay in a reactor, e.g., plutonium.

Source: Institute of Medicine, *Isotopes for Medicine and the Life Sciences* (Washington, DC: The National Academies Press, 1995).

Applications and Markets

Industrial applications for radioisotopes include basic research, nucleonic instrumentation, radioactive tracers, security instrumentation systems, smoke detectors, physical measurement gauges, radiation sterilization, food irradiation, and nondestructive testing. However, it is the medical sector--a field designated by the medical community as nuclear medicine--where radioisotopes may find their most commercially important applications; their greatest prospects for growth; and through research and development (R&D), their most significant impact on society.

The largest medical use of radioisotopes is as diagnostic aids, particularly as imaging agents. One out of three hospitalized patients in the United States undergoes a nuclear medicine procedure annually[2] and such procedures are valued at an estimated $7-10 billion per year.[3] More than 36,000 diagnostic medical procedures using radioactive isotopes are performed daily in the United States and close to 100 million laboratory tests using radioactive isotopes are performed each year.[4] Increasingly, radioisotopes are being applied as a diagnostic tool outside of hospitals, as in facilities such as physicians' offices. Much of the growth in the application of radioisotopes in imaging is attributed to a relatively new process known as Positron Emission Tomography (PET) Imaging. PET scans are experiencing high growth in the diagnosis of cancers and other ailments because of the high quality and specificity of these images. In addition to imaging, radioisotopes are taken internally as therapeutic agents, particularly in oncology (cancer treatment), because the radiation emitted by the radioisotopes destroys cancerous tumors. Sealed radioactive sources strategically implanted directly at or near a tumor to destroy cancerous cells that have not yet been removed—a technique known as brachytherapy—also is finding expanded use, especially for treatment of prostrate and breast

cancers. Although less widely used than in diagnostic applications, reliance on radioisotopes for oncology therapy, whether injected, ingested or surgically implanted, is experiencing a higher growth rate largely because of the ability of radioisotopes to supplement other therapies in the treatment of cancers.[5]

Box 2
Characteristics of selected radioisotopes

Radioisotope	***Half-life***	***Production method***	***Uses***
Americium-241	432 years	Nuclear reactor decay product of plutonium-241	Smoke detectors; oil well logging, heart imaging, osteoporosis detection
Cesium-137	30 years	Uranium-235 fission product	For the treatment of cancers, to measure and control liquid flows in petroleum pipelines and to ensure correct fill level for packages
Cobalt-60	5.3 years	Reactor product from stable cobalt-59 as target	Sterilization of medical supplies, food irradiation, cancer therapy
Iodine-131	8 days	Reactor product	Diagnosis and treatment of thyroid diseases, especially thyroid cancer
Fluorine-18	110 minutes	Accelerator product from stable, enriched oxygen-18 as the target	Most widely used PET radioisotope for detection of cancers, neurological, and heart diseases
Iridium-192	74 days	Reactor product from stable iridium-191 as target	Testing of pipeline welds, boilers, and aircraft parts
Molybdenum-99	66 hours	Produced by fission of uranium-235 in a nuclear reactor	The daughter product, technetium-99m (6-hour half-life), is the most widely used isotope for diagnostic medical applications including oncology and cardiology
Palladium-103	17 days	Accelerator product, from rhodium-103 as stable target	Prostrate cancer implant therapy
Strontium-89	50.5 days	Reactor product from stable strontium-88 as target	Bone cancer pain alleviation, treatment of prostrate cancer, and multiple myeloma
Thallium-201	73 hours	Accelerator product from stable isotope thallium-203 as target	Diagnosis of coronary heart disease and heart muscle death, location of lymphomas
Xenon-133	5.2 days	Reactor product	Pulmonary (lung) ventilation and blood flow studies

Source: Nuclear Energy Institute, *Fact Sheet: Beneficial Uses of Radiation*, Oct. 2003; Nuclear Energy Agency, Organization for Economic Cooperation and Development, *Beneficial Uses and Production of Isotopes: 2000 Update*, pp. 13-28; and other sources.

According to reports issued by a market researcher,[6] U.S. sales of diagnostic radiopharmaceuticals amounted to $1.14 billion in 2002 (15 percent above the previous year amount) stemming from robust growth of PET imaging, introduction of new products, and rising demand for cardiology procedures. Annual growth is reported to reach 20 percent by 2004-05, resulting in a market valued at $2.94 billion by 2008. By comparison, according to this market researcher, U.S. sales of therapeutic radiopharmaceutical products (not including brachytherapy) amounted to $57 million in 2002 but are anticipated to grow more rapidly than diagnostic radiopharmaceuticals to reach $3.8 billion by 2008. Projected U.S. sales of brachytherapy products, which amounted to $321 million in 2002, are anticipated to reach about $1.38 billion by 2008.[7]

The U.S. Industry

The USDOE is a significant producer of radioisotopes, largely as a result of the U.S. Government's historic role in developing nuclear weapons, nuclear power, and other nuclear-related applications. Although private firms and major research universities also are active in radioisotope production, the USDOE has the most powerful nuclear reactors and accelerators and, therefore, the capability of producing radioisotopes beyond that of the industry and private-sector facilities. Despite this advantage, many of these USDOE facilities are enlisted for multiple applications and isotope production reportedly may often be considered lower priority, especially for smaller research customers, if production facilities are required for other higher-priority projects.[8] In addition, the USDOE cost recovery requirements for the production of some isotopes are considered to be prohibitively expensive for some researchers.[9]

To promote efficient production and marketing of isotopes, the Isotope Production and Distribution Program (IPDP) was established in 1989 within the Office of Nuclear Energy as the principal vehicle for providing isotopes for commercial and research purposes. A condition of its creation, however, required that operations are to be financially self-supporting. Generally even now, the IPDP is not authorized to act as an independent business enterprise and is also subject to other restrictions. For example, to clarify the provisions of the Atomic Energy Act (1954), the Atomic Energy Commission issued a policy statement in 1965, that established criteria and procedures for U.S. Government withdrawal from and reentry into commercial radioisotope markets. Thus, the USDOE would cease production if there is demonstrable private capability to produce and distribute the subject isotope and there is evidence of effective competition.

Private firms involved in isotope, radiochemical, and radiopharmaceutical production range from small startup firms to multinational pharmaceutical companies. Three multinational pharmaceutical companies are responsible for much of the radiopharmaceutical production in the United States: Amersham plc (now part of General Electric Co.), Tyco Healthcare/Mallinckrodt, and Bristol-Myers Squibb Co. According to an industry source,[10] the amount of R&D funding expended by these private firms has been limited because radiopharmaceuticals are rarely as profitable as other drugs and are unlikely to generate the revenue stream required to justify large-scale corporate expenditures. Moreover, in the United States, private isotope producers do not operate their own nuclear reactors but instead produce many radioisotopes and radiopharmaceuticals from in-house cyclotrons or purchase starting materials acquired from nuclear reactors operated either abroad or domestically by the USDOE and a few major research universities.

The United States has become increasingly dependent on foreign sources for many important isotopes, especially those produced in nuclear reactors. This change has occurred, in part, because the USDOE has stopped producing many isotopes, including the most commercially widespread isotope used today, molybdenum-99, a radioisotope produced in reactors from the fission of uranium-235. Molybdenum-99 naturally decays into technetium-99m, the isotope which accounts for over 80 percent of in-vivo nuclear medicine procedures.[11] The United States currently imports its entire supply of molybdenum-99/technetium-99m, primarily from Canada and the European Union. Industry sources claim that the USDOE

has relinquished molybdenum-99 production to foreign producers largely because of tighter and more costly U.S. regulations affecting nuclear waste disposal, remediation requirements, and nuclear fuel reprocessing which have substantially reduced its competitiveness vis-a-vis foreign producers. In addition, there is reportedly a greater willingness by foreign governments to assist isotope producers operating in their countries in various ways, including the provision of technical and investment incentives.

The United States is dependent on foreign sources for many other isotopes as well. For example, the United States was formerly a world-class producer of heavy stable isotopes using electromagnetic separators but, with the exception of supply of some specific isotopes from existing USDOE inventories, Russia is now the leading supplier to the United States of these and other isotopes, reportedly because of sales at prices below USDOE production costs.[12] Similar to the United States, Russia has developed a viable stable isotope and radioisotope industry, largely because of its nuclear programs. Other significant foreign suppliers of isotopes to the United States include Argentina, Australia, China, Israel, and South Africa.

The U.S. private radioisotope industry must also contend with significant regulatory costs. The isotope industry is one of the most regulated in the United States as many Federal, State, and local agencies exercise jurisdiction over isotopes.[13] The September 11, 2001, attacks further exacerbated the U.S. regulatory impact as new concerns arose that terrorists can prepare conventional explosives laced with radioisotopes, popularly referred to as "dirty bombs." According to industry sources, such concerns have resulted in skyrocketing security-related costs for isotope producers; uncertainty as to the reliability of shipments; and in some cases, delay and even loss of time-sensitive radioisotopes as some airlines refused to accept radioisotope deliveries. Industry sources also have expressed concern that an untoward incident could compel the United States to suspend all radioisotope imports, thereby depriving U.S. consumers, particularly U.S. patients requiring radioisotopes as a life-or-death treatment, of essential radioisotopes.

Outlook

To meet these and other challenges, the private isotope industry has adopted a number of measures to reduce costs and to increase efficiency, including an increased effort to secure the cooperation of researchers at universities, national laboratories, and the smaller research-oriented startup companies. Moreover, licensing and joint ventures are proliferating among the various U.S. and foreign isotope producers. The radiopharmaceutical industry itself has also undergone consolidation, largely through mergers and acquisitions, in part with an eye toward increasing the extent of vertical and horizontal integration of the major producers to help achieve greater efficiency.

Regarding the USDOE, a number of task forces have proposed ideas as to how the agency can spur scientific breakthroughs and become more competitive. One suggestion is that the USDOE increasingly focus on developing isotopes intended for research purposes while cutting back production of commercial isotopes for which there are other adequate suppliers. Additionally, it was suggested that funding be provided to upgrade existing USDOE facilities as well as to build accelerators and reactors that would be dedicated exclusively to the production of isotopes.[14]

Despite the many challenges that the radioisotope industry faces, new developments, particularly in the medical and research areas, ensure that this field will continue to grow. Radioisotopes are, for example, finding increased and new uses in cardiology, primarily in diagnosis, where their level of application is now comparable to that of isotopes in oncology. They are also being applied in fields where their use was once very limited. For example, new techniques are being developed in the area of immunology combining radioisotopes with monoclonal antibodies to develop radioisotopes that have unprecedented specificity in the diagnosis and treatment of cancers. In 2002, a milestone was reached in immunotherapy when the U.S. Food

and Drug Administration (FDA) approved Zevalin®, a radiopharmaceutical, for the treatment of non-Hodgkins lymphoma.[15] PET radioisotopes, which have traditionally been applied primarily in cancer treatment are now increasingly expanding to other fields such as cardiology and neurology. For example, the FDA recently approved the use of PET scans in the diagnosis of Alzheimer's disease. Buoyed by new growth opportunities and the significant potential for medical breakthroughs, both private industry and the USDOE, in association with nuclear medicine specialists, are continuing to address these challenges and opportunities.■

ENDNOTES

1. For added detail, look for the upcoming industry and trade summary on isotopes (*www.usitc.gov*).
2. Institute of Medicine, *Isotopes for Medicine and the Life Sciences* (Washington, DC: The National Academies Press, 1995), p. 1.
3. Ibid.
4. Ibid.
5. About 180,000 patients were treated with radiation therapy in 1990. Ibid.
6. Marvin Burns, *The U.S. Market for Diagnostic Radiopharmaceuticals*, found at *http://biotechsystems.com/reports/150/default.asp*, retrieved on Jan. 24, 2005.
7. Marvin Burns, *The U.S. Market for Brachytherapy Products*, found at *http://biotechsystems.com/reports/170/default.asp*, retrieved on Jan. 24, 2005.
8. Institute of Medicine, *Isotopes for Medicine and the Life Sciences*, pp. 1-2 and 12-13; and Nuclear Energy Research Advisory Committee (NERAC), Subcommittee for Isotope Research and Production Planning, *Final Report*, Apr. 2000, p. 9.
9. Institute of Medicine, *Isotopes for Medicine and the Life Sciences*, pp. 12-13; and USDOE, *Isotope Programs, Report and Financial Statements for Fiscal Year 2003*, p. 3.
10. Radiopharmaceutical industry source, telephone interview with USITC staff, Sept. 1, 2004.
11. Institute of Medicine, *Isotopes for Medicine and the Life Sciences*, p. 15.
12. Statement of William H. Young, Assistant Secretary for Nuclear Energy before the U.S. House of Representatives, Government Operations Committee, Subcommittee on Environment, Energy and Natural Resources, Aug. 12, 1992. According to a radioisotope industry source, in a telephone interview with USITC staff, Jan. 31, 2005, this situation is still applicable today.
13. For example, on the Federal level, the U.S. Nuclear Regulatory Commission (NRC) regulates the possession, use, and handling of radioactive materials; the U.S. Department of Transportation regulates the movement of radioactive materials; the U.S. Environmental Protection Agency regulates air effluents from a nuclear pharmacy; the U.S. Occupational Safety and Health Administration regulates workers safety, and the U.S. Food and Drug Administration (FDA) regulates radiopharmaceuticals injected internally. In addition to being "drugs," radiopharmaceuticals are also radioactive; therefore they are under the jurisdiction of both the FDA and NRC.
14. Institute of Medicine, *Isotopes for Medicine and Life Sciences*, p. 77; and NERAC, *Final Report*, pp. 22-26.
15. FDA, *FDA Talk Paper*, Feb. 19, 2002, found at *http://www.fda.gov/bbs/topics/ANSWERS/2002/ANS01138.html*, retrieved on Jan 21, 2005.

Production-Sharing Update: Developments in 2003

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Investments in production-sharing operations are part of global efforts to reduce manufacturing costs. Such investments have contributed to crossborder integration of manufacturing in North America and the Caribbean Basin. For example, most manufactured goods imported by the United States from partners in the region incorporate U.S. and other foreign inputs. Trends in imports of manufactured goods from Mexico (the leading low-labor-cost, production-sharing partner) are closely linked to trends in manufacturing in the United States.[1] The industrial sectors in the United States that are most likely to use assembly plants in Mexico had mixed results in terms of trends in U.S. manufacturers' shipments in 2003 compared with 2002. Declining shipments of power transmission equipment, electrical equipment, motor vehicle parts, and apparel offset growth in shipments of medical and measuring instruments, computers, and semiconductors. As a result, U.S. imports from assembly plants in Mexico declined by 1.7 percent in 2003. At the same time liberalized access to the U.S. market through the Caribbean Basin Trade Partnership Act (CBTPA) and the Andean Trade Promotion and Drug Eradication Act (ATPDEA) helped apparel assembly plants in the Caribbean Basin region and Colombia increase production despite intensified competition from China. This article highlights the continued role in 2003 of regional manufacturing integration in meeting the challenges to North American industrial competitiveness.

Production sharing includes a spectrum of manufacturing options that range from use of foreign inputs in domestic operations, to global sourcing of inputs in assembly plants, to use of U.S. components in foreign factories. Production sharing can be crossborder rationalization of manufacturing within a firm or outsourcing of certain aspects of production to nonrelated foreign suppliers. This article examines imports from assembly operations that make use of U.S.- and third-country components and materials. In the apparel sector, it shows the trasition toward higher value-added manufacturing in the Caribbean Basin and Andean regions as companies there make use of liberalized U.S. trade preferences to position themselves to compete more effectively in markets that eliminated quotas on apparel and other textile articles on January 1, 2005. This article sets a base-line for comparison with imports of apparel in the postquota era.

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* The views expressed in this article are those of the authors. They are not the views of the U.S. International Trade Commission (USITC) as a whole or of any individual Commissioner. The two authors are an International Trade Analyst and the Program Manager for Foreign Assembly, respectively, in the Minerals, Metals, Machinery, and Miscellaneous Manufactures Division of the Office of Industries.

Production sharing is no longer strictly limited to manufacturing; the same practice also takes place in service industries such as insurance, banking, healthcare, and information technology. Although production sharing in services does not involve the physical assembly and shipment of components or finished goods, decisions to spread operations over various locations are often made based on a similar set of factors. The cost of labor is often key in decisions to physically redistribute manufacturing processes or to contract services locally overseas, but other factors weigh in as well, such as a reliable transportation and telecommunications infrastructure, local tax policies, ease of repatriating profits, and enforceability of contracts.[2]

As discussed in previous updates,[3] major North American production-sharing trade flows in manufactured goods continue to include the export of machinery, components, and materials (e.g., yarns and uncut fabric) from the United States and the import of assembled motor vehicles and auto parts from Canada and Mexico; apparel from the Caribbean Basin and Mexico; and televisions, computer hardware, and telecommunications equipment from Mexico. In addition, a number of U.S. semiconductor producers conduct back-end testing, assembly, and packaging operations in East Asia, using chips fabricated in the United States. Although many vehicles imported into the United States from Asia and Europe contain specialized U.S.-made parts, such parts remain a small share of the total value of these vehicles.

In many instances, manufacturing in Mexico and the Caribbean Basin continues to complement rather than compete with U.S. production. For many products, the alternative to assembly in nearby lower-labor-cost countries is loss of market share to imports from Asia or a shift of manufacturing operations from North America to Asia.

Manufacturers in Western Europe also use production sharing ("outward processing") to reduce their costs, establishing assembly plants in Central European countries such as the Czech Republic, Hungary, Poland, and Slovenia. Similarly, companies in Japan, Korea, and Taiwan take advantage of duty waiver or refund (drawback) provisions and lower labor costs at special economic zones in China and at export processing zones in Indonesia, Malaysia, the Philippines, and Thailand to rationalize the production of labor-intensive articles.

Special provisions have been created in Chapter 98 of the Harmonized Tariff Schedule of the United States (HTS) to implement preferential tariff treatment afforded to qualifying apparel imported from beneficiary countries under the Africa Growth and Opportunity Act (AGOA), CBTPA, and ATPDEA. These provisions are found under HTS headings 9819, 9820, and 9821, respectively. These new production-sharing provisions were established to encourage investment and job creation in the textile and apparel sectors in these regions and to encourage the use of U.S.-origin fabrics and yarns in the production of apparel and other textile articles destined for the U.S. market.[4] Trade data collected under these HTS provisions permit analysis of the extent to which apparel imported under these programs contains fabric or yarn of U.S. origin.

Statistics on U.S. production-sharing trade for products other than textile and apparel articles imported from Mexico, the Caribbean Basin, the Andean region, and sub-Saharan Africa (imports under HTS subheading 9802.00.80.68) were not collected during November 2002 to April 2003, because of a communications breakdown between various U.S. Government agencies. However, official Mexican statistics remain a reliable tool to measure production-sharing trade between the United States and Mexico of products other than textile and apparel articles, and are presented in appendix B.[5] An assessment of developments in 2003 based on data in appendix B is presented below, followed by an examination of U.S. imports of apparel from Mexico, the Caribbean Basin, the Andean region, and sub-Saharan Africa.

Assembly Trends in Mexico

- Mexico's imports of components and other materials from the United States for use in maquiladora and PITEX assembly plants[6] were $58.8 billion in 2003, a 3.5-percent ($2.1 billion) decline from 2002 (appendix B, table B-4), and represented 56 percent of Mexico's total imports from the United States in 2003 (table B-2).[7]

- Mexico's exports to the United States from maquiladora and PITEX assembly plants fell by 1.8 percent ($2.1 billion) in 2003, to $118 billion (table B-7), and represented 81 percent of Mexico's total exports to the United States in 2003 (table B-5). The United States was the destination for nearly all exports from maquiladara and PITEX plants, accounting for 93 percent of such exports in 2003, followed by Canada with a 2-percent share (table B-7).

- Higher energy prices slowed the recovery of manufacturing in North America in 2003[8] and contributed to reduced production-sharing trade between the United States and Mexico. At the same time that energy input costs were increasing, intensified competition from products made in Asia restrained manufacturers from appreciably raising prices. To maintain profit margins in 2003, some U.S. producers found ways to improve domestic manufacturing productivity,[9] reducing their incentive to shift assembly to Mexico.

The diminished production-sharing trade with Mexico also is reflected in overall trade based on U.S. statistics:

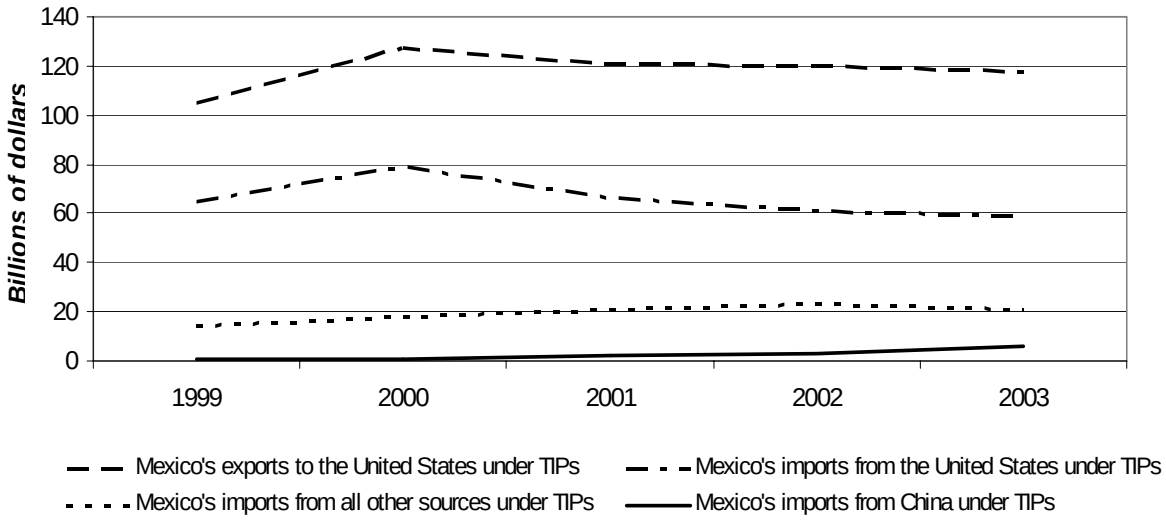
- Although U.S. manufacturers' shipments recovered by 2.7 percent in 2003, much of the growth took place in sectors that do not use assembly plants in Mexico (such as the basic chemicals, crude petroleum, and coal sectors).[10]

- U.S. exports to Mexico decreased by 3 percent ($2.9 billion) in 2003, to $83.1 billion, whereas U.S. imports from Mexico expanded by 4 percent ($3.1 billion) to $137.2 billion principally because of higher prices for petroleum. (See "North American Trade Highlights" in appendix A for developments in U.S.-Mexico trade through September 2004.)

- Although during 2000-03, imports from the United States by maquiladora and PITEX plants fell by $20.1 billion (26 percent), the United States continued to be the dominant supplier of components, materials, and machinery to these assembly plants, accounting for 69 percent of such imports in 2003. Imports from China by Mexico's production-sharing operations jumped from $1.1 billion to $5.6 billion during this period to become the second-leading supplier with a 7-percent share (table B-4). The largest increases in imports from the United States occurred in parts of computers ($1 billion), telecommunications equipment ($0.2 billion), and televisions ($0.2 billion).

- The ratio of Mexico's imports from the United States by maquiladora and PITEX companies to Mexico's exports to the United States by these companies decreased during 2000-03 as U.S.-origin content was displaced by components imported from China and by increased value-added in Mexico (see figure 1).

Figure 1
Trade Under Mexico's Temporary Import Programs (TIPs): Exports to the United States and imports from the United States, China and all other sources, 1999-2003



Source: Compiled from "World Trade Atlas: Mexico Edition, December 2003," which used data provided by INEGI, the statistical agency of the Government of Mexico.

- The leading products exported from maquiladora and PITEX assembly plants to the United States were motor vehicles and parts (26 percent of the total), computers and components (8 percent), apparel (6 percent), color televisions (6 percent), telecommunications equipment (5 percent), and electrical circuit apparatus (4 percent) (table B-1). The following tabulation shows that the sectors with the leading decreases in assembly plant exports to the United States in 2003 more than offset the sectors with the leading increases in assembly plant exports:

Sector	Increase *(million dollars)*	Sector	Decrease *(million dollars)*
Computers and components	961	Telecommunications equipment	1,067
Certain motor vehicle parts	398	Motor vehicles	1,032
Prepared vegetables	227	Toys, games, and sporting goods	674
Optical, medical, measuring, and photographic instruments	151	Color television receivers	555
Articles of plastics	17	Apparel	373

Source: "World Trade Atlas: Mexico Edition, December 2003."

- North American companies under pressure to reduce costs to remain competitive in the U.S. market reportedly have to carefully evaluate the Mexican option. Products with a relatively high labor content, long production runs, few style changes, and long lead times are the most susceptible to relocation (or loss of market share) to lower-labor-cost countries in Asia. Examples include certain electronic components and assemblies, telephone equipment, apparel, video games, and small appliances and motors.[11]

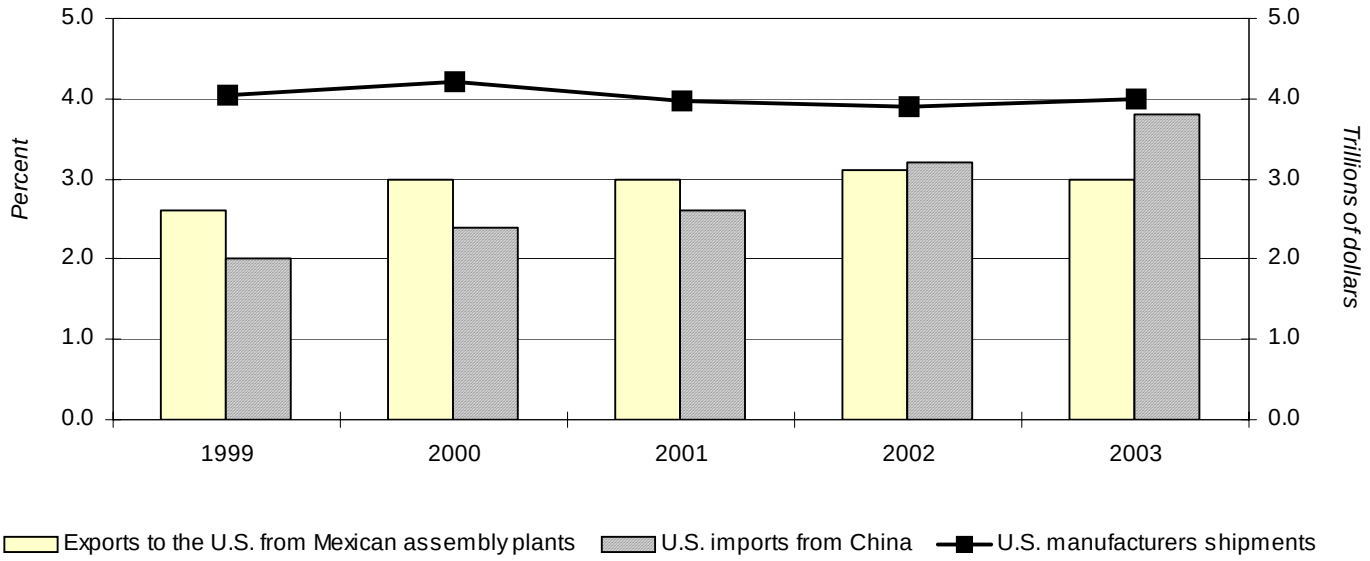
- Products more likely to be assembled in Mexico than in Asia are those with a high ratio of weight to value (relatively high transportation costs), high degree of customization, or with customers that practice just-in-time inventory control. Assembly in Mexico also is a reported advantage for products that are at the startup phase of the product cycle, are quality intensive, and/or are where protection of intellectual property rights is important. Examples include motor vehicles and parts; large-screen televisions; medical goods; process control instruments; household appliances; and larger-sized motors and generators.[12]

- Employment in Mexico's maquiladora industry fared better in 2003 (remaining steady from year-to-year) compared with other manufacturing employment in Mexico, including PITEX firms (which fell by 4.0 percent, year-to-year[13]). Since August 2003, however, growth in maquiladora industry employment has continued uninterrupted each month (through June 2004, the lastest month available). Nearly every industry in the maquiladora sector experienced employment growth during the period except textiles, apparel, leather goods and shoes, and toys and games.[14] This growth has tracked increased manufacturing activity in the United States. Employment in the maquiladora industry (not including PITEX operations) returned to 1.1 million as of June 2004, still shy of its peak of 1.3 million in October 2000.

- The ratio of Mexico's exports to the United States from maquiladora and PITEX companies to U.S. manufacturers' shipments remained fairly stable during 1999-2003, at about 3 percent, despite the decline in shipments during 2000-02. By contrast, the ratio of U.S. imports from China to U.S. manufacturers' shipments nearly doubled from 2.0 percent to 3.8 percent (see figure 2).

- Prospects for renewed growth in production-sharing trade reportedly have been buoyed by four reforms made effective in October 2003. First, the Economy Ministry reversed a maquiladora decree that had been announced in May 2003 that increased the industry's administrative burdens. A second decree, by the Finance Ministry, enabled maquiladoras to take a first-year, 100-percent tax write-off on new fixed assets. The Mexican Congress eliminated the payroll tax and revised the safe harbor rule, which lowered the tax from 6 percent to 3 percent and excluded inventory from coverage by the tax.[15]

Figure 2
U.S. manufacturers shipments 1999-2003: Ratio of Mexico's exports to the United States under the Maquiladora and PITEX Programs, and ratio of U.S imports from China, to U.S. manufacturers shipments; and value of U.S. manufacturers shipments



Source: Data on U.S. manufacturers' shipments and U.S. imports were compiled from official statistics of the U.S. Deparment of Commerce; and data on Mexico's exports to the United States were compiled from "World Trade Atlas: Mexico Edition, December 2003," which used data provided by INEGI, the statistical agency of the Government of Mexico.

Motor Vehicles and Parts

- All motor vehicle assembly plants in Mexico are registered under either PITEX or the Maquiladora Program.[16] Mexico's imports of components by PITEX and maquiladora plants classified in HS chapters 87 (transportation equipment) fell by $543 million (9 percent) to $5.6 billion in 2003 (table B-2).[17] Although Mexico's exports of motor vehicles to the United States from these production-sharing facilities fell by $1.0 billion (6 percent) to $17.7 billion in 2003 (table B-1), such exports to the U.S. market of certain motor vehicle parts grew by $398 million (3 percent) to $13.2 billion. Engines and sewn fabric and leather covers for motor vehicle seats accounted for much of this growth. Motor vehicles (not including independent parts production) reportedly accounted for 16 percent of Mexico's manufacturing output in 2003.[18]

- Vehicle demand in both the United States and Mexico has shifted away from the models produced in Mexico, leading to a decline in Mexico's exports to the United States. Overall, production of cars and light trucks in Mexico fell by 13 percent in quantity in 2003, whereas U.S. production of such vehicles slipped by just 1.6 percent.[19] With the North American market continuing to trend away from passenger automobiles and toward light trucks and sport utility vehicles in 2003, passenger automobiles made up just 37 percent of total U.S. vehicle production, but 49 percent of Mexican production.

Machinery and Electronic Products

- Mexico's imports of machinery and electronic products[20] from the United States in 2003 for use by production-sharing operations (Maquiladora and PITEX) fell by $1.6 billion (6 percent) in 2003 to $24.6 billion (table B-2).[21] Exports to the United States from these production-sharing operations fell by $296 million (0.5 percent) to $60.1 billion, and yet accounted for nearly all (96 percent) of Mexican exports of machinery and electronic products to the United States (table B-5).

- The sharpest decrease in Mexico's exports to the United States in this sector was in the category of radio transmission and reception apparatus and the North American production fell due largely to increased imports of cell phones and other communications equipment from China. The $1.07 billion drop in Mexico's exports in this category was nearly offset by growth in Mexico's exports of computers and components, which rose by $961 million (11.6 percent) to $9.3 billion (table B-1). U.S. manufacturers' shipments of computers and related equipment rose by $11.9 billion (14.6 percent) in 2003 to $93.4 billion.[22] This reflects the linkage between manufacturing in the United States and the demand for assembly services in Mexico.

- Although a number of companies in the machinery and electronic products sector shifted production from Mexico to China in 2003, more companies in the sector expanded production-sharing operations in Mexico or shifted assembly from the United States to Mexico.[23]

  - Leading examples of companies shifting at least some production from Mexico to China were Singapore-based Flextronics, Microsoft (whose assembly of its X-box video game console was transferred from Guadalajara), Japan-based TDK (which closed electronics plants in Ciudad Juarez and Chihuahua City), and Applica (which will scale back production for Black & Decker consumer electronics in Queretaro).

  - Examples of companies establishing new facilities in Mexico include Black & Decker (power tools in Reynosa), Frisa Wayman Gordon (aerospace subassemblies in Monterrey), Hitachi (plasma televisions in Tijuana), JVC (high-definition television in Tijuana), Kaufman Engineering (wiring harnesses for heating, ventilation, and air-conditioning equipment in Saltillo), LG Electronics (LDC display panels for flat-screen televisions in Reynosa, Maytag (subassemblies for appliances in Reynosa), Samsung Electronics (refrigerators and air conditioners in Queretaro), Sanyo (photovoltaic modules in Monterrey), Sharp (LCD flat-screen televisions in Tijuana), and Whirlpool (appliances and components in Reynosa).

  - Examples of companies shifting assembly from the United States to Mexico include Black & Decker (air compressors in Reynosa), General Electric Industrial Systems (electrical transformers in Monterrey), Kemet Electronics (capacitors in Victoria and Matamoros), France-based Labinal (wiring harnesses for aircraft in Chihuahua City), Littefuse (midget fuses in Piedras Negras), Maytag (refrigerators in Reynosa), Square D (electrical switches in Monterrey), and Tyco International (medical devices in Empalme, Sonora).

Apparel Assembly in Mexico, the Caribbean Basin, Sub-Saharan Africa, and the Andean Countries

U.S. apparel imports under production-sharing arrangements totaled an estimated $14.7 billion in 2003, accounting for nearly one-quarter of all U.S. apparel imports that year. Mexico and the countries of the Caribbean Basin region accounted for an estimated 95 percent of all U.S. production-sharing trade in the apparel sector, whereby U.S.-made fabric is used in foreign apparel sewing operations. Colombia accounted for another 1 percent. Although special tariff provisions permit apparel sewn from U.S. fabric to be imported free of duty from other Andean countries and from certain sub-Saharan Africa countries, almost all apparel imported from such countries is made from regional or third-country fabric. An estimated three-quarters of the apparel imported from Mexico and the Caribbean Basin region are made from U.S.-origin fabric or fabric knit or woven in the region from U.S.-origin yarn. See box 1 for a summary of changes in duty-free access to the U.S. market for apparel imports during 1999-2002.

Box 1
Summary of changes in duty-free access of the U.S. market for apparel imports during 1999-2002

Duty-free access to the U.S. market for apparel from preferred supplying countries has increased sharply over the past decade. When importing apparel into the United States, suppliers throughout the world have been able to claim duty-free treatment for the value of U.S.-cut fabric and other components used in their sewing operations, such as zippers and other fasteners, under HTS provision 9802.00.80 (formerly Tariff Schedules of the United States item 807.00).

Under the North American Free Trade Agreement (NAFTA), U.S. tariffs on apparel meeting the agreement's rules of origin were eliminated in five annual stages. By January 1, 1999, NAFTA allowed virtually all types of apparel made in Mexico from North American fabric using regionally spun yarn to enter the United States free of duty.

Anticipating an impending loss of market share for apparel plants in the Caribbean Basin region as U.S. retailers shifted their some of their sourcing to Mexico, governments and producers in the region began lobbying the U.S. Congress for legislation providing the Caribbean Basin region with "NAFTA" parity even as NAFTA was still being negotiated. Countries in the region finally receiving treatment that fell short of that goal through the Caribbean Basin Trade Partnershp Act (CBTPA), which entered into force on October 1, 2000. Unlike NAFTA, the CBTPA denies duty-free treatment for apparel made from regionally woven fabric or from regionally knit fabric made from regional yarn.

The Africa Growth and Opportunity Act (AGOA), which also entered into force on October 1, 2004, allows the duty-free entry of apparel from eligible countries even if the apparel is made from third-country fabric.

Effective November 1, 2002, the Andean Trade Promotion and Drug Eradication Act (ATPDEA) permitted apparel from the Andean region to enter the United States free of duty, provided the apparel is made from U.S. or regional fabric from U.S. or regional yarn.

Together, imports from Caribbean Basin and Andean countries and Mexico accounted for 28 percent of total U.S. imports of apparel in 2003, compared with 14 percent for China (table 1). Increased imports from the Caribbean Basin and Andean countries and decreased imports from Mexico resulted in imports from these three Western Hemisphere sources falling by a net of $94 million (0.5 percent) in 2003. By contrast, apparel imports from China rose by $1.6 billion (22.6 percent). Competition with imports from China and other Asian sources likely stifled growth in imports of apparel from Western Hemisphere sources.

Table 1
U.S. imports of apparel from leading sources, 1999-2003 and share of total in 2003

Source	1999	2000	2001	2002	2003	Share of total in 2003
	Million dollars					*Percent*
Caribbean Basin (CBTPA-eligible	8,818	9,616	9,524	9,508	9,653	15.3
China	5,570	6,192	6,416	7,070	8,667	13.8
Mexico	7,738	8,617	8,026	7,638	7,098	11.2
Sub-Saharan Africa (AGOA-eligible)	567	729	939	1,090	1,506	2.3
Andean region (ATPDEA)-eligible	708	831	754	751	1,052	1.6
Other countries	28,766	33,107	32,813	32,570	34,852	55.4
Total	52,367	59,092	58,472	58,627	62,828	100

Note.—Because of rounding, figures in this table may not add up to the totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Duty-free access to the U.S. market under the CBTPA continued to be a principal factor in the pattern of Caribbean Basin countries' trade with the United States in 2003. Apparel companies requiring items with high labor content and long production runs with few style changes are shifting assembly from Mexico to Central America and China. Concern among retailers and importers about transportation costs, just-in-time delivery, and flexible manufacturing to facilitate customization and quick response time enabled Caribbean Basin countries to maintain sales volumes in 2003 despite a loss of market share to Asia. These concerns also enabled Mexico to remain the second-largest, single-country supplier to the U.S. market.

U.S. imports of apparel rose by 7 percent in 2003 to $62.8 billion (see table 1). Nearly one-quarter of that total ($15.3 billion) entered free of duty under NAFTA, CBTPA, AGOA, and ATPDEA. Much of the apparel imported duty-free into the United States is made from U.S. yarn or U.S. fabric. The assembly of these apparel items is the second-largest U.S. production-sharing sector, exceeded only by the fully integrated North American automobile industry.

Apparel production-sharing relationships have evolved significantly from simple sewing facilities to more vertically integrated operations. Like the North American automobile industry, the U.S. apparel sector has rationalized production to maximize efficiency of its operations. Apparel assembly requires a lengthy production chain, beginning with the spinning of yarn or thread, followed by the weaving or knitting of fabric, finishing processes for the fabric, and cutting or knitting-to-shape of such fabric into components, all before assembly can begin. Table 2 indicates the value-added processes that are permitted, without losing duty-free access to the U.S. market, under NAFTA, AGOA (HTS heading 9819), CBTPA (heading 9820), and ATPDEA (heading 9821). By expanding preferential treatment under the Caribbean Basin Economic Recovery Act (CBERA) and the Andean Trade Preferences Act (ATPA) to include apparel sewn in the Caribbean Basin and Andean regions from fabrics and yarns made in the United States, the CBTPA and ATPDEA have encouraged increased exports by the U.S. textiles industry.

Table 2
Duty-free treatment for apparel imported under trade preferences programs

Stage of value-added/ apparel made from:	HTS Classification for stage of value added	NAFTA-Mexico[1]	CBTPA[2]	ATPDEA[3]	AGOA I[4]	AGOA II[4]	AGOA III[4]
		Receives duty-free treatment?					
U.S. fabric, U.S. yarn; cut in U.S.; any value added in U.S. only.	●9802.00.80.44 ●9802.00.90 (Mexico)	Yes	Yes	Yes	Yes	Yes	Yes
U.S. fabric, U.S. yarn; fabric is cut and finished in U.S.; strict limits on further value added in region.	●9802.00.90 (NAFTA-Mexico) ●9819.11.03 (AGOA) ●9820.11.03 (CBTPA) ●9821.11.01 (ATPDEA)	Yes	Yes	Yes	Yes	Yes	Yes
U.S. fabric, U.S. yarn;[5] fabric is finished in U.S.; and cut regionally Any value-added in U.S. only.	●NAFTA ●9819.11.06 (AGOA) ●9820.11.06 (CBTPA) ●9820.11.18 (CBTPA) ●9821.11.01 (ATPDEA)	Yes	Yes	Yes	Yes	Yes	Yes
U.S. fabric, U.S. yarn; fabric is finished in U.S. and cut *both* regionally *and* in U.S.; any value added in U.S. only.	●NAFTA ●9819.11.30 (AGOA) ●9820.11.24 (CBTPA) ●9821.11.01 (ATPDEA)	Yes	Yes	Yes	No	No	Yes
U.S. fabric, regional yarn; fabric is finished and cut in U.S.; any value added in U.S. only.	●NAFTA ●9821.11.01 (ATPDEA)	Yes	No	Yes	N/A[6]	N/A[6]	N/A[6]
Regionally-knit fabric, U.S. yarn; finished and cut regionally.	●NAFTA ●9819.11.09 (AGOA)[7] ●9820.11.09 (CBTPA)[7] ●9820.11.12 (CBTPA) ●9821.11.25 (ATPDEA)	Yes	Yes	Yes	No	Yes	Yes
Regionally-woven fabric, U.S. yarn; finished and cut regionally.	●NAFTA ●9819.11.09 (AGOA)[7] ●9821.11.25 (ATPDEA)	Yes	No	Yes	No	Yes	Yes
Regional fabric, regional yarn; finished and cut regionally.	●NAFTA ●9819.11.09 (AGOA)[7] ●9821.11.25 (ATPDEA)	Yes	No	Yes	No	Yes	Yes
Third-country fabric (third-country yarn) Regionally cut	●NAFTA ●9819.11.12 (AGOA) (LDDC)[8] ●9819.11.21 (AGOA) (TPL)[9] ●9819.11.24 (AGOA) (Short Supply)[10] ●9820.11.24 (CBTPA) (TPL)[9] ●9820.11.27 (CBTPA) (Short Supply)[10] ●9821.11.07 (ATPDEA) (TPL)[9] ●9821.11.10 (ATPDEA) (Short Supply)[10]	Yes	Yes	Yes	No	No	Yes

Table 2--*Continued*
Duty-free treatment for apparel imported under trade preferences programs

Stage of value-added apparel made from:	HTS Classification for stage of value added	NAFTA-Mexico[1]	CBTPA[2]	ATPDEA[3]	AGOA I[4]	AGOA II[4]	AGOA III[4]
		Receives duty-free treatment?					
Handloomed, handmade, or folklore items of regional origin	●NAFTA ●9819.11.27 (AGOA) ●9820.11.30 (CBTPA) ●9821.11.16 (ATPDEA)	Yes	Yes	Yes	Yes	Yes	Yes
Regional fabric or components of chief value of llama, alpaca or vicuna.	●9821.11.04 (ATPDEA)	N/A	N/A	Yes	N/A	N/A	N/A

[1] This column applies to imports of apparel from Mexico under North American Free Trade Agreement (NAFTA).

[2] The Caribbean Basin Economic Recovery Act, parent to the Caribbean Basin Trade Partnership Act (CBTPA), did not permit duty-free treatment for any apparel.

[3] The Andean Trade Preference Act, predecessor to the Andean Trade Promotion and Drug Eradication Act (ATPDEA), did not permit duty-free treatment for any apparel articles.

[4] The African Growth & Opportunity Act (AGOA).

[5] These articles must be sewn using only U.S. thread

[6] For AGOA-eligible countries, the likelihood of supplying regional yarns to the United States for weaving into fabric for apparel that is re-exported to the region for assembly is very small. Many sub-Saharan countries do not have the capacity to spin cotton or man-made fibers into yarns at competitive prices.

[7] Imports of apparel under these provisions are limited to an aggregate quantity not to exceed a certain percentage of the average square meters equivalent of all apparel articles imported into the United States in the preceding 12 months for which data are available. These quantities are recalculated annually. The percentage share allowed duty-free treatment increases in equal annual increments. Articles entered in excess of these quantities are subject to the otherwise applicable tariffs.

[8] Under this provision, AGOA member countries designated as lesser-developed beneficiary sub-Saharan countries may export, duty-free, a certain amount of apparel, regardless of the origin of the fabric or yarn used to make such articles. Articles entering under this provision shall be counted toward the limit set forth in note 2 to this table, and are not to exceed an applicable percentage of the aggregate square meters equivalent of all apparel articles imported into the United States in the preceding 12 months for which data are available.

[9] TPLs stand for tariff preference levels. They provide duty preferences for partners in free trade agreements or beneficiaries of preferential programs for specified quantities of "nonoriginating goods," up to a certain level. In the case of such partners or beneficiaries, certain apparel articles containing third-country yarns and/or fabrics can enter the United States duty-free under TPL provisions. Articles exceeding the designated level are subject to the otherwise applicable tariffs.

[10] The President has the authority to determine that yarn or fabric cannot be supplied by the U.S. industry in commercial quantities in a timely manner, and to extend preferential treatment to eligible apparel from such yarn or fabric.

Highlights of Developments in 2003

- Mexico and the Caribbean Basin countries[24] were the leading apparel production-sharing partners for the United States in 2003. U.S. imports of apparel under the special production-sharing provisions of HTS headings 9819, 9820 and 9821[25] totaled $8.2 billion in 2003. An additional $3.7 billion in apparel was imported into the United States under HTS heading 9802.00.80.[26] The share of total U.S. apparel imports accounted for by imports under production-sharing provisions 9819 and 9820 remained unchanged in 2003 as 2002, at 12 percent. Taking into account imports under the special provision 9821, the share of total U.S. apparel imports entering under production-sharing preference programs in 2003 was 13 percent.

- Apparel containing qualifying U.S.-origin fabric and imported under the production-sharing provisions of HTS chapter 98 accounted for 67 percent of apparel imported into the United States from the Carribean Basin in 2003 (table 3, columns 1, 2, and 5); 0.5 percent from AGOA-eligible countries (table 4, columns 1 and 6); and 11 percent from the Andean countries (table 5, columns 1, 2, and 7).

- Apparel made from qualifying regionally knit or woven fabric using U.S. or regionally formed yarn and imported under HTS chapter 98 accounted for 8 percent of apparel imported into the United States from the Carribean Basin in 2003 (table 3, data column 3); 15 percent from sub-Saharan African countries (table 4, column 2); and 66 percent from the Andean countries (see table 5, columns 3 and 4).

- Piracy and illegal transshipment of apparel continue have serious implications for the United States and its production-sharing partners. During May 2002 to May 2003, the U.S. Customs and Border Protection Service seized over $8 million of pirated apparel that was in violation of intellectual property rights laws regarding copyrights.[27] China was the country of origin for 35 percent of the garments seized for copyright violations.

- U.S. apparel retailers increasingly are turning to suppliers that are vertically integrated, or have a proven, independently developed supply chain, and offer "one-stop shopping." Services offered by these "full-package" producers include local fabric-sourcing; cutting, assembly, and finishing; packaging; quality control; and finance, trade, and logistics arrangements.[28] After the elimination of import quotas in 2005, a country's or a region's competitiveness in apparel assembly will depend heavily on the degree or extent of their industry's ability to offer full-package services. As a result, many production-sharing partners in Mexico and the Caribbean Basin are striving to upgrade their operations to qualify as full-package suppliers.

Apparel Assembly in Mexico

- U.S. imports of apparel from Mexico fell by 7 percent in 2003, to $7.1 billion, representing a steady decline from a peak of $8.6 billion in 2000. Rising labor compensation in Mexico has led some U.S. customers to shift sourcing of apparel to lower labor-cost countries in Central America and Asia. For remaining customers, however, Mexico offers lower transportation costs, quicker response time, and a well-developed fabric manufacturing industry to offset the disadvantage of higher labor costs.

Table 3
U.S. imports of apparel from Caribbean Basin Trade Partnership Act (CBTPA)-eligible countries under CBTPA and production-sharing provisions, 2003

(*Million dollars*)

Source	U.S.-cut fabrics[1]	Regionally cut fabrics[2]	Regionally knit fabrics[3]	Total[4]	Other U.S.-cut fabric partially dutiable under 9802.00.80[5]	Entered at NTR duty rates	Grand total
Honduras	915.5	649.2	357.6	1,951.9	171.7	379.1	2,502.7
Dominican Republic	859.4	746.8	38.9	1,720.2	221.8	181.9	2,123.9
Guatemala	55.2	375.6	161.4	596.9	191.5	973.4	1,761.8
El Salvador	360.7	536.5	170.9	1,105.6	285.2	329.1	1,719.9
Costa Rica	349.1	58.4	1.0	411.7	113.1	64.4	589.2
Nicaragua	70.6[6]	76.7	1.1	149.2	8.8	326.0	484.0
Haiti	140.0	49.9	9.2	199.1	53.2	38.1	290.4
Jamaica	89.3	2.3	0	91.6	1.8	11.8	105.2
Other	19.3	1.8	0.1	21.5	3.9	8.5	33.9
Total	2,859.1	2,497.2	740.2	6,247.7	1,051.0	2,312.3	9,611.0

[1] Apparel assembled in CBTPA countries from fabrics made and cut in the United States of U.S. yarns enter free of duty under HTS provision 9802.00.80.44, 9820.11.03, and 9820.11.15.

[2] This category is comprised chiefly of apparel regionally-cut and assembled from U.S. fabric formed from U.S. yarn. The fabric is finished in the United States, but cut regionally. Such apparel must be sewn with U.S. thread to qualify for duty-free entry under HTS 9802.11.06 and 9820.11.18. The category also includes apparel sewn from both U.S.-cut and regionally-cut fabric, provided the fabric is formed in the United States from U.S. yarn. Such apparel enters under HTS provision 9820.11.33.

[3] This category includes imports under HTS provision 9820.11.09 and 9820.11.12.

[4] Also includes imports of apparel made in CBERA countries from yarns or fabrics that are not produced in the United States in commercial quantities.

[5] Includes apparel imported under provisions 9802.00.80.15 and 9802.00.80.68. The latter provides a duty exemption for U.S. components returned to the United States in the form of assembled goods. In general, the duty is assessed on the value added offshore. The fabric for making the apparel components can be of either U.S. or foreign origin as long as the fabric is cut in the United States and exported ready for assembly. Apparel continuing to enter under this provision is likely made from foreign fabric that is cut in the United States or from U.S. fabric that is formed from foreign yarn.

[6] Does not include any apparel entering the United States duty-free under 9820.11.15 (i.e., no brassieres).

Note.—Because of rounding, figures in this table may not add up to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce, Office of Textiles and Apparel.

Table 4
Apparel: U.S. imports from African Growth and Opportunity Act (AGOA)-eligible countries entered duty-free under AGOA, at reduced duties under HTS subheading 9802.00.8068, and at normal trade relations (NTR) duty rates, 2003

(Million dollars)

	Duty-free under the AGOA, assembled from:							
Source[1]	U.S. fabrics[2]	Regional fabrics[3]	Third-country fabrics[4]	Other[5]	Total	Reduced duties under "807"[6]	NTR rates of duty	Total
Lesotho	0	0	372.6	0	372.6	0.08	20.0	392.7
Mauritius	0.9	102.7	0	31.3	135.0	0.07	134.0	269.0
South Africa	2.1	121.1	0	3.4	127.0	0	105.8	232.3
Madagascar	0.3	0.1	171.9	13.8	186.1	0	0.1	196.0
Kenya	0	0	176.1	0	176.2	0.17	11.5	187.7
Swaziland	0.1	0	127.0	0	127.0	0.2	13.6	140.7
Namibia	0	0	32.1	0	32.1	0	9.8	42.0
Malawi	0	0	22.4	0	22.4	0	0.8	23.1
Other	3.8	2.4	12.3	0.6	19.1	0	1.9	21.0
Total	7.2	226.4	914.3	49.1	1,196.9	0.38	306.4	1,504.5

[1] Côte d'Ivoire, the Gambia, the Democratic Republic of the Congo (DROC),and Sierra Leone were added to the list of countries designated by the President as eligible for benefits under AGOA in late 2002. In Dec. 2003, the President designated Angola as a lesser-developed beneficiary sub-Saharan country. The President also terminated the benefits of Eritrea and the Central African Republic in Dec. 2003, deleting them from the list of lesser-developed beneficiary sub-Saharan countries.

[2] Data in this column are for entries under two HTS provision: (1) 9819.11.03–apparel assembled in AGOA countries from fabrics formed and cut in the United States of U.S. yarns that would have otherwise qualified for entry under subheading 9802.00.80.42 but for the fact that the apparel, after assembly, underwent further processing (e.g. embroidery or stone-washing); and (2) 9819.11.06–apparel assembled from fabrics formed in the United States but cut in certain AGOA countries, and sewn together with U.S. thread. There were no entries in 2003 under HTS subheading 9802.00.80.42, which provides duty-free entry for apparel assembled in AGOA countries from fabrics made and cut in the United States of U.S. yarns and not further processed..

[3] Includes apparel imported from AGOA countries free of duty under HTS subheadings 9819.11.09, limited quantities of apparel knit-to-shape in an AGOA country from U.S. yarns, and knit apparel cut and assembled in AGOA countries from fabrics formed in such countries of U.S. yarns or from fabrics formed in such countries or the United States of U.S. yarns.

[4] Includes entries under HTS subheading 9819.11.12, permitting duty-free treatment for limited quantities of apparel made in lesser-developed AGOA countries, regardless of the country of origin of the fabric or the yarn used to make such garments.

[5] Includes apparel imported from AGOA countries free of duty under four HTS subheadings: (1) 9819.11.15–cashmere sweaters knit-to-shape in AGOA countries; (2) 9819.11.18–wool sweaters knit-to-shape in AGOA countries; (3) 9819.11.21 and 9819.11.24–apparel assembled from fabrics or yarn designated by the President as not available in commercial quantities in the United States; and (4) 9819.11.27-certified hand-loomed, handmade and folklore articles.

[6] Includes apparel entered under HTS subheading 9802.00.80.68. This subheading provides a duty exemption for U.S. components returned to the United States in the form of finished goods. In general, the duty is assessed on the value added offshore. The fabric for making the apparel components can be of either U.S. or foreign origin as long as the fabric is cut in the United States and exported ready for assembly.

Note.— Because of rounding, figures in this table may not add up to totals.

Source: Compiled from official statistics of the U.S. Department of Commerce, Office of Textiles and Apparel.

Table 5
Apparel: U.S. imports from Andrean Trade Promotion and Drug Eradication Act (ATPDEA)-eligible countries entered duty-free under ATPDEA, at reduced duties under HTS subheading 9802.00.8068, and at normal trade relations (NTR) duty rates, 2003

(Million dollars)

	Duty-free under the ATPDEA, assembled from:								
Source	U.S.-formed and finished fabric from U.S. or regional yarn	Brassieres with at least 75 percent U.S. fabric[1]	Regional fabrics using regional yarns of llama, alpaca or vicuna[2]	Other regional fabrics of U.S. or regional yarns[3]	Other[4]	Total[5]	Reduced duties under "807"[6]	NTR rates of duty	Total
Peru	2.7	([7])	7.5	442.0	0.4	452.6	([8])	51.8	504.4
Colombia	47.3	2.5	9.1	195.0	7.4	261.3	61.7	174.8	497.5
Bolivia	0.7	0	1.4	27.4	0.9	30.5	0.9	2.6	34.0
Ecuador	1.8	0	0.5	9.3	0.1	11.8	0.7	2.6	15.4
Total	52.6	2.6	18.6	673.1	8.8	756.3	63.3	232.0	1,051.3

[1] Indicates articles entered under HTS provision 9821.11.19, which affords duty-free treatment to brassieres cut and assembled in the United States and/or an ATPDEA country. As a result, this category may include some fabrics with regional content. However, the regional content of any such fabric used to assemble these brassieres is limited to 25 percent of the aggregate declared customs value from the preceding 12-month period of any such articles eligible under this subheading and entered by a producer or entity under this subheading.

[2] Indicates articles of chief value of llama, alpaca, or vicuña, imported under HTS 9821.11.04.

[3] Includes apparel assembled from ATPDEA fabric from U.S. or ATPDEA yarn, imported under HTS 9821.00.25. Quantitative limits apply.

[4] Includes apparel imported from ATPDEA countries free of duty under HTS subheading 9821.11.13–combinations of 9821.11.01 through 9821.11.10, inclusive, and 9821.11.16–certified hand-loomed, handmade, and folklore articles.

[5] (1)Includes apparel imported from ATPDEA countries free of duty under HTS subheadings 9821.11.07 and 9821.11.10--assembled from fabrics or yarn designated by the President as not available in commercial quantities in the United States.

[6] Includes apparel entered under HTS subheading 9802.00.80.68. This subheading provides a duty exemption for U.S. components returned to the United States in the form of finished goods. In general, the duty is assessed on the value added offshore. The fabric for making the apparel components can be of either U.S. or foreign origin as long as the fabric is cut in the United States and exported ready for assembly.

[7] Less than $50,000.

[8] Less than $10,000.

Note.—Because of rounding, figures in this table may not add up to totals.

Source: Compiled from official statistics of the U.S. Department of Commerce, Office of Textiles and Apparel.

- Production of textiles, apparel, and leather goods recorded the largest decrease among all of Mexico's manufacturing sectors in 2003, falling by 8.9 percent.[29] This contraction of output occurred despite a 6.8-percent reduction in unit costs per man-hour in this category in 2003.[30] Although improvements in unit costs typically would attract more foreign direct investment, anticipated cost increases for labor and energy have dampened Mexico's standing as a preferred production-sharing partner for the U.S. apparel industry.

- Concern over the continued shift of apparel production from Mexico to the Caribbean Basin is not reflected in the trends in trade in the woven cotton trousers category, which accounted for 36 percent of U.S. apparel imports from Mexico but just 16 percent from the Caribbean Basin region (figures 3 and 4). Denim jeans accounted for two-thirds of the woven cotton trousers entering from Mexico, but only 15 percent of such trousers from the Caribbean Basin region, as trousers producers in the region have focused on casual slacks. By contrast, U.S. imports of apparel from the Caribbean Basin region is highly concentrated in knit cotton apparel (especially sweaters, golf shirts, t-shirts, dress shirts, trousers, briefs, and socks). Those categories accounted for 45 percent of total U.S. apparel imports from Caribbean Basin countries in 2003 compared with just 17 percent from Mexico (figures 3 and 4).

- The data indicate that although there has been some shift in the assembly of knit cotton shirts from Mexico to the Caribbean Basin region, production of blue jeans largely has remained in Mexico because of the following conditions:

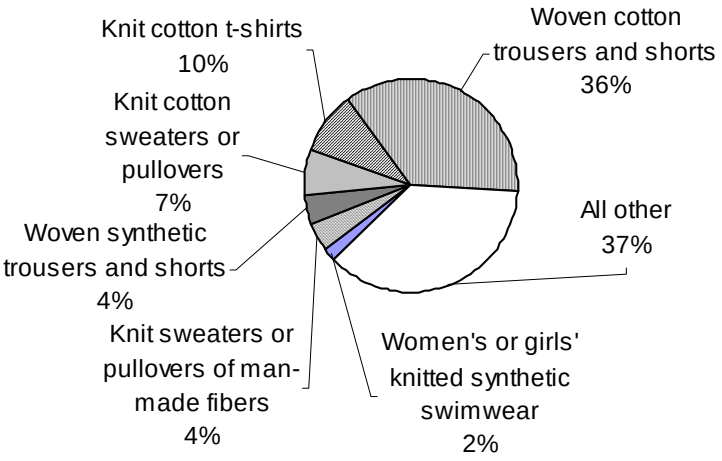
  - Mexico has a well-developed supply chain for the production of denim, using both Mexican and U.S. cotton.

  - Mexican textile mills, particularly in Torreon, Hidalgo, and Puebla, have mastered the technology for weaving denim-lycra blend fabrics from yarns manufactured in Mexico.

  - Jeans imported into the United States from Mexico that are made from fabric woven in Mexico enter free of duty under NAFTA. Comparable jeans entering from the Caribbean Basin made from regionally woven fabric are fully dutiable, because only apparel made from regionally knit fabric is eligible for duty-free entry under the CBTPA (see table 2).

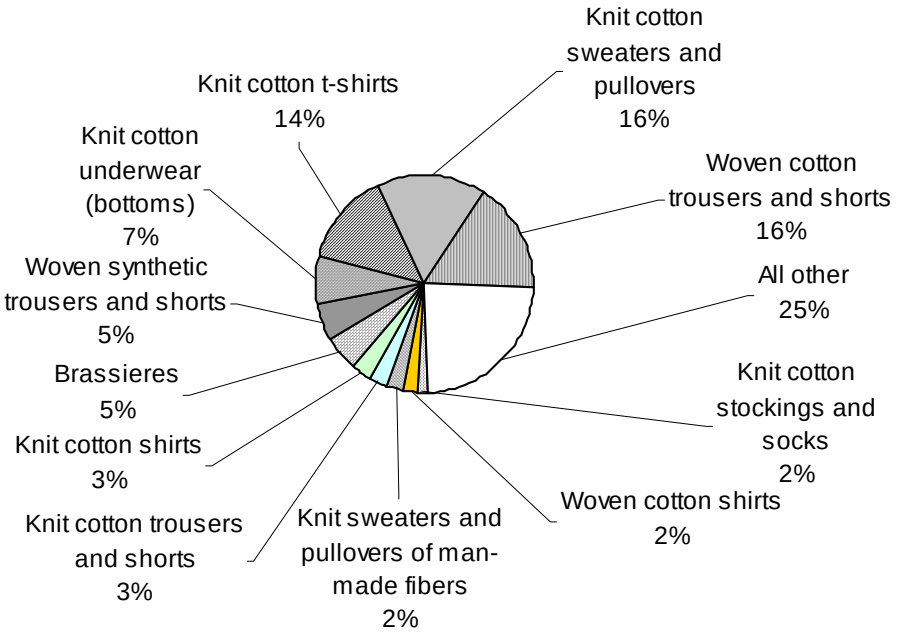
  - Differentiation in fabric finishes affects tariff treatment and favors Mexican suppliers. Jeans assemblers in the Caribbean Basin region must use fabric that has been finished in the United States to qualify for duty-free entry under the CBTPA. No such restriction applies to jeans from Mexico, allowing jeans assemblers there to use locally finished denim and, therefore, respond more quickly to orders from customers than suppliers in the Caribbean Basin region.

Figure 3
Composition of apparel imports from Mexico in 2003



Source: Compiled from official statistics of the U.S. Department of Commerce, Office of Textiles and Apparel.

Figure 4
Composition of apparel imports from the Caribbean Basin in 2003



Source: Compiled from official statistics of the U.S. Department of Commerce, Office of Textiles and Apparel.

- So far, there has been little shift from Mexico to the Caribbean Basin region in the production of apparel using fabric produced from man-made fibers, reflecting the greater diversification of the textile and apparel industry in Mexico and its superior technology and capacity for producing fibers and fabric.

- By contrast, a relatively small number of textile mills supply regionally produced fabric to the Caribbean Basin apparel industry. Few of these mills have the capacity to produce woven fabric.[31]

Apparel Assembly in the Caribbean Basin

- The pattern of U.S. apparel trade with the Carribean Basin region began to change significantly with the implementation of the CBTPA in October 2000.[32] Enacted as Title II of the Trade and Development Act of 2000, the CBTPA, among other things, grants duty-free and quota-free entry to imports of qualifying apparel articles assembled in Caribbean Basin countries from fabrics made in the United States of U.S. yarns, whether the fabrics were cut to shape in the United States or in Caribbean Basin countries.[33] In 2003, uncut U.S. fabrics continued to be sent to CBTPA member countries for cutting and assembly into qualifying garments, evidenced by the fact that U.S. fabric exports to the region increased in value by 7 percent, from $1.7 billion to $1.8 billion.

- U.S. imports of apparel from CBTPA-eligible countries grew in 2003 by 5.5 percent in quantity terms and by 1.5 percent in value to $9.6 billion (table 6).

- The five-largest Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua) supplied 73 percent ($7.1 billion) of all U.S. imports of apparel from CBTPA-eligible countries in 2003 (see table 6). Honduras was the leading CBTPA supplier, accounting for 26 percent of the group total in 2003, followed by the Dominican Republic (22 percent), Guatemala and El Salvador (18 percent each), and Costa Rica (6 percent).

- The Caribbean Basin countries constitute the second-largest U.S. export market for textiles after Mexico. The United States shipped $4.5 billion in U.S. yarns, fabrics, and cut pieces to the region in 2003, comprising 44 percent of total U.S. textile exports for that year. The Dominican Republic and the Central America Free Trade Agreement (CAFTA) countries (Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua) accounted for 93 percent of U.S. textile exports to the Caribbean Basin region in 2003.[34]

- The apparel industries in Costa Rica, the Dominican Republic, Haiti, Honduras, and Jamaica are the most integrated with the U.S. textile industry, with 88 percent of U.S. apparel imports from these countries manufactured from U.S. fabric or yarn and entering duty-free under the CBTPA or at reduced duties under HTS provision 9802.00.80 in 2003 (see table 6). By contrast, 58 percent of apparel from Guatemala and Nicaragua used third-country (usually Asian) fabric.

Table 6
U.S. imports of apparel from Caribbean Basin Trade Partnership Act (CBTPA)-eligible countries during 1999-2003, and share entering under CBTPA preferences and/or production-sharing provisions (HTS 9802.00.8015 and 9802.00.8068[1]), 2003

Source	1999	2000	2001	2002	2003	Entry under CBTPA and/or Production Sharing in 2003: Value	Entry under CBTPA and/or Production Sharing in 2003: Share of country total
	Million square meter equivalents						*Percent*
Honduras	943	1,028	1,020	1,090	1,152	1,023	89
El Salvador	602	719	725	777	856	690	81
Dominican Republic	858	837	753	730	750	697	93
Guatemala	305	360	388	415	445	204	46
Costa Rica	346	350	350	362	332	308	93
Nicaragua	66	83	96	120	150	53	35
Haiti	127	125	109	109	137	123	90
Jamaica	148	126	102	84	72	69	96
Other CBTPA	21	23	29	27	26	20	77
Total CBTPA	3,416	3,651	3,570	3,714	3,920	3,187	81
	Million dollars						*Percent*
Honduras	2,158	2,323	2,344	2,440	2,503	2,124	85
El Salvador	1,329	1,583	1,612	1,675	1,720	1,391	81
Dominican Republic	2,337	2,425	2,252	2,162	2,124	1,942	91
Guatemala	1,233	1,487	1,604	1,659	1,762	788	45
Costa Rica	819	819	749	725	589	525	89
Nicaragua	277	336	374	433	484	158	33
Haiti.	249	251	216	217	290	252	87
Jamaica	345	268	182	124	105	94	90
Other CBTPA	56	50	41	37	34	25	74
Total CBTPA	8,803	9,542	9,373	9,472	9,611	7,299	76

[1] The comparable classification for articles imported under current HTS subheading 9802.00.80.68 was 9802.00.80.65 in 1999 and 9802.00.80.66 during 2000-2002.

Source: Compiled from official statistics of the U.S. Department of Commerce, Office of Textiles and Apparel. The data cover apparel subject to the former Multifiber Arrangement (superceded by the WTO Agreement on Textiles and Clothing), which accounted for 99 percent of total U.S. apparel imports from CBTPA countries in 2002.

- In Honduras, the primary Caribbean Basin production-sharing partner of the United States for apparel, the manufacture of goods covered by production-sharing provisions reached 6.5 percent of Honduran gross domestic product in 2003.[35] Most of the Honduran apparel assembly operations reportedly have adopted the full-package model, facilitating just-in-time supply and quick production turnaround.[36]

- Rising labor compensation in Honduras led Montreal-based Gildan Activewear Inc. to close one of its three t-shirt production facilities in Honduras in mid-2004. The company reportedly is diverting two-thirds of the closed plant's production to Haiti and one-third to Nicaragua in conjunction with opening a textile manufacturing facility in the Dominican Republic intended to supply fabric for its sewing operations in Haiti and Nicaragua.[37]

Apparel Assembly in Sub-Saharan Africa

- U.S. imports of apparel from the AGOA-eligible countries of Sub-Saharan Africa grew by 37 percent in value in 2003, to $1.5 billion (table 7). Apparel accounted for 11 percent of total U.S. imports from these countries in 2003. Crude petroleum was the leading import category.

- Apparel made from third-country fabric ($914 million) accounted for 76 percent of U.S. apparel imports under AGOA in 2003 (see table 4), whereas apparel made from U.S. fabric ($7.6 million)[38] accounted for 0.5 percent of such imports. Apparel entering the United States duty-free under AGOA ($1.2 billion) accounted for 80 percent of total imports of apparel from AGOA-eligible countries.

- Lesotho remained the leading supplier of U.S. imports of apparel from AGOA-eligible countries, with 26 percent of the group total in 2003, followed by Mauritius (18 percent), South Africa (16 percent), and Madagascar (13 percent) (see table 7).

- Under AGOA, designated less-developed member countries were afforded duty-free treatment for apparel made from third-country fabric. AGOA II expanded the list of eligible countries to include Botwana and Nimibia. As of November 1, 2004, 24 of the 37 AGOA beneficiaries are eligible for this program. On July 13, 2004, AGOA III (H.R. 4103) was signed into law, extending AGOA trade benefits until 2015 and extending by 3 years the special rule allowing use of third-country fabric until September 30, 2007 (see table 2).

- AGOA III modified the rules of origin to allow the use of foreign-origin components such as collars, cuffs, drawstrings, waistbands, shoulder pads, patches, straps using elastic, and attached belts. Also, the current de minimis level for foreign-origin yarns, enabling greater use of foreign yarns in the production of regional fabric without disqualifying the resulting apparel from duty-free entry into the United States, was increased from 7 percent to 10 percent of the total weight of the article.

Apparel Assembly in the Andean Countries

- The ATPDEA is an expansion of the Andean Trade Preference Act, in place since 1991. The 2002 renewal of the act extended benefits to the textiles and apparel industries in Bolivia, Colombia, Ecuador and Peru. Under the ATPDEA, any apparel assembled in the Andean region from U.S. fabric or fabric components, or components knit-to-shape in the United States, was granted duty-free treatment in unlimited quantities. Apparel assembled from fabric produced in the Andean region or components knit-to-shape in the region became eligible for duty-free treatment up to a cap of 2 percent of total U.S. apparel imports during the preceding 12-month period beginning October 1,2002, with the cap increasing by in equal increments in each 1-year period to a maximum of 5 percent for the period beginning October 1, 2005.[39]

- The ATPDEA affords greater flexibility to apparel producers in beneficiary countries than the CBTPA does to beneficiaries of that program by permitting the use of fabric that is woven in the region. Under the CBTPA, use of regionally woven fabric would

disqualify the apparel from duty-free entry into the United States. Key developments in imports of apparel from Andean countries in 2003 include:

- U.S. imports of textiles and apparel from the Andean region grew by 39 percent to $1.1 billion in 2003, the first full year of eligibility for duty-free treatment under the ATPDEA (table 8). Without such preferences for most of the preceding year, imports fell by 0.5 percent during 2001-02. Andean countries accounted for only 1.6 percent of U.S. apparel imports in 2003 (see table 1).

Table 7
Textiles and apparel: U.S. imports from sub-Saharan Africa countries since the implementation of AGOA, by quantity and value, 2001-2003 and percentage change in 2003 from 2002

Source	2001	2002	2003	Percentage change in 2003 from 2002
	Million square meter equivalents			*Percent*
Lesotho	51	84	104	24
Mauritius	41	47	45	-4
South Africa	59	75	86	15
Madagascar	37	22	53	141
Kenya	19	37	46	24
Swaziland	11	25	49	96
Namibia	([1])	1	11	1,000
Malawi	4	3	7	133
Other	12	10	17	70
Total	234	304	418	38
	Million dollars			*Percent*
Lesotho	215	321	393	22
Mauritius	238	255	269	5
South Africa	195	200	253	27
Madagascar	178	89	196	120
Kenya	65	126	188	49
Swaziland	48	89	141	58
Namibia	([2])	7	42	500
Malawi	11	11	23	109
Other	2	22	30	36
Total	975	1,120	1,535	37

[1] 80,000 square meters.
[2] $100,000.

Source: Compiled from official statistics of the U.S. Department of Commerce, Office of Textiles and Apparel.

Table 8
Textiles and apparel: U.S. imports from eligible countries under the Andean Trade Promotion and Drug Eradication Act (ATPEA), quantity and value, 2001-2003 and percent change in 2003 from 2002

Source	Quantity			Percentage change in 2003 from 2002
	2001	2002	2003	
	Million square meter equivalents			*Percent*
Colombia	96.5	109.6	149.6	36
Peru	58.3	63.4	70.8	12
Ecuador	18.0	14.9	19.0	28
Bolivia	3.5	5.3	7.1	27
Total	176.3	193.3	246.7	28
	Million dollars			*Value*
Colombia	376.3	369.5	538.9	46
Peru	383.8	395.3	516.1	31
Ecuador	24.7	15.6	18.1	16
Bolivia	18.4	18.7	34.3	83
Total	803.2	799.4	1,107.4	39

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

Source: Compiled from official statistics of the U.S. Department of Commerce, Office of Textiles and Apparel.

- Peru and Colombia accounted for nearly all imports of apparel from the Andean region in 2003, with Peru supplying 48 percent and Colombia, 47 percent (table 5). Colombia's geographic position results in its apparel industry comprising a mixture of maquiladora-type operations on the northern coast, which rely heavily on U.S. and non-Andean sources for fabric, and more vertically integrated operations in the valleys of the mountainous interior of the country, which use regionally produced fabric. Apparel made from U.S. fabric accounted for 22 percent of total U.S. apparel imports from Colombia in 2003, but only 0.5 percent of apparel imports from Peru. Apparel made from third-country fabric accounted for 37 percent of U.S. apparel imports from Colombia and 10 percent from Peru.

- The Peruvian textile and apparel sector is more of an integrated national industry, using fibers and fabrics from locally produced cotton and wool. Apparel made from regional fabric accounted for 89 percent of U.S. imports of apparel from Peru and 41 percent from Colombia (see table 5).

2005 Textile Import Quota Eliminations

U.S. textile import quotas under the Agreement on Textiles and Clothing were lifted January 1, 2005. The elimination of quotas is anticipated to have significant, although perhaps not immediate, effects on the pattern of U.S. production-sharing in textiles and apparel. A representative of the U.S. apparel industry anticipated that a large-scale Chinese takeover of the global apparel industry is not likely within the first year following the end of textile quotas. This industry source notes that apparel companies satisfied with their current "sourcing matrix" are less likely to make immediate changes, especially without evidence that the absence of textile quotas will result in lower production costs. This source pointed out that even 2 or 3 years in the future, companies may still consider other Asian countries for assembly operations.[40]

An official of a major Guatemalan apparel supplier confirmed this "wait and see" approach to sourcing decisions in a postquota world, noting that sourcing patterns will be based not only on cost but also on factors such as the ability to supply specialized products (a strong advantage of China). Although the Central American apparel industry recognizes the "overwhelming strength" of China, high expectations stemming from CAFTA (rather than concern about China) have become the primary focus for apparel manufacturers and companies in this region.[41] The future pattern of U.S. production-sharing, after quotas are no longer a factor, is reported to rest largely on turnaround time, shipping expense, cost of inputs (labor and fabric for apparel), product quality, and the ability to supply value-added services.[42]

Some U.S. companies reportedly are poised to pull out of regions where assembly operations have emerged primarily because quotas on imports from traditional suppliers have been filled. The extent to which tight quotas on imports from Asia are responsible for apparel assembly in the Caribbean Basin is an open question.

China's December 2001 accession agreement to the World Trade Organization (WTO) included import safeguards that can cushion the effects of the elimination of quotas. If the U.S. Department of Commerce determines that a segment of the U.S. apparel industry is being injured or threatened with injury because of the elimination of quotas on imports of equivalent apparel articles from China, the annual growth in imports of those articles can be limited to 7.5 percent (6 percent for wool items). This safeguard provision expires after 3 years, meaning that after January 1, 2009, imports from China will be subject to the same safeguard measures as products from other WTO members. The Committee for the Implementation of Textile Agreements (CITA) granted three safeguard-action requests in December of 2003 based on market disruption caused by sharply increased imports from China in three categories for which the quotas already had been removed.[43]

CITA imposed safeguards on imports of socks from China effective October 29, 2004, basing its decision both on the threat of disruption and actual market disruption.[44] More recently, CITA has accepted several petitions for safeguard relief based on the *threat* of market disruption from pending elimination of quotas. These petitions covered underwear and trousers of all materials, and shirts and blouses of cotton and/or manmade fiber, except woven blouses.[45] Additionally, U.S. industry groups have filed new, threat-based petitions to extend existing growth limits on imports of Chinese knit fabric, brassieres, and dressing gowns, which were implemented on December 29, 2003 and are slated to expire in December of 2004.[46]

The removal of textile quotas is of particular concern to Central American governments, who find their position as a significant U.S. partner for the assembly of apparel uncertain in a postquota world. Central American industry heads have indicated that competition from China as both a producer of fabric and a site for apparel assembly threatens to undermine the advantage of the Caribbean Basin even though several Caribbean Basin countries have duty-free status under the CBTPA. The rules of origin under the Central American and Dominican Republic Free Trade Agreements, assuming Congressional approval of these agreements, may have a significant effect on the ability of the regional apparel industry to survive in the postquota environment.■

ENDNOTES

1. See Jesus Canas, Roberto Coronado, and Bill Gilmer, "Maquiladora Downturn: Structural Change or Cyclical Factors?" *Business Frontier*, Federal Reserve Bank of Dallas, El Paso Branch, No. 2, 2004, chart 1, p. 3.
2 See William Chadwick, Jr., "Global Trends in the Information Technology Outsourcing Services Market," *Industry Trade and Technology Review*, USITC publication No. 3661, Nov. 2003, pp. 1-4.
3. See e.g., Ralph Watkins, "Production Sharing Update: Developments in 2002," *Industry Trade and Technology Review*, USITC publication No. 3661, Nov. 2003, pp. 11-30, app. B, and app. C; and Ralph Watkins, "Production Sharing Update: Developments in 2001," *Industry Trade and Technology Review*, USITC publication No. 3534; July 2002, pp. 27-42, pp., app. B, and app. C; available at *http://www.usitc.gov/ind_econ_ana/research_ana/ier_ittr/ittr/index.htm.*
4. As Caribbean Basin and Andean apparel producers become more competitive with suppliers in Asia, opportunities are increased for the U.S. textiles industry increase its sales of fabric and yarn to regional apparel producers. See USITC, *Textiles and Apparel: Assessment of the Competitiveness of Certain Foreign Suppliers to the U.S. Market*, Inv. No. 332-448, USITC publication. No. 3671, Jan. 2004, app. I and J.
5. Data shown in app. B of this publication are from "World Trade Atlas: Mexico Edition, December 2003," which used data provided by Instituto Nacional de Estadística Geografia e Informática (INEGI), the statistical agency of the Government of Mexico.
6. Companies in Mexico can operate under the Maquiladora Program or the Program for Temporary Imports Used in the Manufacture of Exports (PITEX), or both, as long as the manufacturing projects are different. Until Jan. 1, 2001, companies registered under these programs were allowed to import components, materials, and machinery free of duty provided they were used in the assembly or manufacture of goods for export markets. For a discussion of changes to these programs pursuant to Article 303 of NAFTA, see Ralph Watkins, "Production Sharing Update: Developments in 2000, *Industry Trade and Technology Review*, USITC publication No. 3443, July 2001, pp. 11-23.
7. Statistical tables covering trade under Mexico's production-sharing provisions in 2003 are provided in app. B.
8. Stephan P. A. Brown, "Do Energy Prices Threaten the Recovery?" *Southwest Economy*, Federal Reserve Bank of Dallas, No. 3, May/June 2004.
9. Presentation by Barry Bosworth, "The Jobless Recovery: Offshoring Jobs: U.S Productivity Growth at Home," National Economics Club: Society of Government Economists, Washington, DC, Sept. 14, 2004.
10. U.S. Census Bureau (Census), *Manufacturers' Shipments, Inventories, and Orders: December 2003*, Feb. 2004, table 1, p. 3.
11. See Ralph Watkins, "Mexico Versus China: Factors Influencing Export and Investment Competition," *Industry Trade and Technology Review*, USITC publication No. 3534, July 2002, pp. 11-26.
12. Ibid.
13. "Factory Stats," *Mexico Watch*, Apr. 1, 2004, p. 11.
14. "In Brief: Factory Jobs Lost," *Mexico Watch*, Sept. 1, 2004, p. 11.
15. "Maquiladora Focus: Factories are Finally Out of the Woods, but the Export Landscape Has Changed," *Mexico Watch*, July 1, 2004, p. 6.
16. PITEX accounted for 79 percent of Mexico's motor vehicles and parts (HS chapter 87) exports to the United States in 2003; Maquiladora Program exports accounted for 18 percent (table B-5).
17. Many inputs used in the manufacture of motor vehicles are not classified in HS chapter 87, including tires, engines, meters, gauges, pumps, glass, seats, wiring harnesses, plastics, and steel.
18. "In Brief: Auto Sales Up, Production Down," *Mexico Watch*, Apr. 1, 2004, p. 11.
19. "Ward's North American Weekly Vehicle Production Summary," *Ward's Automotive Reports*, Jan. 19, 2004.
20. This section encompasses all products classified in HS chapters 84 and 85.
21. Statistical tables summarizing official trade under Mexico's Maquiladora Program and PITEX for 2003 are found in app. B of this publication. Comparable tables showing trade in 2002 are found in app. C of USITC, *Industry Trade and Technology Review*, USITC publication No. 3661, Nov. 2003.
22. Census, *Manufacturers' Shipments, Inventories, and Orders: December 2003*, table 1.

23. USITC staff has compiled a list of reported plant changes in Mexico during 2002-04, including startups, expansions, downsizing, closures, and shifts of product lines between plants. Examples in the bullets below are from that list.
24. Defined as those Caribbean and Central American countries designated by the President as eligible for preferential treatment under the CBTPA.
25. These tariff schedule heading were developed to implement legislation for AGOA, CBTPA, and ATPDEA, respectively. Some of the provisions under HTS headings 9819, 9820 and 9821 do not include production-sharing activities with U.S. firms. See footnote 3 in table 3, footnotes 4 and 5 in table 4, and footnote 5 in table 5.
26. Data on U.S. imports of apparel under HTS provision 9802.00.80 from countries not eligible for preferential treatment under NAFTA, AGOA, CBTPA, and ATPDEA were not collected as part of the official U.S. trade statistics during Nov. 2002 to Apr. 2003.
27. U.S. Department of Commerce, *Second Report to the Congressional Textile Caucus on the Administration's Efforts on Textile Issues*, Oct. 2003, p. 9, found at *http://otexa.ita.doc.gov/twgrep2.pdf*, retrieved July 2, 2004.
28. Caribbean-Central American Alliance (CCAA), "The Importance of CAFTA to the Apparel and Textile Industry in the U.S., the Dominican Republic, and Central America," *CCAA Quarterly*, July 2004, p. 2.
29. Production in all manufacturing industries in Mexico decreased by 2.0 percent in 2003. INEGI, "Producto Interno Bruto Trimestrial de la Industria Manufactura por Division de Actividad Economica," found at *http://www.inegi.gob.mx/est/contenidos/espanol/tematicos/coyuntura/ coyuntura.asp?t=agr03&a=-1&c=1053*, retrieved Oct. 21, 2004.
30. By comparison, unit costs per man-hour for all manufacturing industries in Mexico declined by 8.1 percent in 2003. INEGI, "Costos Unitarios de la Mano de Obra en Mexico por Division de Actividad Economica," found at *http://www.inegi.gov.mx/est/contenidos/espanol/tematicos coyuntura/coyuntura.asp?t=man01&c=474*, retrieved Oct. 21, 2004.
31. Several apparel producers in Central America interviewed by USITC staff in Feb. 2003 predicted that if CAFTA rules of origin allowed the use of Mexican fabric, Mexico could become the leading supplier of fabric for Central America's apparel industry. Some of the apparel sewing jobs that would otherwise shift from Mexico to China would go to Central America instead, thus preserving the market for Mexico's textile industry.
32. The CBTPA provides for duty-free and quota-free treatment for imports of qualifying textile and apparel articles from CBERA beneficiary countries during a transition period beginning Oct. 1, 2000, and ending on Sept. 30, 2008, or on the date which the Free Trade Area of the Americas or a comparable free-trade agreement between the United States and CBERA countries enters into force. For a summary of the CBTPA, see USITC, *The Impact of the Carribean Basin Economic Recovery Act*, USITC pub. No. 3636, Sept. 2003, p. 9ff.
33. If the components are cut to shape in CBERA countries, the garments must be sewn with U.S. thread.
34. The calculations are based on data from the USITC DataWeb for U.S. exports reported under SITC codes 26 (fibers) and 84, which includes finished apparel as well as cut fabric suitable for sewing into apparel. Most of these exports are believed to be pre-cut apparel parts.
35. "Honduras Textile Groups Hope Trade Deal Will Sew Up Future," *Financial Times*, July 27, 2004, p. 15.
36. CCAA, "The Importance of CAFTA to the Apparel and Textile Industry," p. 3.
37. Brian Dunn, "Gildan Closing Honduras Plant," *Women's Wear Daily*, July 16, 2004, p. 17.
38. See the columns for "U.S. fabrics" and "Reduced duties under 807" in table 4.
39. For more information about the criteria determining the eligibility of apparel for duty-free and quota-free entry into the United States under the ATPDEA, see USITC, *The Impact of the Andean Trade Preference Act*, USITC publication No. 3637, Sept. 2003, pp. 1-7.
40. USITC staff telephone interview with apparel industry representative, Nov. 5, 2004.
41. USITC staff telephone interview with apparel industry representative, Dec. 7, 2004.
42. USITC staff telephone interview with apparel industry representative, Nov. 5, 2004.
43. The petitioning groups were the American Yarn Spinners Association, the American Manufacturing Trade Action Coalition, the American Textile Manufacturers Institute, and the National Textile Association. Their requests were for safeguards on imports of knit fabric of Chinese origin, cotton and man-made fiber brassieres, and cotton and man-made fiber dressing gowns. The petitions are available at *http://www.otexa.ita.doc.gov/Safeguard_intro.htm.*

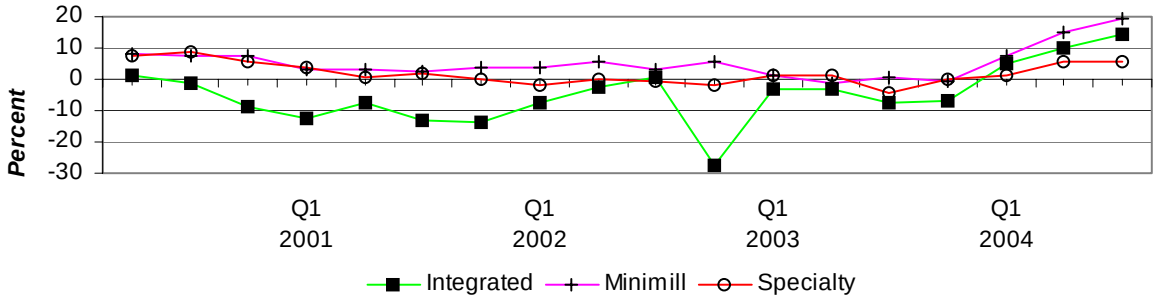
44. The petitioning groups in this instance were the Domestic Manufactures Committee (DMC) of the Hosiery Association, the American Manufacturing Trade Action Coalition, the National Council of Textile Organizations, and the National Textile Organization.
45. The referenced petitions were all filed within 1 week of each other in mid-Oct. 2004 by The American Manufacturing Trade Action Coalition, the National Council of Textile Organizations, The National Textile Association, SEAMS, and UNITE HERE! Each petition was granted consideration by CITA on Nov. 3, 2004. Links to source documents are at *http://www.otexa.ita.doc.gov/Safeguard_intro.htm*.
46. This petition was filed on Oct. 12, 2004. See Robert Stang and Donald Stein, "*United States Focuses on Textiles and Apparel from China: Safeguards and Penalties*," Greenberg Traurig Global Trade Practice Group, Oct./Nov. 2004, p. 11.

APPENDIX A
Key Performance Indicators of Selected Industries and Regions[1]

[1] The data and views presented for the following indicators are compiled from the industry sources noted and are those of the authors. They are not the views of the United States International Trade Commission as a whole or of any individual Commissioner. Nothing contained in this information based on published sources should be construed to indicate how the Commission would find in an investigation conducted under any statutory authority.

STEEL

Figure A-1
Integrated and minimill producers' operating income[1] increases for third consecutive quarter in 2004



[1] Operating income (loss) as a percent of sales. Integrated group comprises 4 firms. Minimill group comprises 7 firms. Specialty group comprises 4 firms.
Note.--Beginning in first quarter 2004 integrated group includes l previously untracked firm, and no longer includes l previously tracked firm, reflecting ownership changes in the industry.

Source: Individual company financial statements.

- International Steel Group (ISG) Inc. started its hot briquetted iron (HBI) facility in Trinidad on December 12, 2004. ISG purchased the facility in July 2004 from Cliffs and Associates Limited, and plans to reach capacity production of 550,000 tons per year by summer 2005. The facility is the first to use the Circored® fluidized bed direct reduction process, which uses natural gas to reduce iron ore fines. HBI is a substitute for scrap in electric arc and blast furnaces. The process was developed by the former Lurgi Metallurgie GmbH of Germany, which is now part of Outokumpu Technology. See *www.intlsteel.com* and *www.outokumpu.com*

- Ispat International N.V. completed its acquisition of LNM Holdings N.V. and changed its name to Mittal Steel Co. N.V. on December 17, 2004. On the same day, the U.S. Federal Trade Commission granted early termination of the waiting period for the proposed merger between Mittal Steel and ISG. Subject to approval by the shareholders of both Mittal and ISG, the merger is expected to be completed by the end of first quarter 2005. See *www.mittalsteel.com* and *www.intlsteel.com*

- Wheeling-Pittsburgh Steel Corp. and Severstal North America Inc. signed a non-binding letter of intent on December 23, 2004 to enter into a joint coke-producing venture. Wheeling-Pitt would contribute the assets of its Follansbee, WV coke plant and Severstal would contribute $140 million for capital improvements and pay an additional $20 million directly to Wheeling-Pitt. Each firm would own 50 percent of the proposed venture and each would receive one-half of the coke output for its steelmaking operations. See *www.wpsc.com* and *www.severstal.ru*

Table A–1
Finished imports increase by 20 percent during third quarter 2004 compared with second quarter 2004, and by more than 89 percent compared with third quarter 2003 reflecting strong domestic demand

Item	Q2 2004	Percentage change, Q3 2004 from Q2 2004	Q3 2004[1]	Percentage change, Q3 2004 from Q3 2003
Producers' shipments *(1,000 short tons)*	29,308	-5.0	27,840	-0.5
Finished imports *(1,000 short tons)*	6,974	20.2	8,382	89.1
Semifinished imports *(1,000 short tons)*	1,843	6.7	1,966	61.3
Exports *(1,000 short tons)*	1,942	-4.2	1,861	7.5
Apparent supply, finished *(1,000 short tons)*	34,340	0.1	34,361	12.0
Ratio of finished imports to apparent supply *(percent)*	20.3	[2]4.1	24.4	[2]10.0

[1] Preliminary.
[2] Percentage-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: Third quarter 2004 shipments increase by 13 percent compared with third quarter 2003

Item	June 2004	Sept. 2004	Percentage change, Sept. 2004 from Jun. 2003	Q3 2003	Q3 2004	Percentage change, Q3 2004 from Q3 2003
Shipments *(1,000 short tons)*	4,605	4,617	0.3	12,428	14,102	13.5
Ending inventories *(1,000 short tons)*.....	13,809	14,891	7.8	13,251	14,891	12.4
Inventories on hand *(months)*.....	3.0	3.2	([1])	3.1	3.2	([1])

[1] Not applicable.

Source: Metals Service Center Institute.

- U.S. steel service centers maintained year-to-date record shipment levels during third quarter 2004 (table A-2). Monthly shipments during 2004 have exceeded year-earlier monthly shipments by double digits according to the Metals Service Center Institute. See *http://www.msci.org*

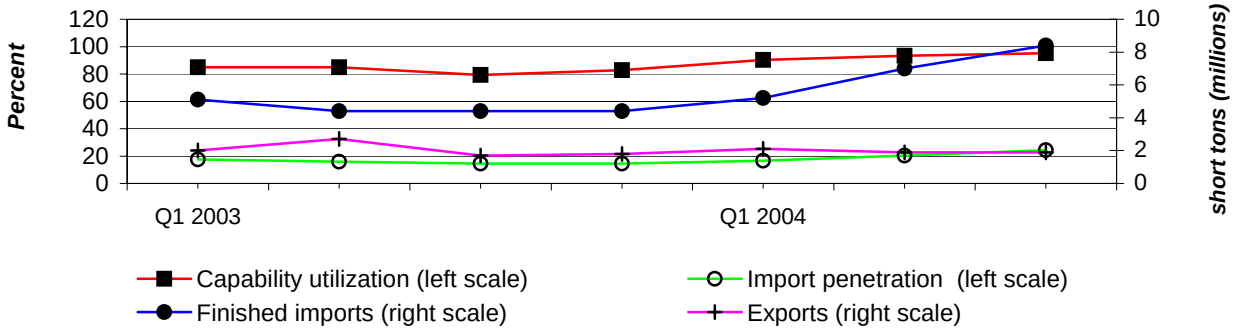
- The American Institute for International Steel import market survey (November 2004) predicts increased imports of cut-to-length plate and decreased imports of hot- and cold-rolled sheet, merchant bar, and structural products during the next 3 to 5 months. The survey predicts no significant changes in imports of semi-finished, corrosion resistant, wire rod, and stainless sheet. See *http://www.aiis.org*

- The 62 countries reporting to the International Iron and Steel Institute produced 1.04 billion tons of crude steel during the first 11 months of 2004, a 9 percent increase compared with the same period in 2003. The leading producers during this period were China, United States, Japan, and Russia, with China's steel production approximately equal to the next three countries combined. See *http://www.worldsteel.org*

- Strong domestic demand drove capability utilization and import penetration to new highs during third quarter 2004 (figure A-2). See *http://www.steel.org*

Figure A-2

Steel mill products, all grades: Capability utilization continues upward trend for fourth consecutive quarter



Note.--Capability utilization is the raw steel tonnage produced divided by the tonnage capability to produce raw steel for a sustained full order book

Source: American Iron and Steel Institute.

AUTOMOBILES

Table A-3
U.S. sales of new passenger vehicles (cars and light trucks), domestic and imported, and share of U.S. market accounted for by sales of total imports and Japanese imports, by specified periods, January 2003-September 2004

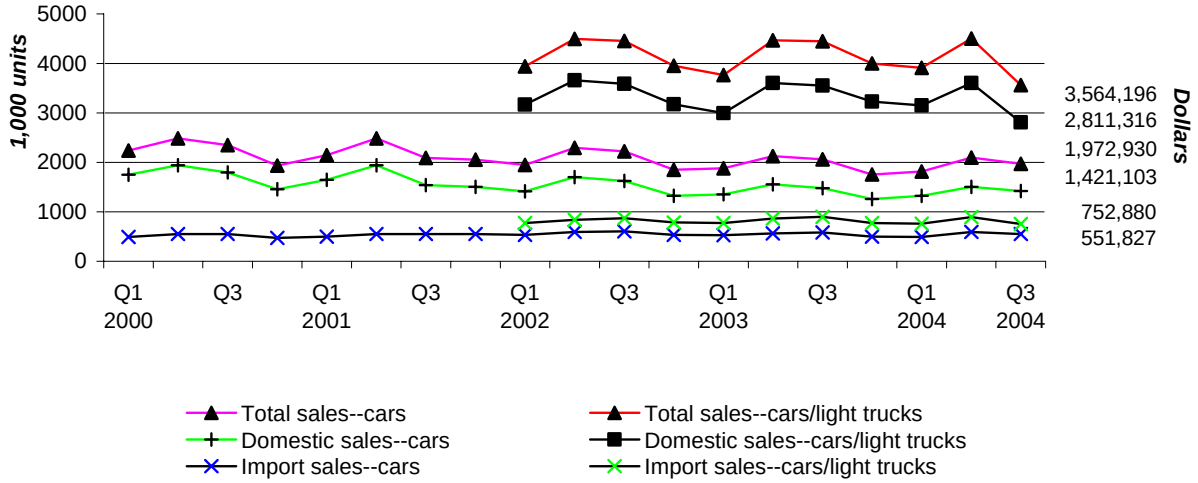
Item	Jul.-Sept. 2004	Jan.-Sept. 2004	Percentage change Jul.-Sept. 2004 from Apr.-June 2004	Jan.-Sept. 2004 from Jan.-Sept. 2003
U.S. sales of domestic passenger vehicles (*1,000 units*)	2,811	9,567	-22.0	-5.8
U.S. sales of imported passenger vehicles (*1,000 units*)	753	2,410	-15.9	-4.5
Total U.S. sales (*1,000 units*)	3,564	11,976	-20.8	-5.5
Ratio of U.S. sales of imported passenger vehicles to total U.S. sales	21.1	20.1	[1] 1.2	[1] 0.2
U.S. sales of Japanese imports as a share of the total U.S. sales	11.8	10.4	[1] 2.2	[1] -0.1

[1] Percentage point change.

Note.—Domestic passenger vehicles include U.S.-, Canadian-, and Mexican-built cars and light trucks sold in the United States. Imported passenger vehicles do not include cars and light trucks supplied by Canada and Mexico.

- Total U.S. sales of passenger vehicles declined by nearly 21 percent in the third quarter 2004; sales of domestically produced vehicles took a larger percentage hit, at 22 percent, than sales of imports, which declined by almost 16 percent. Domestically produced passenger vehicles accounted for almost 79 percent of total U.S. vehicle sales in the third quarter, as compared to 80 percent in the second quarter 2004.
- Consumer incentives offered by the Big Three U.S. automakers - GM, Ford, and the Chrysler Division of DaimlerChrysler – broke a record in July, reaching an average of over $4,000 per vehicle. By contrast, Japanese automakers offer an average of $1,024 per vehicle in July.
- Consumers have come to expect large incentives on Big Three vehicles; a recent study by JD Power and Associates reported that approximately 18 percent of consumers will not purchase a vehicle if they do not perceive the incentive package as sufficient. Further, despite their much larger average incentive offerings, 20 percent of Big Three models are passed over because of the incentive package, compared to 17 percent of import models.
- Inventory levels continued to be a problem for Big Three automakers in third quarter 2004, despite reduced production levels. Inventory of pickup trucks and SUVs was particularly high.

Figure A-3
U.S. sales of new passenger vehicles (cars and light trucks) declined steeply in the third quarter 2004

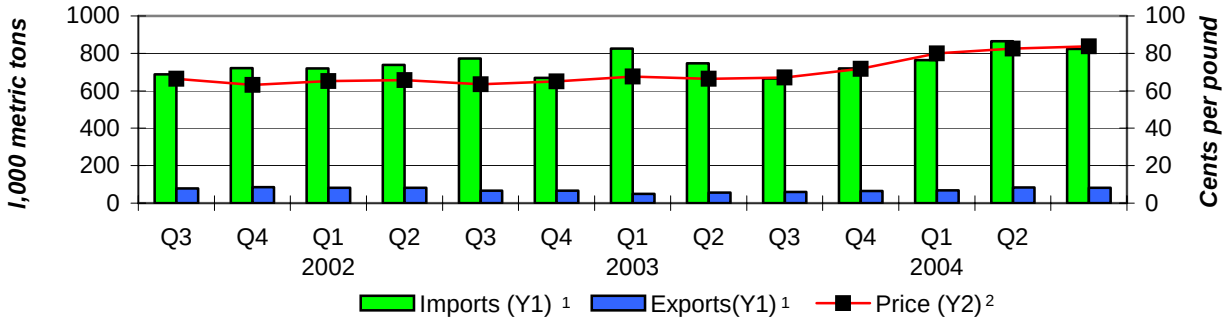


Note.—Domestic sales include U.S.- and Mexican-built vehicles sold in the United States; these same units are not included in import sales.

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

UNWROUGHT ALUMINUM[1]

Figure A-4
Robust prices for primary aluminum in third quarter 2004 reflect supply concerns about partial capacity cutbacks and prolonged labor negotiations at several North American smelters



[1] Unwrought aluminum and aluminum alloys.

[2] Quarterly average of the monthly U.S. market price of primary aluminum ingots.

Source: Compiled by USITC staff based on data obtained from the U.S. Geological Survey.

- Prices for both unwrought and mill-product forms of aluminum rose throughout third quarter 2004 due to partial-idling of smelting capacity as a result of labor issues. Prolonged labor contract negotiations caused sporadic production disruptions at several North American smelters and rolling mills, including facilities of Alcoa in Becancour, Quebec, and of Ormet Corp. in Hannibal, Ohio. In South Africa, workers went on strike for 4 weeks during July-August, after failing to reach a wage agreement, at Hulett Aluminum's Pietermaritzburg rolling mill.

- Alumina prices also increased in response to the damage inflicted by Hurricane Ivan in mid-September on refinery and port facilities in the Caribbean Basin. In contrast, downstream aluminum sectors were less affected by the tropical storms that hit the U.S. Gulf Coast during third quarter 2004. Rather, aluminum extrusion billet suppliers benefitted from increased demand for extruded aluminum to replace damaged building components.

- The Bonneville Power Administration announced in mid-September a 7.5-percent rate reduction for wholesale electric power as a result of cost-cutting and favorable surplus-power sales revenue. However, Alcoa claimed that it was not feasible to restart some of its previously idled smelter capacity in the Pacific Northwest because long-term rate cuts and adequate alumina supplies could not be assured.

Table A-4
Drawdown of London Metal Exchange (LME) inventories and increased prices for primary aluminum ingots in third quarter 2003 reflect cutback of primary production and sustained robust worldwide demand over the past 12 months

				Percentage change	
Item	Q3 2003	Q2 2004	Q3 2004	Q3 2004 from Q3 2003	Q3 2004 from Q2 2004
Primary production (*1,000 metric tons*)	668	630	622	-6.9	-1.3
Secondary recovery (*1,000 metric tons*)	738	755r	772r	4.6	2.3
Imports (*1,000 metric tons*)	666	864	823	23.6	-4.7
Import penetration (*percent*)	33.1	39.9	38.5	[1]5.4	[1]-1.4
Exports (*1,000 metric tons*)	60	84	82	36.7	-2.4
Average nominal price (*cents/lb*)	67.1	82.5	83.8	24.8	1.5
LME inventory level (*1,000 metric tons*)	1,372	940	681	-50.4	-27.6

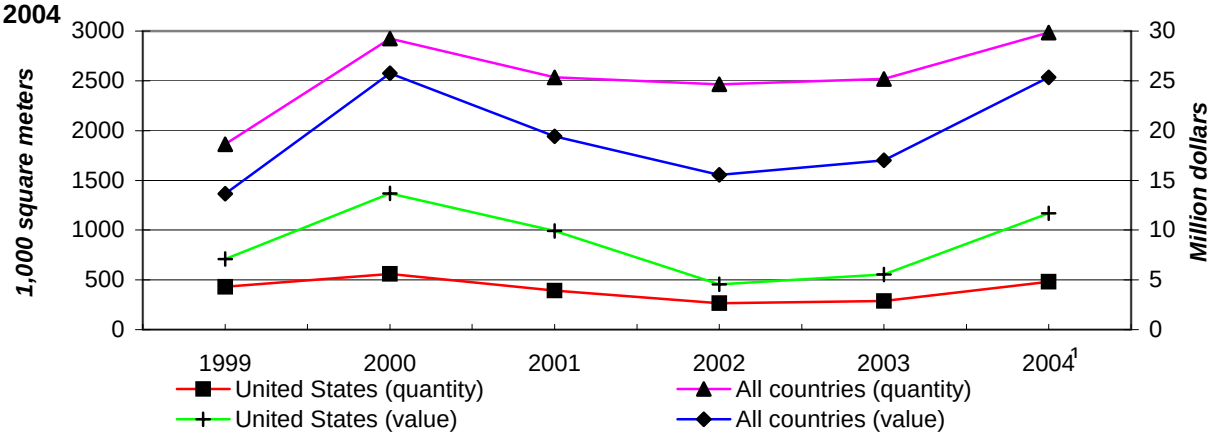
[1] Percent-point change.
Note.–Revised data indicated by "r."

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

[1]Product coverage includes only unwrought aluminum and certain aluminum alloys for improved data comparability.

FLAT GLASS

Figure A-5
Japanese monthly average imports from U.S. and World increased during first 10 months of 2004



[1] Data for Jan-July (Latest available data).

Source: Compiled from "World Trade Atlas: Japan" at http://www.globaltradeatlas.com, using official statistics provided by the Government of Japan.

Background

- Although the U.S.-Japanese agreement on Japanese market access for imports of flat glass, which sought to increase access and sales of foreign flat glass in Japan, expired on December 31, 1999,[1] the U.S. Government continues to engage the Japanese Government in discussions over access to the Japanese market. Most recently, in the 2003 Trade Forum discussion held in July 2003 under the U.S.-Japan Partnership for Economic Growth, the U.S. Government "highlighted the continuing problems that prevent market entry, including the need for tighter enforcement of rules against anticompetitive behavior."[2] The U.S. Government also urged Japan to modify regulations to facilitate use of energy-efficient glass in Japan

- U.S. and Japanese negotiators have agreed that Japan's Ministry of Economy, Trade, and Industry (METI), in conjunction with the Japan Fair Trade Commission (JFTC), should monitor Japanese flat-glass manufacturers and the glass distribution system in Japan to promote competition in the sector.[3]

Current

- As a result of increased Japanese economic growth in 2004, Japanese average monthly demand for imported flat glass from all countries increased 20 percent for the first 10 months of 2004, to 3.0 million square meters, compared with the same period in 2003. The average monthly value of total Japanese flat glass imports for the first 10 months of 2004 increased 49 percent, to $25.4 million, compared with the same period in 2003. In full-year 2003, the quantity of average monthly Japanese imports increased 8 percent compared with the same imports in 2002, and increased 7 percent in value during the same period.

- Average monthly Japanese imports from the United States increased by quantity and value during the first 10 months of 2004 compared with the same period in 2003 (up 68 percent to 481,000 square meters and up 110 percent to $11.7 million, respectively) due largely to increased demand in Japan for higher-value, architectural-grade coated and ultra-clear flat glass products from the United States, for use in construction-related applications. In full-year 2003, average monthly imports from the United States increased 10 percent in quantity and 16 percent in value compared with the same imports for 2002.

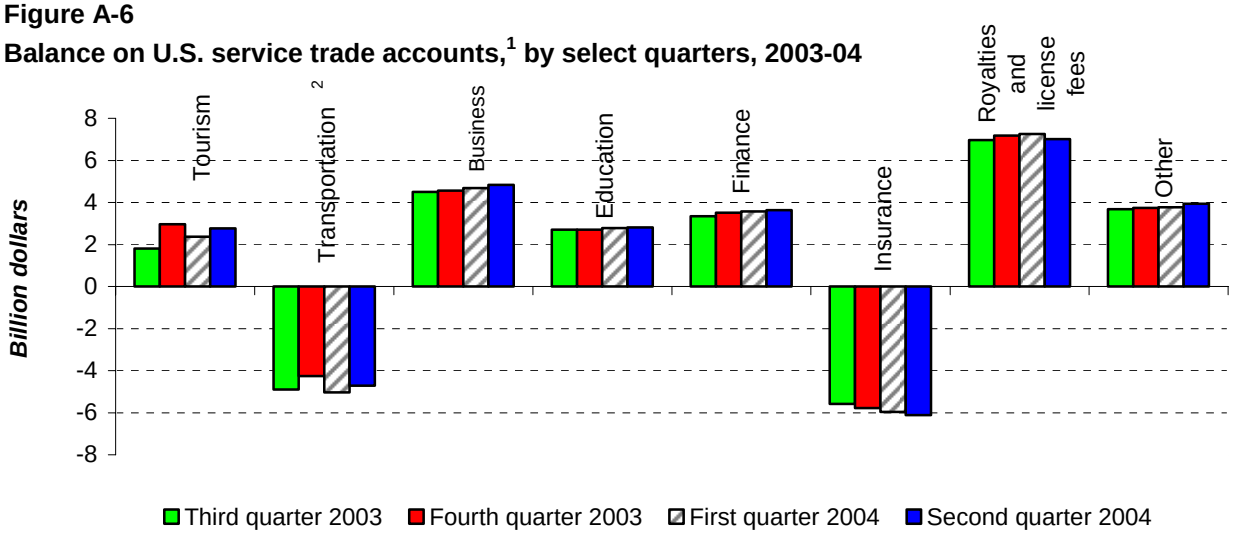
[1]Office of the United States Trade Representative (USTR), *The President's 1999 Annual Report on the Trade Agreements Program*, p. 227, found at *http://www.ustr.gov/reports/tpa/2000index.html* retrieved Mar. 3, 2004.

[2]USTR, *2004 Trade Policy Agenda and 2003 Annual Report of the President of the United States on the Trade Agreements Program* (final draft), 2003, pp. 21-22.

[3]USTR, *Fourth Annual Submission by the Government of the United States to the Government of Japan on Deregulation and Competition Policy*, Oct. 12, 2000, p. 32.

SERVICES

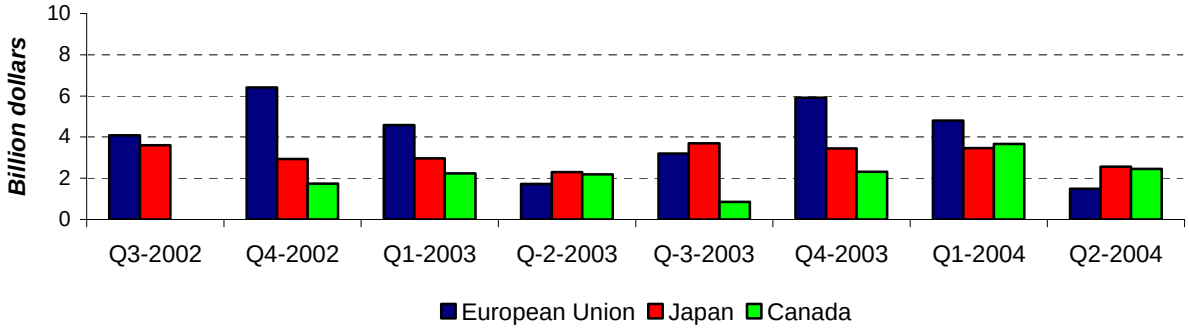
Figure A-6
Balance on U.S. service trade accounts,[1] by select quarters, 2003-04



[1] Data for telecommunication services are to small to be revealed graphically.
[2] Includes passenger fares, freight, and port services.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business,* Oct. 2004, p. 91.

Figure A-7
Surpluses on cross-border U.S. services transactions with selected partners, by select quarters, 2002-04[1]



[1] Private-sector transactions only; military shipments and other public-sector transactions have been excluded.

Source: U.S. Department of Commerce, Bueau of Economic Analysis, *Survey of Current Business* , Oct. 2004, pp. 100-103.

NORTH AMERICAN TRADE HIGHLIGHTS

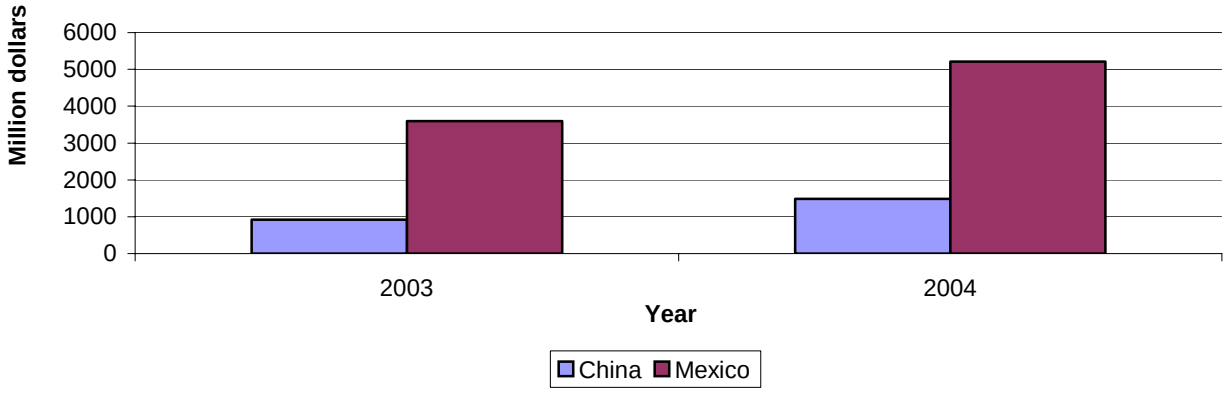
U.S. trade with its North American partners is highlighted in table A-5. The following is a summary of key developments during January-September 2004 compared with the same period of 2003.

- Continued robust U.S. economic growth (3.9-percent annual rate in the third quarter of 2004[1]) and higher petroleum prices contributed to a 13-percent ($36-billion) increase in U.S. imports from its NAFTA partners during January-September 2004. By contrast, imports from China, the second-leading supplier of U.S. imports (between Canada and Mexico), climbed by 28 percent ($31 billion) and continued to erode the NAFTA partners' share of non-petroleum U.S. imports. The NAFTA partners supplied 28 percent of all U.S. imports in January-September 2004, and China, 13 percent.

- High petroleum prices (which averaged about $44 per barrel in the third quarter of 2004) were attributed to higher demand in China and other newly industrialized countries in Asia; continued expansion in the housing and automobile markets in North America, which increased demand for gasoline and heating oil; and uncertainty in the supply of crude petroleum from Russia, Nigeria, and Venezuela.[2]

- The growth rate of television and video monitor imports from China slowed from 76 percent in 2003 to 61 percent ($561 million) in the first 9 months of 2004 (see figure A-8). Although such imports from China continued to increase at a faster rate than imports from Mexico (by 47 percent in 2004 after just 7 percent in 2003), the value of the rise in imports from Mexico ($1.6 billion) was nearly 3 times as large as that from China ($561 million).[3]

Figure A-8
U.S. imports for consumption of television receivers and video monitors from China and Mexico, Jan-Sept. 2003 and Jan-Sept. 2004



Source: USITC dataweb.

- The pace of U.S. imports of televisions from Mexico accelerated after initiation of an antidumping investigation in 2003 to determine whether China was selling its color sets with a video display diagonal exceeding 52 centimeters at less-than-fair value into the U.S. market and materially injuring the U.S. industry.[4] Coincident with the institution

[1] See Haseeb Ahmed, "United States GDP-First Take," *Economy.com*, found at *http://www.dismalscientist.com/economy/releases/gdp/html,* retrieved Dec. 17, 2004.

[2] Industry Canada, "Special Report: Canada's Oil and Gas Sector," *Monthly Economic Indicators*, Nov. 2004, p. 15.

[3] Virtually all of the increase in U.S. imports from China in the first 9 months of 2004 was in video monitors, whereas color televisions accounted for most of the increased imports from Mexico in this category.

[4] In May 2004, the U.S. International Trade Commission (USITC) determined that the U.S. television industry was materially injured by imports from China of certain color television receivers that were sold at less than their fair value. See USITC, *Certain Television Receivers from China*, Investigation No. 731-TA-1034, pub. 3695, May 2004. The U.S. International Trade Administration reported on May 27, 2004, that effective June 3, 2004, antidumping duties would be assessed on television receivers from China ranging from 5.22 percent to 26.37 percent for individual Chinese exporting firms listed in the investigation, and 78.45 percent for all other Chinese firms. The rate applicable to televisions produced by the leading supplier, TCL, is 21.25 percent. U.S. Government Printing Office, *Federal Register*, vol. 69, No. 107, June 3, 2004, pp. 31347f.

NORTH AMERICAN TRADE HIGHLIGHTS

Table A-5
North American trade, 1999-2003, January-September 2003, and January-September 2004

Item	1999	2000	2001	2002	2003	January-September 2003	January-September 2004	Percent change 2003/04
	Value (million dollars)							
U.S.-Mexico trade:								
Total imports from Mexico	109,018	134,734	130,509	134,121	137,199	101,321	114,268	13
U.S. imports under NAFTA:								
Total value	71,317	83,995	81,162	84,747	87,750	65,003	70,554	9
Percent of total imports	65	62	62	63	64	64	62	[1]-2
Total exports to Mexico	81,381	100,442	90,537	86,076	83,108	61,013	68,263	12
U.S. merchandise trade balance With Mexico[2]	-27,637	-34,292	-39,971	-48,045	-54,091	-40,309	-46,005	-14
U.S. -Canada trade:								
Total imports from Canada	198,242	229,060	216,836	210,518	224,016	166,524	189,484	14
U.S. imports under NAFTA:								
Total value	115,715	123,052	113,179	115,807	119,416	88,128	97,444	11
Percent of total imports	58	54	52	55	53	53	51	[1]-2
Total exports to Canada	145,731	155,601	144,621	142,543	148,749	110,759	121,219	9
U.S. merchandise trade balance with Canada[3]	-52,511	-73,459	-72,215	-67,975	-75,267	-55,766	-68,265	-22

[1] Percentage-point change.
[2] The negative (-) symbol indicates a loss or trade deficit. The $54.1-billion deficit in U.S. merchandise trade with Mexico in 2003 was partially offset by a $4.7-billion U.S. surplus in bilateral services trade, not seasonally adjusted. During the first 3 quarters of 2004, the U.S. surplus in bilateral services trade totaled $4.1 billion, not seasonally adjusted.
[3] The $75.3-billion deficit in U.S. merchandise trade with Canada in 2003 was partially offset by a $7.6-billion U.S. surplus in bilateral services trade. During the first 3 quarters of 2004, the U.S. surplus in bilateral services trade totaled approximately $6.7 billion, not seasonally adjusted.

Source: Compiled by USITC staff from official statistics of the U.S. Department of Commerce. Statistics on U.S. services trade with Canada and Mexico are based on preliminary data provided in U.S. Department of Commerce, Bureau of Economic Analysis, U.S. International Transactions Accounts Data, table 11, found at *http://www.BEA.DOC.GOV/BEA/International/BP_web/list.CFM?ANON=92*.

of the investigation, TCL, the largest television manufacturer in China (and the world) announced it would build a plant in Mexico to supply the North American market.

- U.S. imports of passenger vehicles (primarily full-sized sedans) from Canada exhibited strong growth during the period, rising by $4.3 billion (19 percent) and reflecting sustained incentives and low financing rates. Imports of certain motor vehicle parts and internal combustion engines rose by $1.0 billion (11 percent).

- In contrast to Canada, U.S. imports of passenger vehicles from Mexico fell by $713 million (8 percent) in the first 9 months of 2004, largely attributable to waning popularity of smaller-sized passenger models, but were offset by a $1.1-billion (21-percent) increase in imports of certain motor vehicle parts and internal combustion engines. In addition, imports of trucks used in tractor-trailer rigs more than doubled, climbing by $327 million as Freightliner, a subsidiary of Daimler Chrysler, expanded Mexico's capacity in late 2003.

- Intermediate goods used in manufacturing industries dominate U.S. exports to its NAFTA partners, which grew by 11 percent ($18 billion) in January-September 2004. Although U.S. exports to China rose by 36 percent ($6 billion) in the first 3 quarters of 2004, the NAFTA partners continued to take the largest shares of U.S. exports, accounting for 35 percent compared with just 4 percent for China.

NORTH AMERICAN TRADE HIGHLIGHTS

- Canada's GDP grew by 3.2 percent in the third quarter of 2004,[5] reflecting increased consumer and government spending and business investment. Canada's economy also continued to benefit from record-high oil and natural-gas prices boosted exports.

    - U.S. exports of engines, seats, and other parts to auto assembly plants in Canada grew by $1.6 billion (12 percent) in the first 9 months of 2004, and exports of trucks, tractors, and trailers to service the transport industry in Canada rose by $1.1 billion (18 percent). These categories accounted for 26 percent of the total $10.5 billion expansion in U.S. exports to Canada in January-September 2004.

- Mexico's GDP grew by 4.4 percent in the third quarter of 2004, its fastest quarterly growth rate in 4 years.[6] GDP growth for the year was forecast at 3.8 percent.[7] The expansion in the Mexican economy is attributed to continued higher-than-expected prices for petroleum and strong retail sales.[8] After significant gains in the first 2 quarters, manufacturing contracted by 3.4 percent in the third quarter. Increases in automotive electronics, steel, and furniture were offset by production declines in electrical machinery and equipment, cigarettes, and metallic structures.[9]

    - Expanding availability of consumer credit contributed to increased auto sales in Mexico in 2004 as U.S. exports of passenger vehicles and trucks to Mexico in January-September 2004 rose by $478 million (21 percent) and certain motor vehicle parts and internal combustion engines, by $603 million (12 percent).

    - The purchase of 6 Boeing passenger jets by Mexican airlines led to a $336-million (290-percent) boost in U.S. aircraft exports during the period.

    - To supply expanded production at television assembly plants in Mexico, U.S. exports of television parts rose by $205 million (46 percent).

[5] Terry Weber, "Economy Expands," *Globe and Mail*, Nov. 30, 2004.

[6] Emerging Markets Online, "Real GDP Grew Around 4 Percent in Quarter 3, 2004," *Business Monitor International,* Jan. 6, 2005.

[7] "Quarterly Economic Forecast," *Mexico Watch*, Jan. 1, 2005, p. 4.

[8] The increased availability of credit has been a boost to retail sales specifically and the Mexican economy in general. The expansion in retail sales was limited to companies such as furniture stores, automobile dealerships, supermarkets, and department stores that accept credit cards or provide in-store credit. By contrast, there was a decline in sales in Jan.-Sept. 2004 by categories of retailers that do not accept credit cards. "Economic Summary: Q3 Data Points to Slowdown," *Mexico Watch*, Dec. 1, 2004, p. 1.

[9] "Economic Summary: Q3 Data Points to Slowdown," *Mexico Watch*, Dec. 1, 2004, p. 3.

APPENDIX B
SELECTED STATISTICAL TABLES (B-1 TO B-7) FOR TRADE UNDER MEXICO'S PRODUCTION-SHARING PROVISIONS (TEMPORARY IMPORT PROGRAMS)

Table B-1
Mexico's exports to the United States[1] under Temporary Import Programs (TIPs) (Maquiladora and Program for Temporary Importation to Manufacture Exported Products (PITEX) by leading product sectors, 2000-03

Products sectors (HS range)	Exports under TIPs				Total exports to the U.S. in 2003	TIP share of total exports to the U.S.
	2000	2001	2002	2003		
	Million dollars					*Percent*
Motor Vehicles[2]	19,344	19,427	18,761	17,730	17,752	100
Certain motor-vehicle parts[3]	11,933	11,795	12,832	13,229	14,194	93
Apparel and other textile articles (61-63,65)	8,648	7,962	7,888	7,514	7,776	97
Color television receivers and parts (8528.12, 8529.90, 8540.11, 8540.91)	7,859	7,756	7,977	7,422	7,429	100
Telecommunications equipment (8525, 8527, and 8529 (part))	7,749	7,728	6,521	5,455	5,507	99
Computers[4] (8471)	7,186	8,685	8,294	9,254	9,337	99
Electrical circuit apparatus (8534, 8535, 8536, 8537, 8538)	4,898	4,235	4,861	4,778	4,853	98
Measuring testing, and controlling instruments (9024, 9025, 9027, 9028, 9029, 9030, 9031, 9032, 9033 (part))	1,588	1,833	1,871	1,690	1,744	97
Major household appliances (8418, 8422.11, 8422.19, 8450, 8451)	454	769	916	715	848	84
All other	57,135	51,096	50,014	50,089	76,895	65
Total	126,794	121,286	119,935	117,877	146,335	81

[1] Official Mexican statistics on Mexico's exports to the United States in 2003 were valued 7-percent larger than official U.S. statistics on U.S. imports from Mexico. Much of the difference in the reported trade levels can be attributed to maquiladora shipments to U.S. distribution centers that are later re-exported to global markets. Significant discrepancies between U.S. and Mexican data on an individual product basis can be caused by differences in classification.

[2] Covers HS numbers 8701.20, 8702, 8703.22 to 8703.90, 8704.21 to 8704.90, 8706.00.03, 8706.00.05, 8706.00.15.20, 8707.10.00.20, 8707.90.50.20, 8707.90.50.40, and 8707.90.50.60.

[3] The products covered in the "certain motor-vehicle parts" sector include body stampings, engines and parts, bumpers, brakes and parts, gear boxes, axles, wheels, shock absorbers, radiators, exhaust systems, clutches, steering wheels, wiring harnesses, car seats and parts, and miscellaneous parts and accessories; these products include HS numbers 8407, 8408, 8409, 8544.30, 8708, 9401.20.

[4] Includes related computer equipment, such as monitors and other display units, keyboards, printers, magnetic and optical readers, and disk drives and other storage units.

Source: Compiled from "World Trade Atlas: Mexico Edition, December 2003," which used data provided by INEGI, the statistical agency of the Government of Mexico.

Table B-2
Mexico's imports (Maquiladora Program and Program for Temporary Importation to Manufacture Exported Products (PITEX), and other) from the United States in 2003

(Million U.S. dollars)

HS no.	HS categories	Mexico's imports from the United States: Maquiladora	PITEX	Other	Total	U.S. exports to Mexico: general
01	Live animals	0	0	84	84	71
02	Meat and edible offal	2	35	1,544	1,580	1,192
03	Fish and seafood	3	0	32	34	47
04	Dairy produce; eggs; honey; edible animal products	1	2	303	305	226
05	Other products of animal origin	2	0	99	101	253
06	Live trees & plants; cut flowers & ornamental foliage	1	0	31	33	22
07	Edible vegetables and certain roots and tubers	1	2	154	158	118
08	Edible fruit and nuts; peel of citrus fruit or melons	14	3	342	359	257
09	Coffee, tea, mate and spices	0	0	15	16	11
10	Cereals	0	1	1,697	1,697	1,587
11	Milling products; malt; starches; inulin; wheat gluten	13	4	388	406	369
12	Oil seeds & oleaginous fruits; misc. grains, seeds, & fruits; industrial or medicinal plants; straw & fodder	0	0	1,264	1,264	1,211
13	Lac; gums; resins & other vegetable saps & extracts	0	0	35	36	31
14	Vegetable plaiting materials & veg. products, nesoi	0	0	1	1	4
15	Animal or vegetable fats, oils, & waxes; edible fats	9	4	402	415	377
16	Edible preparations of meat, fish, or seafood	0	0	124	125	93
17	Sugars and sugar confectionery	34	4	75	112	79
18	Cocoa and cocoa preparations	2	1	117	121	99
19	Preparations of cereals, flour, starch, or milk	0	0	243	243	157
20	Preparations of vegetables, fruit, nuts, parts of plants	3	0	253	256	161
21	Miscellaneous edible preparations	10	4	610	624	504
22	Beverages, spirits, and vinegar	0	0	159	159	145
23	Residues, waste of the food industries; animal feed	0	0	501	501	376
24	Tobacco and manufactured tobacco substitutes	1	0	5	6	7
25	Salt; sulfur; earths & stone; plaster, lime, and cement	34	12	126	173	98
26	Ores, slag and ash	0	77	16	93	83
27	Mineral fuels, oils, waxes; bituminous substances	94	489	4,008	4,592	2,830
28	Inorganic chemicals; compounds of precious metals, rare-earth metals, or radioactive elements or isotopes	40	123	346	509	388
29	Organic chemicals	46	687	1,578	2,311	2,348
30	Pharmaceutical products	68	5	354	426	413
31	Fertilizers	0	3	249	252	225
32	Tanning or dyeing extracts; tannins; dyes, pigments, other coloring matter; paints & varnishes; putty; inks	239	46	426	711	505
33	Essential oils; perfume; cosmetic/ toilet preparations	13	17	364	394	318
34	Soap; lubricating products; waxes; polishing/scouring products; candles; modeling pastes; dental plaster	59	12	266	337	220
35	Albumoidal substances; starches; glues; enzymes	68	28	150	247	201
36	Explosives; fireworks; matches; combustible prep	106	0	24	130	135
37	Photographic or cinematographic goods	32	228	218	477	455
38	Miscellaneous chemical products	319	147	812	1,278	790
39	Plastics and articles thereof	5,187	1,068	3,303	9,558	6,694
40	Rubber and articles thereof	561	386	778	1,725	1,062
41	Raw hides and skins (other than furskins) and leather	229	176	163	568	342

Table B-2––*Continued*
Mexico's imports (Maquiladora Program and Program for Temporary Importation to Manufacture Exported Products (PITEX), and other) from the United States in 2003

(Million U.S. dollars)

HS no.	HS categories	Mexico's imports from the United States				U.S. exports to Mexico: general
		Maqui-ladora	PITEX	Other	Total	
42	Leather articles; saddlery; travel goods; handbags	179	24	20	223	63
43	Furskins and artificial fur; manufactures thereof	1	0	1	2	2
44	Wood and articles of wood; wood charcoal	249	46	194	489	394
45	Cork and articles of cork	2	0	1	4	1
46	Manufactures of straw; basketware and wickerwork	0	0	1	1	5
47	Wood pulp; waste and scrap paper and paperboard	9	4	485	498	447
48	Paper & paperboard; articles of pulp, paper, paperbd	1,154	353	1,156	2,663	2,078
49	Printed products, including books, newspapers, plans	181	17	206	404	290
50	Silk, including yarns and woven fabrics thereof	0	0	1	1	2
51	Wool & animal hair, yarns & woven fabrics thereof	15	13	2	30	18
52	Cotton, including yarns and woven fabrics thereof	529	104	602	1,235	1,058
53	Other vegetable textile fibers; yarns and fabrics of such vegetable fibers and paper	0	0	1	2	1
54	Manmade filaments, including yarns & woven fabrics	512	113	198	823	507
55	Manmade staple fibers, incl. yarns & woven fabrics	259	66	158	484	312
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	200	22	114	335	290
57	Carpets and other textile floor coverings	63	48	36	148	97
58	Special woven fabrics; tufted textile fabrics; ace; tapestries; trimmings; embroidery	469	38	20	527	241
59	Impregnated, coated, covered or laminated textile fabrics; textile articles suitable for industrial use	480	38	80	598	591
60	Knitted or crocheted fabrics	332	102	39	473	351
61	Knitted or crocheted apparel	892	136	118	1,146	877
62	Woven apparel	523	85	111	718	593
63	Other textile articles; needlecraft; used clothing	92	4	53	150	80
64	Footwear and parts	31	2	13	45	90
65	Headgear and parts	3	1	7	10	8
66	Umbrellas, walking sticks, whips, and riding crops	0	0	1	1	1
67	Articles of feathers and down; artificial flowers; articles of human hair	0	0	2	2	4
68	Articles of stone, plaster, cement, asbestos, or mica	76	11	119	206	139
69	Ceramic products	31	36	58	125	92
70	Glass and glassware	372	144	170	687	502
71	Natural or cultured pearls; precious or semiprecious stones; precious-metal and imitation jewelry; coin	162	9	285	456	410
72	Iron and steel	517	383	788	1,688	1,137
73	Articles of iron or steel	1,933	457	670	3,060	1,630
74	Copper and articles thereof	647	102	147	896	572
75	Nickel and articles thereof	19	30	10	60	74
76	Aluminum and articles thereof	835	141	576	1,552	981
78	Lead and articles thereof	8	2	15	24	25
79	Zinc and articles thereof	28	0	6	35	31
80	Tin and articles thereof	8	3	11	23	13
81	Other articles of base metals; cermets; articles thereof	221	9	13	244	40

Table B-2––*Continued*
Mexico's imports (Maquiladora Program and Program for Temporary Importation to Manufacture Exported Products (PITEX), and other) from the United States in 2003

(Million U.S. dollars)

HS no.	HS categories	Mexico's imports from the United States: Maqui-ladora	PITEX	Other	Total	U.S. exports to Mexico: general
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	58	14	346	417	275
83	Miscellaneous articles of base metal	532	274	190	995	650
84	Machinery and mechanical appliances, including nuclear reactors, boilers, computer hardware, & parts	2,987	4,040	7,492	14,519	11,223
85	Electrical machinery & equipment; sound recorders & reproducers; television equip.; parts & accessories	15,553	2,052	3,625	21,230	14,903
86	Railway locomotives, rolling stock, track fixtures and parts; traffic signaling equipment	8	105	103	216	164
87	Other vehicles, incl. automobiles, trucks, buses, parts	1,211	4,387	4,450	10,048	9,010
88	Aircraft, spacecraft, and parts thereof	5	10	155	169	601
89	Ships, boats and floating structures	0	1	35	36	81
90	Optical, photographic, cinematographic, measuring, checking, precision, or medical instruments, & parts	1,489	582	1,267	3,338	2,855
91	Clocks and watches and parts thereof	111	0	18	129	23
92	Musical instruments; parts and accessories thereof	12	0	6	18	5
93	Arms and ammunition; parts and accessories thereof	0	0	6	6	4
94	Furniture; bedding, mattresses, & cushions; lamps & lighting fittings; illuminated signs; prefab buildings	225	338	391	953	845
95	Toys, games & sports equip.; parts & accessories	56	22	131	209	163
96	Miscellaneous manufactured articles	195	17	101	313	201
97	Works of art, collectors' pieces and antiques	0	0	3	3	17
	Total	40,669	17,951	46,463	105,083	79,571
	Other	113	50	116	280	3,541
	Grand total	40,782	18,002	46,579	105,363	83,108

Source: Compiled from "World Trade Atlas: Mexico Edition, December 2003," which used data provided by INEGI, the statistical agency of the Government of Mexico.

Table B-3
Mexico's imports (Maquiladora Program and Program for Temporary Importation to Manufacture Exported Products (PITEX), and other) from all countries except the United States in 2003

(Million U.S. dollars)

HS no.	HS categories	Maqui-ladora	PITEX	Other	Total
1	Live animals	0	0	25	25
2	Meat and edible offal	0	10	300	310
3	Fish and seafood	1	0	124	125
4	Dairy produce; eggs; honey; edible animal products	17	23	387	426
5	Other products of animal origin	0	1	12	13
6	Live trees & plants; cut flowers & ornamental foliage	1	0	24	24
7	Edible vegetables and certain roots and tubers	0	3	42	46
8	Edible fruit and nuts; peel of citrus fruit or melons	0	7	157	164
9	Coffee, tea, mate and spices	0	5	58	63
10	Cereals	0	0	173	173
11	Milling products; malt; starches; inulin; wheat gluten	1	0	56	57
12	Oil seeds & oleaginous fruits; misc. grains, seeds, & fruits; industrial or medicinal plants; straw & fodder	0	1	415	416
13	Lac; gums; resins & other vegetable saps & extracts	0	1	35	36
14	Vegetable plaiting materials & veg. products, nesoi	0	1	14	15
15	Animal or vegetable fats, oils, & waxes; edible fats	0	2	205	208
16	Edible preparations of meat, fish, or seafood	0	0	39	39
17	Sugars and sugar confectionery	1	1	65	67
18	Cocoa and cocoa preparations	0	2	98	101
19	Preparations of cereals, flour, starch, or milk	0	0	194	194
20	Preparations of vegetables, fruit, nuts, parts of plants	1	0	125	127
21	Miscellaneous edible preparations	0	8	89	97
22	Beverages, spirits, and vinegar	0	0	226	226
23	Residues, waste of the food industries; animal feed	0	0	38	38
24	Tobacco and manufactured tobacco substitutes	0	2	61	64
25	Salt; sulfur; earths & stone; plaster, lime, and cement	3	29	72	104
26	Ores, slag and ash	0	341	34	375
27	Mineral fuels, oils, waxes; bituminous substances	4	119	974	1,096
28	Inorganic chemicals; compounds of precious metals, rare-earth metals, or radioactive elements or isotopes	28	33	121	182
29	Organic chemicals	6	284	1,653	1,943
30	Pharmaceutical products	2	17	1,334	1,352
31	Fertilizers	0	4	281	285
32	Tanning or dyeing extracts; tannins; dyes, pigments, other coloring matter; paints & varnishes; putty; inks	68	21	271	361
33	Essential oils; perfume; cosmetic/ toilet preparations	2	3	548	553
34	Soap; lubricating products; waxes; polishing/scouring products; candles; modeling pastes; dental plaster	3	6	105	114
35	Albumoidal substances; starches; glues; enzymes	9	3	122	133
36	Explosives; fireworks; matches; combustible prep	8	7	6	21
37	Photographic or cinematographic goods	28	41	96	165
38	Miscellaneous chemical products	18	41	445	504
39	Plastics and articles thereof	666	276	1,076	2,018
40	Rubber and articles thereof	73	102	612	787
41	Raw hides and skins (other than furskins) and leather	179	38	63	279
42	Leather articles; saddlery; travel goods; handbags	21	11	202	233

Table B–3––*Continued*
Mexico's imports (Maquiladora Program and Program for Temporary Importation to Manufacture Exported Products (PITEX), and other) from all countries except the United States in 2003

(Million U.S. dollars)

HS no.	HS categories	Maqui-ladora	PITEX	Other	Total
43	Furskins and artificial fur; manufactures thereof	0	0	2	2
44	Wood and articles of wood; wood charcoal	39	43	419	501
45	Cork and articles of cork	1	1	5	8
46	Manufactures of straw; basketware and wickerwork	0	0	4	4
47	Wood pulp; waste and scrap paper and paperboard	0	0	94	94
48	Paper & paperboard; articles of pulp, paper, paperbd	113	13	548	675
49	Printed products, including books, newspapers, plans	42	4	332	379
50	Silk, including yarns and woven fabrics thereof	0	2	6	8
51	Wool & animal hair, yarns & woven fabrics thereof	3	44	47	94
52	Cotton, including yarns and woven fabrics thereof	109	86	94	290
53	Other vegetable textile fibers; yarns and fabrics of such vegetable fibers and paper	0	5	9	15
54	Manmade filaments, including yarns & woven fabrics	41	133	133	307
55	Manmade staple fibers, incl. yarns & woven fabrics	36	68	96	201
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	6	7	50	62
57	Carpets and other textile floor coverings	0	3	18	21
58	Special woven fabrics; tufted textile fabrics; ace; tapestries; trimmings; embroidery	30	17	39	86
59	Impregnated, coated, covered or laminated textile fabrics; textile articles suitable for industrial use	18	16	61	95
60	Knitted or crocheted fabrics	43	34	71	148
61	Knitted or crocheted apparel	26	18	399	443
62	Woven apparel	35	28	519	582
63	Other textile articles; needlecraft; used clothing	9	2	50	61
64	Footwear and parts	20	1	335	355
65	Headgear and parts	0	1	31	33
66	Umbrellas, walking sticks, whips, and riding crops	0	0	12	12
67	Articles of feathers and down; artificial flowers; articles of human hair	1	0	23	24
68	Articles of stone, plaster, cement, asbestos, or mica	8	9	80	97
69	Ceramic products	6	32	196	233
70	Glass and glassware	205	29	169	403
71	Natural or cultured pearls; precious or semiprecious stones; precious-metal and imitation jewelry; coin	91	89	108	289
72	Iron and steel	73	666	977	1,716
73	Articles of iron or steel	296	136	565	997
74	Copper and articles thereof	51	32	248	331
75	Nickel and articles thereof	5	5	20	30
76	Aluminum and articles thereof	58	163	407	628
78	Lead and articles thereof	2	0	3	6
79	Zinc and articles thereof	2	0	4	6
80	Tin and articles thereof	3	1	4	8
81	Other articles of base metals; cermets; articles thereof	5	3	12	20
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	4	9	327	339
83	Miscellaneous articles of base metal	71	64	200	335

Table B-3––*Continued*
Mexico's imports (Maquiladora Program and Program for Temporary Importation to Manufacture Exported Products (PITEX), and other) from all countries except the United States in 2003

(Million U.S. dollars)

HS no.	HS categories	Maqui-ladora	PITEX	Other	Total
84	Machinery and mechanical appliances, including nuclear reactors, boilers, computer hardware, & parts	5,836	1,554	7,260	14,650
85	Electrical machinery & equipment; sound recorders & reproducers; television equip.; parts & accessories	8,918	2,133	4,909	15,959
86	Railway locomotives, rolling stock, track fixtures and parts; traffic signaling equipment	0	14	12	27
87	Other vehicles, incl. automobiles, trucks, buses, parts	99	1,121	5,699	6,918
88	Aircraft, spacecraft, and parts thereof	0	1	83	84
89	Ships, boats and floating structures	0	0	15	16
90	Optical, photographic, cinematographic, measuring, checking, precision, or medical instruments, & parts	425	220	1,154	1,799
91	Clocks and watches and parts thereof	6	3	158	167
92	Musical instruments; parts and accessories thereof	2	0	34	36
93	Arms and ammunition; parts and accessories thereof	0	0	20	20
94	Furniture; bedding, mattresses, & cushions; lamps & lighting fittings; illuminated signs; prefab buildings	71	24	427	521
95	Toys, games & sports equip.; parts & accessories	32	20	511	563
96	Miscellaneous manufactured articles	40	7	171	217
97	Works of art, collectors' pieces and antiques	0	0	6	6
	Total	18,019	8,305	38,147	64,472
	Other	369	249	378	996
	Grand total	18,389	8,554	38,525	65,468

Source: Compiled from "World Trade Atlas: Mexico Edition, December 2003," which used data provided by INEGI, the statistical agency of the Government of Mexico.

Table B-4
Total imports into Mexico under Temporary Import Programs (Maquiladora and Program for Temporary Importation to Manufacture Exported Products), by leading sources, 2000-03

Source	2000	2001	2002	2003	Percentage of total in 2003
	Million dollars				
United States	78,933	65,511	60,854	58,784	69
China	1,085	1,743	3,192	5,644	7
Japan	3,581	5,214	6,065	4,624	5
Korea, South	2,671	2,320	2,464	2,723	3
Malaysia	950	1,559	1,546	2,225	3
Taiwan	1,116	2,069	3,282	1,525	2
Singapore	341	812	1,161	942	1
Thailand	344	416	593	737	1
Philippines	523	731	815	667	1
Malta	22	146	154	293	([1])
All other	8,114	7,368	7,288	7,401	9
Total	97,679	87,889	87,414	85,563	100

[1] Less than 0.5 percent.

Source: Compiled from "World Trade Atlas: Mexico Edition, December 2003," which used data provided by INEGI, the statistical agency of the Government of Mexico.

Table B-5
Mexico's exports (Maquiladora Program and Program for Temporary Importation to Manufacture Exported Products (PITEX), and other) to the United States in 2003

(Million U.S. dollars)

HS no.	HS categories	Mexico's exports to the United States: Maquiladora	PITEX	Other	Total	U.S. imports from Mexico: general
01	Live animals	0	0	475	475	472
02	Meat and edible offal	0	56	107	164	27
03	Fish and seafood	10	27	434	471	368
04	Dairy produce; eggs; honey; edible animal products	0	11	23	33	43
05	Other products of animal origin	1	2	2	5	20
06	Live trees & plants; cut flowers & ornamental foliage	0	6	28	34	37
07	Edible vegetables and certain roots and tubers	44	1,374	1,098	2,516	2,119
08	Edible fruit and nuts; peel of citrus fruit or melons	0	367	562	930	907
09	Coffee, tea, mate and spices	0	21	97	118	149
10	Cereals	0	0	35	35	8
11	Milling products; malt; starches; inulin; wheat gluten	0	1	9	11	12
12	Oil seeds & oleaginous fruits; misc. grains, seeds, & fruits; industrial or medicinal plants; straw & fodder	0	5	43	48	25
13	Lac; gums; resins & other vegetable saps & extracts	0	14	13	27	35
14	Vegetable plaiting materials & veg. products, nesoi	0	0	13	13	21
15	Animal or vegetable fats, oils, & waxes; edible fats	2	0	45	47	27
16	Edible preparations of meat, fish, or seafood	11	14	55	81	42
17	Sugars and sugar confectionery	98	76	67	241	247
18	Cocoa and cocoa preparations	28	34	28	90	78
19	Preparations of cereals, flour, starch, or milk	8	51	202	261	240
20	Preparations of vegetables, fruit, nuts, parts of plants	75	55	173	302	313
21	Miscellaneous edible preparations	18	38	213	270	211
22	Beverages, spirits, and vinegar	75	1,073	526	1,674	1,717
23	Residues, waste of the food industries; animal feed	0	0	20	20	14
24	Tobacco and manufactured tobacco substitutes	5	0	26	31	23
25	Salt; sulfur; earths & stone; plaster, lime, and cement	0	8	215	223	172
26	Ores, slag and ash	0	21	37	59	44
27	Mineral fuels, oils, waxes; bituminous substances	20	34	14,472	14,527	14,772
28	Inorganic chemicals; compounds of precious metals, rare-earth metals, or radioactive elements or isotopes	59	94	107	259	246
29	Organic chemicals	8	128	210	347	415
30	Pharmaceutical products	99	34	50	184	242
31	Fertilizers	0	0	6	6	12
32	Tanning or dyeing extracts; tannins; dyes, pigments, other coloring matter; paints & varnishes; putty; inks	34	30	93	157	130
33	Essential oils; perfume; cosmetic/ toilet preparations	25	36	137	199	127
34	Soap; lubricating products; waxes; polishing/scouring products; candles; modeling pastes; dental plaster	22	30	262	314	210
35	Albumoidal substances; starches; glues; enzymes	13	3	22	38	17
36	Explosives; fireworks; matches; combustible prep	22	0	11	33	23
37	Photographic or cinematographic goods	26	127	4	157	110
38	Miscellaneous chemical products	72	82	109	263	198
39	Plastics and articles thereof	1,528	543	535	2,607	1,465
40	Rubber and articles thereof	208	204	268	679	690
41	Raw hides and skins (other than furskins) and leather	128	31	32	191	67

Table B-5––*Continued*
Mexico's exports (Maquiladora Program and Program for Temporary Importation to Manufacture Exported Products (PITEX), and other) to the United States in 2003

(Million U.S. dollars)

HS no.	HS categories	Mexico's exports to the United States: Maqui-ladora	PITEX	Other	Total	U.S. imports from Mexico: general
42	Leather articles; saddlery; travel goods; handbags	105	55	26	186	129
43	Furskins and artificial fur; manufactures thereof	0	0	0	1	0
44	Wood and articles of wood; wood charcoal	184	70	68	322	265
45	Cork and articles of cork	7	0	0	7	0
46	Manufactures of straw; basketware and wickerwork	1	0	2	3	3
47	Wood pulp; waste and scrap paper and paperboard	21	0	3	25	5
48	Paper & paperboard; articles of pulp, paper, paperbd	434	64	310	809	631
49	Printed products, including books, newspapers, plans	155	12	45	213	171
50	Silk, including yarns and woven fabrics thereof	0	0	0	0	0
51	Wool & animal hair, yarns & woven fabrics thereof	13	3	20	36	31
52	Cotton, including yarns and woven fabrics thereof	37	20	99	155	151
53	Other vegetable textile fibers; yarns and fabrics of such vegetable fibers and paper	0	1	1	1	1
54	Manmade filaments, including yarns & woven fabrics	57	135	135	326	247
55	Manmade staple fibers, incl. yarns & woven fabrics	26	42	87	156	130
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	51	26	79	155	106
57	Carpets and other textile floor coverings	11	12	7	30	13
58	Special woven fabrics; tufted textile fabrics; ace; tapestries; trimmings; embroidery	109	3	29	141	53
59	Impregnated, coated, covered or laminated textile fabrics; textile articles suitable for industrial use	45	5	29	79	83
60	Knitted or crocheted fabrics	29	45	11	85	77
61	Knitted or crocheted apparel	2,050	764	73	2,887	2,928
62	Woven apparel	2,976	940	119	4,035	4,170
63	Other textile articles; needlecraft; used clothing	611	134	56	801	712
64	Footwear and parts	121	70	105	296	275
65	Headgear and parts	31	8	15	55	52
66	Umbrellas, walking sticks, whips, and riding crops	2	0	0	3	2
67	Articles of feathers and down; artificial flowers; articles of human hair	2	0	1	3	1
68	Articles of stone, plaster, cement, asbestos, or mica	124	56	177	356	329
69	Ceramic products	93	193	248	535	470
70	Glass and glassware	241	512	123	876	825
71	Natural or cultured pearls; precious or semiprecious stones; precious-metal and imitation jewelry; coin	226	139	609	973	706
72	Iron and steel	97	868	296	1,261	1,058
73	Articles of iron or steel	848	699	440	1,987	1,742
74	Copper and articles thereof	113	120	216	449	333
75	Nickel and articles thereof	10	28	1	40	36
76	Aluminum and articles thereof	304	90	126	520	380
78	Lead and articles thereof	0	4	1	5	4
79	Zinc and articles thereof	22	111	28	161	165
80	Tin and articles thereof	0	0	1	1	2
81	Other articles of base metals; cermets; articles thereof	29	6	5	40	10

Table B-5––*Continued*
Mexico's exports (Maquiladora Program and Program for Temporary Importation to Manufacture Exported Products (PITEX), and other) to the United States in 2003

(Million U.S. dollars)

HS no.	HS categories	Mexico's exports to the United States: Maqui-ladora	PITEX	Other	Total	U.S. imports from Mexico: general
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	95	104	36	235	175
83	Miscellaneous articles of base metal	874	209	109	1,192	971
84	Machinery and mechanical appliances, including nuclear reactors, boilers, computer hardware, & parts	14,989	6,546	1,496	23,031	17,389
85	Electrical machinery & equipment; sound recorders & reproducers; television equip.; parts & accessories	34,958	3,563	957	39,478	32,844
86	Railway locomotives, rolling stock, track fixtures and parts; traffic signaling equipment	67	131	27	225	90
87	Other vehicles, incl. automobiles, trucks, buses, parts	4,454	19,668	680	24,801	25,229
88	Aircraft, spacecraft, and parts thereof	18	92	94	204	67
89	Ships, boats and floating structures	53	16	1	70	44
90	Optical, photographic, cinematographic, measuring, checking, precision, or medical instruments, & parts	4,037	974	140	5,151	5,966
91	Clocks and watches and parts thereof	123	5	2	130	90
92	Musical instruments; parts and accessories thereof	49	0	1	50	35
93	Arms and ammunition; parts and accessories thereof	5	5	2	12	15
94	Furniture; bedding, mattresses, & cushions; lamps & lighting fittings; illuminated signs; prefab buildings	3,735	659	289	4,683	5,058
95	Toys, games & sports equip.; parts & accessories	273	49	36	359	597
96	Miscellaneous manufactured articles	373	58	85	516	363
97	Works of art, collectors' pieces and antiques	0	0	4	4	21
	Total	75,928	41,947	28,416	146,291	5,855
	Other	1	1	43	44	1
	Grand total	75,929	41,948	28,459	146,335	137,199

Source: Compiled from "World Trade Atlas: Mexico Edition, December 2003," which used data provided by INEGI, the statistical agency of the Government of Mexico.

Table B-6
Mexico's exports (Maquiladora Program and Program for Temporary Importation to Manufacture Exported Products (PITEX), and other) to all countries except the United States in 2003

(Million U.S. dollars)

HS no.	HS categories	Maquiladora	PITEX	Other	Total
01	Live animals	0	0	1	1
02	Meat and edible offal	0	6	3	9
03	Fish and seafood	0	8	76	84
04	Dairy produce; eggs; honey; edible animal products	0	29	54	83
05	Other products of animal origin	0	0	1	1
06	Live trees & plants; cut flowers & ornamental foliage	0	1	9	9
07	Edible vegetables and certain roots and tubers	1	12	85	97
08	Edible fruit and nuts; peel of citrus fruit or melons	0	12	116	127
09	Coffee, tea, mate and spices	0	34	63	97
10	Cereals	0	0	74	74
11	Milling products; malt; starches; inulin; wheat gluten	0	0	21	21
12	Oil seeds & oleaginous fruits; misc. grains, seeds, & fruits; industrial or medicinal plants; straw & fodder	0	0	12	12
13	Lac; gums; resins & other vegetable saps & extracts	0	19	11	30
14	Vegetable plaiting materials & veg. products, nesoi	0	0	6	6
15	Animal or vegetable fats, oils, & waxes; edible fats	0	4	11	14
16	Edible preparations of meat, fish, or seafood	0	1	9	10
17	Sugars and sugar confectionery	0	25	24	49
18	Cocoa and cocoa preparations	0	3	4	7
19	Preparations of cereals, flour, starch, or milk	0	48	41	89
20	Preparations of vegetables, fruit, nuts, parts of plants	0	12	34	46
21	Miscellaneous edible preparations	0	36	67	104
22	Beverages, spirits, and vinegar	0	185	119	304
23	Residues, waste of the food industries; animal feed	0	0	16	16
24	Tobacco and manufactured tobacco substitutes	0	15	5	20
25	Salt; sulfur; earths & stone; plaster, lime, and cement	0	0	63	63
26	Ores, slag and ash	0	74	120	194
27	Mineral fuels, oils, waxes; bituminous substances	0	20	3,977	3,997
28	Inorganic chemicals; compounds of precious metals, rare-earth metals, or radioactive elements or isotopes	1	56	68	125
29	Organic chemicals	0	584	336	920
30	Pharmaceutical products	0	119	730	849
31	Fertilizers	0	0	6	6
32	Tanning or dyeing extracts; tannins; dyes, pigments, other coloring matter; paints & varnishes; putty; inks	0	178	81	259
33	Essential oils; perfume; cosmetic/ toilet preparations	6	9	285	300
34	Soap; lubricating products; waxes; polishing/scouring products; candles; modeling pastes; dental plaster	2	10	101	112
35	Albumoidal substances; starches; glues; enzymes	1	1	24	26
36	Explosives; fireworks; matches; combustible prep	0	0	7	7
37	Photographic or cinematographic goods	3	102	29	134
38	Miscellaneous chemical products	0	38	84	122
39	Plastics and articles thereof	10	205	388	603
40	Rubber and articles thereof	0	32	43	75
41	Raw hides and skins (other than furskins) and leather	6	30	15	51

Table B-6––*Continued*
Mexico's exports (Maquiladora Program and Program for Temporary Importation to Manufacture Exported Products (PITEX), and other) to all countries except the United States in 2003

(Million U.S. dollars)

HS no.	HS categories	Maquiladora	PITEX	Other	Total
42	Leather articles; saddlery; travel goods; handbags	0	1	7	9
43	Furskins and artificial fur; manufactures thereof	0	0	0	0
44	Wood and articles of wood; wood charcoal	0	1	8	9
45	Cork and articles of cork	0	0	0	0
46	Manufactures of straw; basketware and wickerwork	0	0	0	0
47	Wood pulp; waste and scrap paper and paperboard	0	0	0	0
48	Paper & paperboard; articles of pulp, paper, paperbd	0	26	127	152
49	Printed products, including books, newspapers, plans	0	0	81	81
50	Silk, including yarns and woven fabrics thereof	0	0	0	0
51	Wool & animal hair, yarns & woven fabrics thereof	0	5	10	15
52	Cotton, including yarns and woven fabrics thereof	5	2	29	35
53	Other vegetable textile fibers; yarns and fabrics of such vegetable fibers and paper	0	0	0	0
54	Manmade filaments, including yarns & woven fabrics	0	6	55	61
55	Manmade staple fibers, incl. yarns & woven fabrics	0	70	47	117
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	0	2	23	24
57	Carpets and other textile floor coverings	0	27	1	27
58	Special woven fabrics; tufted textile fabrics; ace; tapestries; trimmings; embroidery	1	2	16	18
59	Impregnated, coated, covered or laminated textile fabrics; textile articles suitable for industrial use	0	3	21	24
60	Knitted or crocheted fabrics	0	1	4	5
61	Knitted or crocheted apparel	61	33	18	112
62	Woven apparel	89	23	43	155
63	Other textile articles; needlecraft; used clothing	1	12	9	23
64	Footwear and parts	0	4	19	22
65	Headgear and parts	0	0	3	3
66	Umbrellas, walking sticks, whips, and riding crops	0	0	0	0
67	Articles of feathers and down; artificial flowers; articles of human hair	0	0	0	0
68	Articles of stone, plaster, cement, asbestos, or mica	0	2	31	33
69	Ceramic products	0	7	36	43
70	Glass and glassware	2	45	47	93
71	Natural or cultured pearls; precious or semiprecious stones; precious-metal and imitation jewelry; coin	1	33	75	109
72	Iron and steel	1	269	83	352
73	Articles of iron or steel	1	87	147	234
74	Copper and articles thereof	0	2	45	47
75	Nickel and articles thereof	0	0	0	0
76	Aluminum and articles thereof	0	20	74	94
78	Lead and articles thereof	0	2	1	3
79	Zinc and articles thereof	0	20	11	30
80	Tin and articles thereof	0	0	0	0
81	Other articles of base metals; cermets; articles thereof	0	4	2	6

Table B-6––*Continued*
Mexico's exports (Maquiladora Program and Program for Temporary Importation to Manufacture Exported Products (PITEX), and other) to all countries except the United States in 2003

(Million U.S. dollars)

HS no.	HS categories	Maquiladora	PITEX	Other	Total
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	2	20	54	76
83	Miscellaneous articles of base metal	0	14	55	70
84	Machinery and mechanical appliances, including nuclear reactors, boilers, computer hardware, & parts	220	1,865	392	2,477
85	Electrical machinery & equipment; sound recorders & reproducers; television equip.; parts & accessories	581	475	301	1,357
86	Railway locomotives, rolling stock, track fixtures and parts; traffic signaling equipment	0	8	4	12
87	Other vehicles, incl. automobiles, trucks, buses, parts	59	2,320	100	2,480
88	Aircraft, spacecraft, and parts thereof	0	10	11	21
89	Ships, boats and floating structures	0	39	0	39
90	Optical, photographic, cinematographic, measuring, checking, precision, or medical instruments, & parts	154	223	71	448
91	Clocks and watches and parts thereof	0	3	4	7
92	Musical instruments; parts and accessories thereof	0	0	0	0
93	Arms and ammunition; parts and accessories thereof	0	0	2	2
94	Furniture; bedding, mattresses, & cushions; lamps & lighting fittings; illuminated signs; prefab buildings	10	29	44	84
95	Toys, games & sports equip.; parts & accessories	256	25	10	292
96	Miscellaneous manufactured articles	0	2	35	37
97	Works of art, collectors' pieces and antiques	0	0	1	1
	Total	1,476	7,653	9,367	18,497
	Other	1	1	71	72
	Grand total	1,477	7,654	9,438	18,569

Source: Compiled from "World Trade Atlas: Mexico Edition, December 2003," which used data provided by INEGI, the statistical agency of the Government of Mexico.

Table B-7
Total exports from Mexico under Temporary Import Programs (Maquiladora and Program for Temporary Importation to Manufacture Exported Products), by leading markets, 2000-03

Market	2000	2001	2002	2003	Percentage of total in 2003
	Million dollars				
United States	126,795	121,285	119,934	117,877	93
Canada	2,840	2,610	2,429	2,231	2
Netherlands	348	425	473	510	([1])
Japan	456	297	387	349	([1])
Brazil	379	423	334	280	([1])
Colombia	196	208	276	252	([1])
Hong Kong	164	95	156	209	([1])
France	252	266	236	206	([1])
Italy	141	169	106	192	([1])
Honduras	121	96	111	97	([1])
All other	5,560	5,536	5,306	4,803	4
Total	137,251	131,410	129,747	127,007	100

[1] Less than 0.5 percent.

Source: Compiled from "World Trade Atlas: Mexico Edition, December 2003," which used data provided by INEGI, the statistical agency of the Government of Mexico.