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Robert B. Koopman, *Director*

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TABLE OF CONTENTS

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November/December 2002

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INTERNATIONAL TRADE DEVELOPMENTS

The Andean Trade Preference Act: An Update

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The Andean Trade Preference Act (ATPA) expired on December 4, 2001, and was renewed retroactively on August 6, 2002 under the Andean Trade Promotion and Drug Eradication Act, which also amended ATPA to cover additional products. During the first 7 months of 2002, the loss of duty-free status under ATPA apparently contributed to the decline of U.S. imports from the four beneficiaries. The economic slowdown in the United States also was a major cause.

For 10 years, the Andean Trade Preference Act (ATPA) provided duty-free and reduced-duty treatment to qualifying imports from four Andean countries–Bolivia, Colombia, Ecuador, and Peru.[2] The purpose of the program was to promote broad-based economic development and viable economic alternatives to coca cultivation and cocaine production by offering Andean products broader access to the U.S. market. ATPA expired on December 4, 2001. Eight months later–on August 6, 2002–President Bush signed into law the Andean Trade Promotion and Drug Eradication Act (ATPDEA), which renewed ATPA preferences and amended ATPA to cover additional products subject to a two-step implementation procedure.

During the period when ATPA was not in effect, all imports of goods that had been eligible to claim the ATPA tariff preference were subject to general or normal trade relations (NTR) duty rates, formerly known as most-favored-nation rates.[3] The U.S. Generalized System of Preferences (GSP) program, which offers preferential access to the U.S. market for some products of the four Andean countries (which are designated beneficiaries of both programs), had also lapsed during this period; thus, GSP duty-free entry was not available for goods designated under that program. On February 15, 2002, the U.S. Customs Service published a temporary rule that granted importers of articles that formerly qualified for duty-free treatment under ATPA the option to defer the payment of estimated duties and fees after entry of these products until May 16, 2002. However, because ATPA was not renewed prior to that date, importers were required to pay all applicable duties and fees by May 16, 2002.[4]

According to interested parties, the expiration of ATPA tariff preferences had serious consequences for some Andean exporters. For example, both Colombian and Ecuadoran flower growers warned that because profit margins are so slim in the highly competitive flower business, the cost of the duty, typically 6.4 or 6.8 percent ad valorem, imposed on flower imports after ATPA expired was causing serious cash-flow problems and threatened the viability of some of the flower farms. According to the Colombian Flower Exporters Association (Asocolflores), the tariffs cost the floral industry about $2.5 million per month, and affected shipments for Valentine's Day and Mother's Day, which represent the major portion of total annual shipments. Companies in Colombia began to take

[1] 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.

[2] General note 11 to the Harmonized Tariff Schedule of the United States (HTS).

[3] ATPA-eligible product categories in the HTS contain a duty rate and the symbol "J" or "J*" in the special rates of duty subcolumn, while any rate lines in chapters 1-97 covering products that are eventually designated under the ATPDEA will have a special duty rate and a "J+" symbol; GSP-eligible products are designated by the symbol "A" or "A*" (see general notes 11 and 4, respectively, for more information).

[4] 67 F.R. 7070.

various measures to control expenses, such as curtailing investment, market development, and training, social, and environmental programs. Asocolflores noted that profit margins average 2 to 4 percent in the industry, less than the tariff preference granted by ATPA.[5] The Association of Floral Importers of Florida claimed that the expiration of ATPA jeopardized the continued viability of the association's members and its 6,100 employees, as well as 220,000 other U.S. jobs dependent on imported flowers from ATPA countries.[6] Flowers ranked second among U.S. imports under ATPA in 2000 and 2001. Reportedly, other Andean imports seriously affected by the imposition of NTR rates were asparagus, mangoes, and jewelry.

Table 1 shows the trends in U.S. imports of the top ATPA-eligible products during January-July 2002, when ATPA was not in effect. During January-July 2002, imports were lower for all but one of the items shown than they had been in January-July 2001. The rate of decline ranged from 2.9 percent (cut flowers and buds, suitable for bouquets) to 91.2 percent (pigments). The exception was cigarettes, which surfaced only in 2001 as a major import item under ATPA; thus in January-July 2002, cigarette imports from ATPA countries were still new. For this reason, even though their duties at 9.9 percent are relatively high, cigarette imports soared at a rate of 236.7 percent during January-July 2002 from their low 2001 base.

The table also shows a low correlation between the rates of duty and the decline of imports. Nonetheless, for some leading ATPA imports such as flowers, the reimposition of duties (6.4 to 6.8 percent) may have been critical if industry profit margins were already low. For the most part, the expiration of ATPA may have only exacerbated the decline in imports of former ATPA items, which was caused principally by the economic slowdown in the United States. Shrinking U.S. demand depressed all U.S. imports from ATPA countries, regardless whether they entered under ATPA or outside the program. Imports from ATPA countries declined by 13.2 percent in January-July 2002 compared with the same period of 2001. U.S. imports from all countries of the world were down by 3.9 percent. The 23.5-percent average decline in the imports of the twelve leading ATPA items that lost their duty-free status was steeper than these broader import trends, suggesting that the expiration of ATPA aggravated the decline of trade involved.

On August 6, 2002, the President signed into law the Trade Act of 2002.[7] Title XXXI of the Act contains the ATPDEA, which renews and enhances ATPA through December 31, 2006. The renewal is retroactive to December 4, 2001, when ATPA expired; thus, duties paid on eligible articles when ATPA was not in effect can now be refunded.

ATPDEA authorizes the extension of duty-free treatment to certain products previously excluded from ATPA preferences, including certain textiles and apparel, footwear, petroleum and petroleum derivatives, watches and watch parts (including cases, bracelets, and straps), and certain tuna in smaller foil or other flexible airtight packages (not cans). However, ATPDEA did not renew the reduced-duty provisions on certain handbags, luggage, flat goods, work gloves, and leather wearing apparel.

With respect to textiles and apparel, ATPDEA grants apparel duty-free and quota-free treatment provided that it is assembled in designated countries and is made wholly from U.S. fabric or fabric components or components knit-to-shape in the United States. Also eligible for duty-free entry is apparel assembled from Andean regional fabric or components knit-to-shape in the region, subject to a quantitative limit. The statute sets the cap at 2 percent by volume (in square meter equivalents) of all U.S. apparel imports in 2001 for the 1-year period beginning October 1, 2002, increasing annually in equal increments to a total of 5 percent for the period beginning October 1, 2006.[8] Currently, U.S. imports of all textiles and apparel from the four Andean countries account for about 1 percent by value of total U.S. textile and apparel imports.

On October 31, 2002, the ATPDEA amendments were implemented by Presidential proclamation[9] following a two-step implementation procedure. As originally enacted, the ATPA established criteria for determining whether the four eligible Andean countries could be designated as beneficiaries, and all four had so qualified. The ATPDEA required the four countries to meet eight additional criteria in order to qualify for

[5] Submission to the Commission by Susan M. Schmidt, Counsel for Colombian Flower Exporters Association, received July 2, 2002, in connection with USITC, *Andean Trade Preference Act: Impact on U.S. Industries and Consumers and on Drug Crop Eradication and Crop Substitution, Eighth Report 2001*, Inv. No. 332-352, September 2002.

[6] Submission to the Commission by Lin Watts, Executive Vice President of Association of Floral Importers of Florida, received June 28, 2002, in connection with USITC, *Andean Trade Preference Act: Impact on U.S. Industries and Consumers and on Drug Crop Eradication and Crop Substitution, Eighth Report 2001*, Inv. No. 332-352, September 2002.

[7] Public Law 107-210.

[8] These new benefits will be reflected in chapter 98 of the HTS along with additional qualifying criteria provided in the ATPDEA.

[9] Proclamation 7616–To Implement the Andean Trade Promotion and Drug Eradication Act, Oct. 31, 2002.

Table 1
Twelve major U.S. products under ATPA: Imports from ATPA Countries in January-July 2001 and January-July 2002

HTS No.	Product Description and Estimated Ad-Valorem Duty Equivalent	U.S. Imports in Jan.-July 2001 (thousand dollars)	U.S. Imports in Jan.-July 2002 (thousand dollars)	Percent Change
7403.11.00	Refined copper cathodes and sections thereof (1.0 percent)	275,854	246,842	-10.5
0603.10.60	Fresh-cut roses (6.8 percent)	133,884	125,172	-6.5
3212.90.00	Pigments (3.1 percent)	120,752	10,672	-91.2
0603.10.70	Chrysanthemums, etc. (6.4 percent)	61,639	52,736	-14.4
1604.14.40	Tunas and skipjack, not canned (0.4 percent)	19,482	16,126	-17.2
0709.20.90	Fresh or chilled asparagus (21.3 percent)	12,847	10,492	-18.3
0603.10.80	Cut flowers and buds, suitable for bouquets (6.4 percent)	59,295	57,552	-2.9
7113.19.10	Gold rope and chain for jewelry (7.0 percent)	17,205	13,355	-22.4
7113.19.50	Gold jewelry articles and parts (5.5 percent)	44,736	32,447	-27.5
7306.20.60	Iron or non-alloyed steel (0.4 percent)	9,479	2,503	-73.6
7901.11.00	Zinc, not alloyed, unwrought, cont. 99.99 or more by weight of zinc (1.5 percent)	21,043	14,253	-32.3
2402.20.80	Cigarettes, paper-wrapped (9.9 percent)[1]	4,416	14,872	236.7
	Total of above	780,632	597,022	-23.5
	Total imports from ATPA countries	5,821,118	5,055,605	-13.2
	U.S. imports from all countries	674,961,474	648,533,066	-3.9

[1] An atypical item; imports under ATPA were first recorded in 2001.

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

designation for the enhanced trade benefits under the ATPDEA. The criteria covered such topics as the extent to which a country provides protection of intellectual property rights and internationally recognized worker rights.[10] On October 31, Bolivia, Colombia, Ecuador, and Peru were designated eligible for ATPDEA benefits.

For all of the products for which new preferences were made available by ATPDEA (except for textiles and apparel and for tuna in pouches), a second step had to be completed before designated countries could benefit from the ATPDEA's enhanced trade benefits. The President had to determine that the product was not import-sensitive before it could be granted duty-free treatment. While the President extended ATPDEA benefits to most eligible products, he did not include 17 footwear rate lines on the basis of their import sensitivity in the context of imports from ATPDEA countries. On October 31, the HTS was modified to reflect the new duty-free benefits. Nearly 6,300 rate lines or products are now covered by the Andean trade preference program.

[10] Section 204(b)(6)(B).

Trade in Biotechnology Food Products

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The United States is the world's largest producer and exporter of modern biotechnology food products. Without generally accepted standards for evaluating the safety of biotechnology food products, sharply different views have emerged—as between the United States and the European Union–on the need to trace biotechnology components used in the food production chain as well as on the need for mandatory labels designating biotechnology food products. Many countries are aligning their biotechnology policies either with those of the United States or the European Union. This article highlights key recent developments in global trade in biotechnology food products, and discusses trade-related biotechnology policy developments in a number of key trading countries, as the Codex Alimentarius, the United Nations-based food standards setting body, is set to consider in June 2003 the first global guidelines for biotechnology food products.

Biotechnology refers to a collection of scientific techniques used to create, improve, or modify plants, animals, and microorganisms for the development of products such as foods, enzymes, drugs, and vaccines.[2] This article focuses on international trade in food products developed through modern agricultural biotechnology—i.e., through the use of genetic engineering—because the principal biotechnology products marketed to date have been genetically engineered field crops such as corn, cotton,[3] and soybeans.[4]

Conventional agricultural biotechnology techniques, such as selective breeding and crossbreeding of related species, have been used for hundreds of years to produce crops with specific traits; however, such techniques can be time-consuming because they may require breeding several generations to obtain a desired trait and breed out unwanted characteristics. Modern biotechnology uses various scientific techniques, most notably genetic engineering, to modify plants, animals, or microorganisms by introducing into their genetic makeup genes for specific desired traits (the biotechnology component), including genes from unrelated species. Genetic engineering allows faster development of new food products and increases the range of traits available for developing new crop varieties. Biotechnology crops have been developed to resist insect damage, resist viral infections, tolerate certain herbicides, and provide enhanced nutritional content.[5]

Global Biotechnology Crop Production

The United States is the world's largest producer of biotechnology crops. More than 88 million acres of U.S. farmland were planted with biotechnology crops in 2001, accounting for 68 percent of total 2001 global acreage planted in biotechnology crops. Argentina ranks as the second largest producer, accounting for 22 percent of 2001 global biotechnology crop acreage, followed by Canada (6 percent) and China (3 percent). South Africa, Australia, Mexico, Bulgaria, Uruguay,

[1] The views expressed in this article are those of the author. They are not the views of the U.S. International Trade Commission (USITC) as a whole or of any individual Commissioner.

[2] In its broadest sense, biotechnology also includes processes that humans have used for thousands of years to ferment foods such as beer, wine, bread, and cheese, to alter raw food products to produce more stable foods. Donna U. Vogt and Mickey Parish, Congressional Research Service (CRS), *Food Biotechnology in the United States: Science, Regulation, and Issues*, Jan. 19, 2001, p. 2.

[3] Cottonseed oil, extracted from cotton seeds, is used in many food products and is a commonly used cooking oil.

[4] Biotechnology (bioengineered, or transgenic) food products also are identified in the literature as genetically-modified (GM) food products or as food products containing genetically-modified organisms (GMOs).

[5] U.S. Department of Agriculture (USDA), Food and Drug Administration (FDA); and World Health Organization (WHO), "20 Questions on Genetically Modified (GM) Foods," found at http://www.who.int/fsf/GMfood/q&a.pdf, retrieved Nov. 6, 2002;U.S. General Accounting Office (GAO), *Concerns Over Biotechnology Challenge U.S. Agricultural Exports*, GAO-01-727, June 2000; Ronald Bailey, "The Looming Trade War Over Plant Biotechnology, CATO Institute, *Trade Policy Analysis*, No. 18, Aug. 1, 2002; and Jorge Fernandez-Cornejo and William D. McBride, USDA, Economic Research Service (ERS), "Adoption of Bioengineered Crops," *Agricultural Economic Report*, No. 810, May 2002.

Romania, Spain, Indonesia, Germany, and France, among others, each accounted for less than 1 percent of global biotechnology crop acreage in 2001.[6]

Current trends indicate that the use of biotechnology crops in the United States continues to increase. When surveyed about their prospective crop planting for the upcoming crop growing season, farmers reported their intentions to plant 26 percent of total U.S. corn acreage with biotechnology varieties in 2001, rising to 32 percent in 2002; 69 percent of cotton acreage to be planted with biotechnology varieties in 2001, rising to 71 percent in 2002; and 68 percent of soybean acreage to be planted with biotechnology varieties in 2001, rising to 74 percent in 2002.[7]

U.S. Biotechnology Policies

Biotechnology products approved for human and animal consumption have been commercially available in the United States since 1995.[8] Genes derived from a soilborne bacterium, *Bacillus thuringiensis* (Bt), were introduced into certain crops to develop Bt corn, Bt cotton, Bt potato, Bt rice, and Bt tomato, conferring to the crops resistance to certain insects. Glyphosate-tolerant (known commercially as "Round-Up Ready®") soybeans contain a gene that protect soybeans from the herbicide glyphosate, thereby allowing the soybeans and any weeds to be sprayed with the herbicide to kill the weeds but leave the soybeans unaffected. There are also approved herbicide-resistant varieties of canola, cotton, corn, radicchio, rice, and sugar beet. There are virus-resistant varieties of papaya, potato, and squash. Biotechnology varieties of tomato and cantaloupe contain a gene that slows the ripening process to allow fruit to ripen longer on the vine.[9]

In the United States, regulation of biotechnology food products does not differ fundamentally from regulation of conventional food products.[10] The United States applies existing food safety and environmental protection laws and regulations to biotechnology products, and approves their use for consumption based on the characteristics of the products rather than whether the products are derived from genetic engineering. Among the factors considered in decisions to approve a biotechnology food product for human consumption are: its expected nutritional value; its ability to be rapidly digested to minimize the likelihood that it will become allergenic; and the extent to which the biotechnology component is substantially the same as other proteins commonly present in food.[11]

The United States does not require biotechnology food products to be so labeled (although voluntary labeling as to biotechnology content is permitted), largely because these products are seen as substantially equivalent to conventional food products and because there is no scientific basis to presuppose that biotechnology food products are more risky or substantially different from other food products.[12] Nevertheless, concern about biotechnology food products appears to be increasing. Frito-Lay, McDonald's, and Proctor & Gamble have stated that they will not accept biotechnology corn and potatoes from U.S. growers for their french fries and corn/potato chip products.[13] A number of U.S. states and cities have had legislative activity to label biotechnology food products. Most recently, Oregon voters rejected a November 2002 ballot initiative that would have required labeling of biotechnology food products. At the federal level, in May 2002, Rep. Dennis J. Kucinich (D-OH) introduced H.R. 4814, "The Genetically Engineered Food Right to Know Act" (H.R. 4814), which would require biotechnology food products to be so labeled.

One key trade concern for U.S. producers is the fact that U.S. farm, grain storage, and transportation

[6] Biotechnology Industry Organization (BIO), "Guide to Biotechnology: Agricultural Production," found at *http://www.bio.org/er/agriculture.asp*, retrieved Nov. 6, 2002.

[7] USDA, National Agricultural Statistical Service, *Prospective Plantings*, CrPpr2–4 (3-02), pp. 20-21.

[8] The FDA approved the first biotechnology food product for the U.S. market in 1990. That approval was for a biotechnology-derived food processing enzyme, chymosin, produced by genetically-modified bacteria. Chymosin is the active enzyme in rennet, a milk-clotting agent used to make cheese; traditionally rennet was obtained from calf stomach linings. FDA, "Safety Assurance of Foods Derived by Modern Biotechnology in the United States," July 1996, found at *http://www.cfsan.fda.gov/~lrd/biojap96.html,* retrieved Nov. 16, 2002.

[9] USDA, FDA, "The FDA List of Completed Consultations on Bioengineered Foods." *http://www.cfsan.fda.gov/~lrd/biocon.html*, retrieved Nov. 6, 2002.

[10] U.S. regulatory oversight in biotechnology is provided primarily by USDA and its agencies, which regulate and monitor the use of biotechnology for agriculture; the Environmental Protection Agency (EPA), which approves new pesticidal and herbicidal substances; and FDA which, among other things, has legal authority with respect to food safety and labeling.

[11] U.S. Department of State, "Food Safety: Regulating Plant Agricultural Biotechnology in the United States," found at *http://usinfo.state.gov/products/pubs/biotech/*, retrieved Nov. 12, 2002.

[12] GAO, *Concerns Over Biotechnology Challenge U.S. Agricultural Exports*, GAO-01-727, June 2001, and Vogt and Parish, CRS, *Food Biotechnology in the United States*; USDA, Agricultural Biotechnology website, found at *http://www.usda.gov/agencies/biotech/*.

[13] American Corn Growers Association, press release, Apr. 28, 2000, found at *http://www.acga.org/news/2000/043000.htm*, retrieved Nov. 12, 2002.

systems are not designed to segregate bulk, untagged, biotechnology agricultural products, on a large scale and with precision, from conventional varieties. Such segregation, which would require duplication in storage and transportation infrastructure, would impose added costs to the U.S. farm sector. There are also the concerns of unintended cross-contamination—that biotechnology crops will crossbreed with other plants resulting in unintended harmful breeds, and that a small number of biotechnology crops will undermine biological diversity. Moreover, the U.S. Government "does not have the authority to force farmers to market their crop in one channel or another. Therefore, the U.S. Government can not certify that certain varieties are completely absent from export channels."[14]

International Harmonization

There are currently no globally accepted standards for evaluating the safety of biotechnology food products. Some question whether separate regulations for trade in biotechnology products are needed at all, and "trade lawyers differ over the need for sui generis rules and disciplines for bioengineered products in international trade versus other approaches such as interpreting or clarifying existing agreements to take them into account."[15] Efforts to develop generally accepted standards for biotechnology products are being conducted by United Nations (UN) agencies and by the Organization for Economic Cooperation and Development (OECD). Biotechnology also has been addressed in other trade-related fora not reviewed in this article, such as the Asia Pacific Economic Cooperation (APEC) forum.

Codex Alimentarius Commission

The Codex Alimentarius Commission (Codex) is an international standard setting body for food safety jointly administered by two UN agencies–the Food Agriculture Organization (FAO) and the World Health Organization (WHO)–to develop food standards, guidelines and related texts such as codes of practice under the Joint FAO/WHO Food Standards Program. The purposes of this program are to protect consumer health, to ensure fair food trade practices, and to promote coordination of all food standards work undertaken by international governmental and non-governmental organizations. The United States has participated in Codex since it was formed in 1962.

The standard-setting role of Codex is explicitly recognized in the World Trade Organization (WTO) Agreement on Sanitary and Phytosanitary Measures (SPS Agreement). The SPS Agreement refers WTO members to the standards, guidelines, and recommendations established by Codex. Other international trade agreements also reference Codex. For example, the North American Free Trade Agreement cites Codex standards as basic requirements to be met by the United States, Canada, and Mexico in terms of the health and safety aspects of food products.[16] APEC and the European Union (EU) also refer to Codex as the basis for their requirements.

Codex is currently developing draft principles for human health risk analysis of biotechnology food products, and plans to consider formally adopting these principles in July 2003. These principles are to be based on pre-market assessment, performed on a case-by-case basis including an evaluation of both direct effects from the biotechnology component and any unintended effects. Although these Codex principles would not have a binding effect on national legislation, they could "be used as a reference in case of trade disputes."[17]

UN Convention on Biological Diversity and Biosafety Protocol

The UN Convention on Biological Diversity (CBD) was adopted at the 1992 so-called Earth Summit in Rio de Janeiro. The pact sets out broad commitments for conservation and sustainable use of the world's biodiversity, and for sharing the benefits arising from the commercial and other utilization of genetic resources in a fair and equitable way. The United States, one of 168 signatories of the CBD, signed the agreement in 1993 but has not ratified it.

Parties to the CBD completed a supplementary agreement, known as the Cartagena Protocol on Biosafety (Biosafety Protocol), in January 2000. Because it had not ratified the CBD, the United States participated in the Biosafety Protocol negotiations only as an observer. If it enters into force, the Biosafety Protocol would be a legally binding environmental treaty that seeks to protect biological diversity from the potential risks posed by crossborder movements of certain biotechnology food products that are capable of transferring or replicating their genetic material.[18]

[14] U.S. Department of State, "Frequently Asked Questions About Biotechnology," fact sheet, Jan. 22, 2001, found at *http://www.state.gov/e/eb/rls/fs/1142pf.hm,* retrieved Nov. 6, 2002.

[15] Charles E. Hanrahan, CRS, *U.S.–European Agricultural Trade: Food Safety and Biotechnology Issues*, 98-8611, Jan. 17, 2001, p. 2.

[16] Codex, "Understanding the Codex Alimentarius," found at *http://www.codexalimentarius.net/*, retrieved Nov. 6, 2002.

[17] WHO, "20 Questions on Genetically Modified (GM) Foods."

[18] As of August 2002, the Biosafety Protocol has been signed by 103 countries, and has been ratified by 37 countries. It must be ratified by 50 countries before it enters into effect 90 days later. Convention on Biological Diversity, found at *http://www.biodiv.org/world/parties.asp,* retrieved Nov. 5, 2002.

The cornerstone of the Biosafety Protocol is a mandatory requirement that exporters seek consent from the competent national authority in importing countries before shipping certain biotechnology products intended for release into the environment. Such advanced notification and consent would not apply to shipments of biotechnology food products intended for direct use as food, feed, or processing (although additional restrictions and mandatory requirements could be added later),[19] but would apply to shipments of such products as seeds for planting and fish for field release. Although excluded from the mandatory advanced reporting requirement, shipments of biotechnology food products intended for food, feed, or processing would be required to be accompanied by documentation stating that such shipments "may contain" biotechnology components and that the products are "not intended for intentional introduction into the environment."[20]

Although it was not drafted to be subordinate to any other international agreement, the Biosafety Protocol preserves countries' rights under other international agreements, including the WTO. The Protocol recognizes that trade and environment agreements should be mutually supportive. However, according to its framers, the Biosafety Protocol would offer benefits beyond those afforded by the WTO because, "the WTO is ... less inclined to take into account socio-economic concerns, such as the risk that exports of genetically engineered crops may replace traditional ones and undermine local cultures and traditions in importing countries; however, under the Protocol these socio-economic considerations may be taken into account."[21]

The Biosafety Protocol would require that regulatory decisions under the Protocol be based on risk assessments "carried out in a scientifically sound manner" and "taking into account recognized risk assessment techniques." However, the Protocol reaffirms the use of the so-called precautionary principle advocated by the EU, which is also a key element of the CBD. The precautionary principle authorizes countries to deny entry to undesired biotechnology imports—even in cases of insufficient scientific data, analysis, or information to support the denial. This differs from the provisions of the WTO SPS Agreement and the Technical Barriers to Trade (TBT) Agreement. Although the SPS Agreement authorizes WTO members to "provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information," the SPS Agreement provides that members adopting such measures to "seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time," and sets forth a mechanism for WTO members whose exports are constrained by such provisional measures to seek an explanation for them. The TBT Agreement requires WTO members to avoid technical regulations that create obstacles to trade.[22]

OECD

The OECD established the Internal Coordination Group on Biotechnology in 1993 to facilitate international coordination in the areas of agriculture, technology, and trade. As a biotechnology clearinghouse for its members, the OECD BioTrack provides information related to major legislative developments in OECD member countries, and an online database of biotechnology products and field trials. The main focus of the work is on international harmonization of regulatory oversight in biotechnology to ensure that the environmental health and safety aspects are properly evaluated.

This OECD effort seeks to promote international harmonization in the safety assessment and regulation of biotechnology food products, so as to avoid divergent standards that could arise from different approaches to risk management and possible measures taken to mitigate such risks. Under active discussion, food labeling practices and requirements–particularly concerning ingredients modified through biotechnology–are one such subject where different approaches have the potential to impede international trade in food products and so become nontariff trade barriers.

The OECD maintains a collection of consensus documents on biotechnology that are intended to establish a set of mutually acceptable standards and practices member countries. One set of consensus documents comprises technical information for use during the regulatory assessment of biotechnology products. Consensus documents on food and feed safety are being published concerning nutrients,

[19] CRS, *Biosafety Protocol for Genetically Modified Organisms: Overview*, Jan. 18, 2001, RL30594, found at *http://www.cnie.org/NLE/CRSreports/Agriculture/ag-93.pdf*, retrieved Nov. 5, 2002, and WHO, "20 Questions on Genetically Modified Foods."

[20] Article 18 of the Biosafety Protocol. For additional information, see UN Environment Program, Secretariat of the Convention on Biological Diversity, "Frequently Asked Questions," found at *http://www.biodiv.org/biosafety/faqs.asp#lmo,* retrieved Nov. 8, 2002.

[21] UN Environment Program, Secretariat of the Convention on Biological Diversity, "Frequently Asked Questions."

[22] Preamble and articles 10 and 15 of the Biosafety Protocol. See also article 5 of the SPS Agreement and article 2 of the TBT Agreement.

toxicants, usage, and other relevant information on biotechnology food products.[23]

Global Biotechnology Policies in Practice

Biotechnology food products are being used for human consumption all over the world. Most industrialized countries and many developing countries have indigenous biotechnology crop research and development programs. However, differences in consumer attitudes toward risk and government approaches to food safety have slowed the acceptance of biotechnology products in many countries. In the absence of broadly accepted standards, many countries have adopted their own safety standards with respect to biotechnology food products. While national standards and procedures can help exporters, they also can reduce international competition, distort markets, and prevent foreign firms from entering markets. Widely different national standards and approval procedures increasingly have resulted in international trade friction. Highlights of recent biotechnology policy developments in selected U.S. export markets follow.

European Union

The EU is one of the most important trading partners and competitors of the United States in world agricultural markets. Total U.S. farm product exports to the EU were valued at $6.4 billion in 2001, making the EU the fourth largest single market for U.S. farm products (behind Japan, Canada, and Mexico). The EU ranked as the largest single market for U.S. soybean exports, with U.S. exports valued at $1.1 billion in 2001, down from $2.3 billion in 1997.[24]

EU policies with respect to biotechnology were long determined by Directive 90/220/EEC, which entered into force in October 1991. That directive applied to biotechnology food safety, animal feed, seeds, and environmental safety. In May 1997, the EU adopted the Novel Foods Regulation (Regulation 258/97)[25] to specifically address biotechnology food safety and labeling. Among other things, the regulation requires all food products containing, consisting of, or produced from biotechnology components to be so labeled. Other significant regulations include Regulation 1139/98 concerning biotechnology corn and soybean approved before the Novel Foods Regulations entered into force, Regulation 50/2000 concerning labeling of additives and flavorings containing biotechnology components, and Regulation 49/2000 concerning labeling requirements in cases of unintended contamination of biotechnology material in non-biotechnology food. Currently under consideration are regulations to specifically address biotechnology seeds and feed.

Based on the precautionary principle, the European Commission (EC) does not approve new biotechnology products if there is insufficient, inconclusive, or uncertain scientific data regarding potential risks. EU consumer experiences vastly differ from those in the United States. Recent food contamination events in the EU, including outbreaks of bovine spongiform encephalopathy (commonly known as "mad cow disease") and its human equivalent Creutzfeldt-Jacob disease that began in the late 1990s as well as incidents of food contamination such as the 1999 contamination of Coca-Cola products in Belgium and France "have undermined the confidence of public opinion and consumers because of decisions or absence of decisions were not supported by full scientific evidence."[26] The precautionary principle is viewed as providing a basis for action when science is unable to give a clear basis.

The EC approved the commercial release of 18 biotechnology food products under Directive 90/220/EEC, including Round-Up Ready® soybeans and Bt corn, into the European market. However, no further authorizations have been granted, and a de facto moratorium on further approvals has been in place since June 1999. There are currently 13 applications pending approval. Moreover, some EU member states have invoked the safeguard clause of Directive 90/220/EEC to temporarily ban the placing on the market of biotechnology corn and canola products in their territories, including Austria, Luxembourg, France, Greece, Germany, and the United Kingdom.

[23] OECD, "About Biosafety: BioTrack," found at *http://www.oecd.org/EN/about/0,,EN-about-528-14-no-no-no-0,00.html*, retrieved Nov. 12, 2002.

[24] USDA, FAS "U.S. Exports of Soybeans, CY 1997-2001," found at *http://www.fas.usda.gov/scriptsw/bico/bico.asp?Entry=lout&doc=640*, and USDA, FAS, "U.S. Exports of Agricultural Products CY 1997 - 2001 and Year-to-Date Comparisons," found at *http://www.fas.usda.gov/scriptsw/bico/bico.asp?Entry=lout&doc=595*, retrieved Nov. 13, 2002.

[25] Novel foods and novel foods ingredients are defined as food and food ingredients that have not been on the EU market to a significant degree before May 1997, including biotechnology foods and food ingredients. European Commission (EC), Health and Consumer Protection Directorate-General, "Novel Foods Regulation," found at *http://europa.eu.int/comm/food/fs/novel_food/nf_regulation_en.html*, retrieved Nov. 12, 2002.

[26] EC Health and Consumer Protection Directorate-General, "Commission Adopts Communication on Precautionary Principle," press release, Feb. 2, 2000.

However, these safeguard cases have been examined by the EU Scientific Committee on Plants, "which in all cases deemed that the information submitted by Member States did not justify their bans."[27]

Directive 2001/18/EC, which replaced Directive 90/220/EEC, entered into force in October 2002. EU sources report that this new directive strengthened the previous legislation by requiring more detailed pre-market risk assessments, mandatory post-market monitoring and surveillance, and mandatory labeling and traceability requirements. Thus, "[t]he Commission considers that it has fulfilled its commitment to create the conditions to re-start the authorization procedure" for biotechnology products.[28]

The EU approved enhanced labeling requirements for biotechnology food and feed in November 2002. The new requirements add to existing EU rules by requiring all biotechnology food products to be labeled irrespective of whether the biotechnology component is present in the final product, effectively extending labeling requirements to highly refined products like corn and soybean oil produced from biotechnology crop varieties and food ingredients made from biotechnology products, even though the products may have no detectable traces of the biotechnology component. For the first time, biotechnology feed products also must be labeled. For non-biotechnology food products, the EU reduced the threshold of allowable biotechnology material below which labeling is not required from 1 percent to no higher than 0.9 percent. For products unintentionally contaminated with biotechnology material, such as bulk commodity shipments, the EU moved its allowable tolerance from zero to 0.5 percent. The United States Government had delivered a demarche to the EU in September 2002 outlining U.S. concerns about the pending traceability and labeling regulations and their likely adverse impact on U.S. bulk shipments.[29]

U.S. officials have stated that the United States continues to have profound problems with EU biotechnology policy, and have expressed the concern that the EU approach to biotechnology and antipathy to biotechnology food products will spread to other countries.[30] U.S. farm groups have urged the United States to seek formal WTO dispute settlement consultations on the EU moratorium on new biotechnology approvals.

Argentina

An estimated 90 percent of Argentina's soybean crop and 20 percent of its corn crop is planted in biotechnology varieties. Argentina's high adoption rates of biotechnology crops have been in large part due to the cost savings these crops afford. Argentina, which lacks sufficient storage and handling facilities to segregate bulk biotechnology commodities, joined with the United States, Canada, and other countries opposed to increasing traceability and labeling requirements for bulk commodities in the Biosafety Protocol negotiations.[31] Argentina has participated as an observer in bilateral U.S.-Canadian discussions on harmonization of the regulatory review process of biotechnology food products.[32]

Argentina approved the use of 5 biotechnology crops during 1996-98, but halted new commercial approvals in 1998 as a result of human health and environmental concerns. Approvals resumed in April 2001 when Argentina approved the commercial use of Round-Up Ready® cotton.[33]

Argentina and its Southern Common Market (Mercosur) partners Brazil, Paraguay, and Uruguay, have not agreed on common biotechnology regulations. Mercosur's Food Commission has recommended a range of Codex standards for adoption by member countries, and is using other Codex standards as points of reference in continuing deliberations. Moreover, the Mercosur partners have agreed to wait until international policies are developed by Codex.[34]

Brazil

Brazil is the world's second largest producer of soybeans and ranks as one of the world's leading producers of biotechnology-free crops. As a major

[27] Charles E. Hanrahan, CRS, *U.S.–European Agricultural Trade*, and EU, "Questions and Answers on the Regulation of GMOs in the EU," press release, Oct. 15, 2002, MEMO/02/160.

[28] EU, "New GMO Directive taking effect today provides more transparent and effective system for authorisation of GMOs, says European Commission," press release, IP/02/1513, Brussels, Oct. 17, 2002.

[29] "U.S. Demarche Highlights Priority Changes to EU Biotech Rules," *Inside U.S. Trade*, Oct. 11, 2002.

[30] Alan P. Larson, Under Secretary for Economic, Business, and Agricultural Affairs, U.S. Department of State, "Remarks before the CATO Institute," Sept. 5, 2002.

[31] Randall D. Schnepf, Erik Dohlman, and Christine Bolling, USDA, ERS, *Agriculture in Brazil and Argentina: Developments and Prospects for Major Field Crops*, Agriculture and Trade Report No. WRS013, December 2001.

[32] Government of Argentina National Advisory Committee on Agricultural Biotechnology, "2001 Annual Report," found at http://www.sagpya.mecon.gov.ar/0-0/, retrieved Nov. 18, 2002.

[33] USDA, FAS, *Argentina: Biotechnology, New Biotech Crop Approved in Argentina, 2001*, GAIN Report AR1029, Nov. 5, 2001.

[34] U.S. Department of Commerce, International Trade Administration, "Mercosur Holds Off on GMO Regulation," *International Market Insight*, Oct. 28, 2000, and Codex, "Codex and the International Food Trade," found at *http://www.fao.org/docrep/w9114e/W9114e06.htm#TopOfPage,* retrieved Nov. 13, 2002.

producer of biotechnology-free crops, Brazil has become a leading supplier to the EU market, which prefers non-biotechnology food products. Commercial distribution and trade of biotechnology products in Brazil officially remain prohibited pending a judicial resolution to a longstanding court battle over a request to import Round-Up Ready® soybeans into Brazil, as well as ongoing debate in the Brazilian Congress and in civil society on biotechnology. However, U.S. industry sources estimate that 60 percent or more of soybeans grown in Brazil are biotechnology varieties. Reports are that growers, especially in southern Brazil, are planting unregistered biotechnology crops from neighboring Argentina.[35]

Brazil's 1995 Biosafety Law, as updated, establishes rules and procedures with respect to the development, import, use, and commercialization of biotechnology food products. That law also created the Brazilian Technical Commission on Biosafety (CTNBIO), the national regulatory agency for biotechnology policy. Entry of biotechnology products into Brazil is prohibited without CTNBIO prior approval. CTNBIO approved a request to import Round-Up Ready® soybeans in 1998, but that approval subsequently was withdrawn in response to an injunction issued by a Brazilian federal judge in June 1999. The request for this injunction was filed by a Brazilian consumer protection advocacy group, a Brazilian government agency, and Greenpeace[36] citing the need for local environmental impact studies of the biotechnology soybeans.[37] In June 2000, during an appeal of the case, a federal judge ruled that CTNBIO did not have the authority to waive the requirement for local environmental impact studies and reports. In December 2000, the Brazilian President issued a provisional measure to formally grant CTNBIO the authority to evaluate and authorize the production and sale of biotechnology products in Brazil; however, the provisional measure has not yet been approved by the Brazilian Congress.[38]

The lack of a policy resolution on biotechnology imports has led to a number of policy contradictions in Brazil. In 2000, concern with the low domestic supply of corn feed for the Brazilian poultry and pork industry led CTNBIO to approve imports of Bt corn from Argentina, conflicting with an earlier court decision prohibiting the imports. The presence of traces of biotechnology ingredients in domestic and imported food products for sale in 2000 led to certain food products being removed from grocery shelves in major Brazilian cities because some provincial labeling regulations are more restrictive than federal regulations. A July 2001 Presidential decree established a labeling requirement for packaged food products containing more than 4 percent of detectable biotechnology products, but the Brazilian Congress continues to debate the issue and has not yet developed implementing regulation.[39]

Canada

Total U.S. farm exports to Canada were valued at $8.1 billion in 2001, making Canada the second leading destination of U.S. farm exports after Japan. Canada ranked as the 10th largest market for U.S. soybeans, with U.S. exports valued at $130 million in 2001. U.S.-Canadian cooperation on biotechnology dates to a July 1998 meeting between USDA APHIS and the Canadian Food Inspection Agency and Health Canada to compare and harmonize where possible the regulatory review process for biotechnology food products. One result of this meeting was an agreement on harmonized guidelines for the molecular genetic characterization of biotechnology plants, with the goal of facilitating the safe commercialization of biotechnology plants.[40]

The Canadian government has approved a total of 51 novel foods for human consumption, most of which are biotechnology food products, including varieties of

[35] G.L. Cromwell et al., "Genetically Modified Soybeans," reproduced on the Iowa Soybean Association website, *http://www.soymeal.org/worldlitarticles/cromwellandcoworkers2001*, retrieved Oct. 29, 2002, and Reuters, "Brazil Drags Heels on Green Light for GM Soybeans," Nov. 6, 2001.

[36] Despite the fact that Brazil's Ministry of the Environment approved the sale of the biotechnology soybeans, a subordinate agency of that ministry, the Brazilian Institute for the Environment and Natural Resources, was a co-petitioner in filing for the injunction.

[37] At the time of the original approval request, CTNBIO waived the requirement for an environmental impact study in Brazil because Monsanto, which produces the soybean, had presented as evidence studies conducted in the United States. The injunction obliged Monsanto and its local Brazilian subsidiary, Monsoy, to prepare an environmental impact report specifically for Brazil.

[38] USDA, FAS, *Brazil: Biotechnology Update of Biotech Issues in Brazil, 2000*, GAIN Report BR1623, Nov. 7, 2001, and *Food and Agricultural Import Regulations and Standards, Country Report 2002*, GAIN Report BR2609, July 26, 2002.

[39] USDA, FAS, *Brazil: Food and Agricultural Imports Regulations and Standards, State of Biotechnology in Brazil, 2001*, GAIN Report BR1601, Jan. 17, 2001, and *Brazil: Biotechnology Update of Biotech Issues in Brazil, 2000*, GAIN Report BR1623, Nov. 7, 2001.

[40] Health Canada, "Canada and the United States Bilateral Agreement on Biotechnology," found at *http://www.hc-sc.gc.ca/food-aliment/mh-dm/ofb-bba/nfi-ani/e_canada_and_united_states_bilat.html*, retrieved Nov. 22, 2002.

corn, canola, potato, tomato, squash, soybean, flax, and sugar beet. Canada's Novel Foods Regulation requires that prior notification be made before marketing or advertising a novel food in Canada. In addition, the Canadian Government conducts a safety assessment of all biotechnology-derived foods to demonstrate that the food is safe before it is allowed into the Canadian market. Like the United States, Canada does not have a mandatory labeling requirement for biotechnology products, and supports labeling on a case-by-case basis consistent with Canadian policy with respect to all foods. Canadian legislation currently authorizes voluntary labeling of biotechnology food products.[41] In late 2001, the Canadian legislature defeated a bill that would have required mandatory labeling of biotechnology food products.[42]

Mexico

Total U.S. farm exports to Mexico were valued at $7.4 billion in 2001, making Mexico the third leading market for U.S. farm exports after Japan and Canada. Mexico ranked as the second largest market for U.S. corn, with U.S. exports valued at $567 million in 2001, and the second largest market for U.S. soybeans, with U.S. exports valued at $770 million in 2001.

Like the United States, Mexico applies its existing food safety laws and regulations to biotechnology food products. However, the Mexican government is considering a number of legislative initiatives that would establish a separate biotechnology approval regime. Biotechnology products intended for human consumption must receive prior approval before the products can be introduced into the Mexican market. Biotechnology varieties of canola, corn, cotton, potato, rice, and soybeans have been approved for human consumption in Mexico. Mexico also continues to engage in biotechnology research and development efforts, and has conducted crop studies on biotechnology varieties of alfalfa, cantaloupe, papaya, pineapple, tobacco, tomato, and wheat.[43]

[41] Canadian Food Inspection Agency, Office of Biotechnology, "Frequently Asked Questions on Biotechnology-Derived Food;" "How Many Genetically Modified Food Products are Permitted in Canada?" "Labeling of Genetically Engineered Foods in Canada," and "Regulation of Biotechnology in Canada," found at *http://www.inspection.gc.ca/english/toce.shtml*, retrieved Nov. 12, 2002.

[42] USDA, FAS, *Canada: Biotechnology, Mandatory GM Labeling Bill C-287 Defeated 126-91, 2001*, GAIN Report CA1149, Oct. 24, 2001.

[43] Mexican Intersecretarial Commission on Biosafety and Genetically Modified Organisms website, found at *http://www.cibiogem.gob.mx/html, and Mexican Secretary of Health website*, found at *http://www.ssa.gob.mx/unidades/dirgcsbs/informacion/biotec.htm*, retrieved Nov. 18, 2002.

China

China currently ranks as the world's largest importer of soybeans and as the second largest importer of soybeans from the United States after the EU. China's imports of U.S. soybeans were valued at $1 billion in 2001, almost one-fifth of total U.S. sales. China also is developing indigenous biotechnology capabilities.[44]

In June 2001, the Chinese government issued rules requiring safety certification, registration, and labeling of biotechnology food and feed products and some products derived from them—essentially subjecting U.S. soybean and other processed food and agricultural shipments to an approval process that could take up to 270 days, and effectively halting U.S. soybean exports to that country. U.S. officials expressed the concerns that the Chinese government had not provided sufficient time for compliance before the scheduled implementation date, and that China had provided insufficient guidelines on the new approval and labeling requirements. During that period, China replaced U.S. soybean imports with imports from Argentina and Brazil—the other two main global soybean suppliers.[45] The United States reached an initial agreement with China on the matter in October 2001, allowing U.S. exports to resume in large quantities, and a formal interim resolution was announced in December 2001.[46]

China issued implementing regulations for its new biotechnology certification, registration, and labeling policy in January 2002. The United States stated that these new regulations threatened U.S. soybeans, corn, and cotton exports, and that China had not presented any science-based evidence to support the regulations. The United States further requested China to allow for procedures that would enable a smooth transition during implementation of the regulations to avoid trade disruptions.[47] U.S. soybean exports to China were effectively blocked for three months, from January to March 2002, while U.S. and Chinese officials met to discuss these issues in an attempt to ensure that trade would resume. After further bilateral consultations,

[44] Alan P. Larson, U.S. Department of State, "Remarks before the CATO Institute."

[45] USDA, FAS, *China: Oilseeds and Products, MOA Assesses Impact of Biotech Regulation*, GAIN Report CH1028, June 27, 2001.

[46] Office of the U.S. Trade Representative (USTR), "United States Announces Interim Resolution of Soybean Dispute with China," press release 01-104, Dec. 3, 2001.

[47] USTR, "Joint Statement of U.S. Agriculture Secretary Ann M. Veneman and U.S. Trade Representative Robert B. Zoellick Regarding China's Biotechnology Regulations, Feb. 7, 2002," press release 02-15, Feb. 7, 2002, found at *http://www.ustr.gov/releases/2001/12/01-104.pdf,* retrieved Nov. 14, 2002.

China issued interim provisions regulating biotechnology food imports and, in March 2002, issued temporary certificates good through December 152002, thereby allowing U.S. soybean exports to resume while China completed its safety evaluation of biotech products. On October 18, 2002, China officially published new measures providing an additional nine-month extension of interim provisions regulating biotechnology agriculture imports.[48]

India

Reversing a longstanding policy of prohibiting the commercial release of biotechnology crops, the Indian government in March 2002 approved three Bt cotton seed varieties resistant to insect damage for commercial use in southern India (a biotechnology cotton variety adapted for northern India was denied clearance because of inadequate test data). India's Genetic Engineering Approval Committee (GEAC) reportedly approved the Bt cotton following a year of unusually heavy infestation of boll worms and illegal planting of unapproved Bt cotton varieties. India has a significant biotechnology research and development program despite the country's former policy prohibiting the commercial release of biotechnology crops. Indian scientists are working on biotechnology varieties of rice, mustard, tomato, potato, and other crops. GEAC has not yet established labeling requirements for biotechnology cottonseed oil and other biotechnology food products.[49]

Japan

Total U.S. farm product exports to Japan were valued at nearly $8.9 billion in 2001, making Japan the top destination for U.S. farm exports. In 2001, Japan ranked as the top country destination of U.S. corn, with U.S. exports valued at $1.3 billion, and the third leading destination (after China and Mexico) of U.S. soybeans, with U.S. exports valued at $730 million.[50]

The Japanese government has approved 37 biotechnology products for human consumption. In April 2001, new legislation entered into force making it illegal to import into Japan biotechnology food products which are not yet approved in Japan. That legislation also requires labels for biotechnology food products if biotechnology components are in the top 3 ingredients and account for 5 percent or more of the total weight; exceptions from the labeling requirement include alcoholic beverages and processed food products in which the biotechnology component has been removed through processing. A total of 24 of the 37 approved biotechnology products are subject to mandatory labeling. The Japanese government monitors and randomly tests imports of those 24 food products (including soybeans, tofu, and corn grits), and requires that they conform to a verifiable system for segregation of the biotechnology-containing products.[51]

In September 2000, a small amount of corn under the commercial name StarLink™ [52] was found in the U.S. food supply and, in October 2001, a consumer group detected StarLink™ in certain Japanese snack foods and in animal feed. Neither the United States nor Japan have approved StarLink™ corn for human consumption.[53] The Japanese Government eventually developed an inspection plan to assure that no commingled corn was shipped to Japan. In February 2001, the United States and Japan agreed to strengthen testing of feed and food corn exports to Japan for the presence of StarLink™, enhancing a November 2000 U.S.-Japan protocol on feed and food corn to prevent StarLink™ corn exports to Japan. The reported

[48] USTR, "United States Says New China Regulations Should Free Up Soybean," press release 02-98, Oct. 18, 2002, found at *http://www.ustr.gov/releases/2002/10/02-98.htm,* retrieved Nov. 5, 2002, and USDA *China*, GAIN Report CH2011, Mar. 13, 2002.

[49] USDA, FAS, *India: Biotechnology, India Enters the GMO Era, 2002*, GAIN Report IN2023, Apr. 24, 2002.

[50] USDA, "U.S. Proposals for Global Agricultural Trade Reform: What's at Stake for Corn," found at *http://www.fas.usda.gov/info/factsheets/WTO/commodities2002/Corn2.pdf*; and "U.S. Proposals for Global Agricultural Trade Reform: What's at Stake for Soybeans," found at *http://www.fas.usda.gov/info/factsheets/WTO/commodities2002/Soybeans3.pdf*, retrieved Nov. 13, 2002.

[51] USDA, FAS, *Japan: Biotechnology*, GAIN Report JA1080, Aug. 29, 2001.

[52] StarLink™ was developed in the United States by Aventis CropScience and its predecessor companies. The corn is modified to contain "stacked genes" (i.e., more than one commercially desirable transgenic trait) including both an insecticidal protein, Bt Cry9C, and genes to make StarLink™ tolerant to a commonly used broad-spectrum herbicide. Alejandro C. Segarra and Jean M. Rawson, CRS, *StarLink Corn Controversy: Background*, Jan. 10, 2001, RS20732.

[53] The EPA approved Cry9C only for corn destined for animal feed and industrial uses. The agency did not approve the protein for human consumption due to concerns about the potential of Cry9C to cause allergic reactions. Although health safety tests had found that Cry9C did not resemble any known allergens, results from other tests did not allow experts to completely rule out the potential for allergenicity. Two particular concerns were that the Cry9C protein could survive cooking or processing, and that Cry9C is hard to digest. Under Japanese regulations, StarLink™ was not approved for any use and there was a zero tolerance threshold for StarLink™ in corn imports. In October 2000, Aventis voluntarily withdrew the registration of StarLink™ corn to provide further assurance that no StarLink™ corn was sold or grown in the future, although remaining StarLink™ corn can be used for domestic animal feed or industrial uses until existing stocks are depleted. Segarra and Rawson, CRS, *StarLink Corn Controversy: Background*; Raymond Formanek Jr., "Proposed Rules Issued for Bioengineered Foods, *FDA Consumer Magazine*, March-April 2001; and StarLink™ Information Center website, found at *http://www.starlink-corn.com/History/What%20Happened.htm*, retrieved Nov. 15, 2002.

detection of StarLink™ in the U.S. corn crop has continued to decline since mid-2001. As a result of the StarLink™ exports, Japanese imports of U.S. corn declined by 1.3 million metric tons (8 percent in volume terms) in 2001, although both countries pledged to work to reverse that trend. The Japanese Government now requires that unapproved biotechnology food and feed ingredients be segregated from the export channel; however, Japan also has established a 1-percent tolerance for the unintended presence of such unapproved products with the condition that they are approved in other countries under consensus standards set within the OECD.[54]

South Africa and the Southern Africa Region

South Africa applies its existing agricultural and health safety laws and regulations to biotechnology food products. Shipments of biotechnology food products containing more than 1 percent of biotechnology components must receive prior approval for import, distribution, use, and commercial release within South Africa pursuant to the country's 1997 GMO Act. South Africa currently does not require biotechnology food products to be labeled, but in May 2001 proposed labeling requirements were published for public comment. The proposed regulations are similar to those of the United States, and would require labeling for biotechnology food products if their composition or nutritional value differs significantly from non-biotechnology food and if there is a potential for allergic reaction. The South African regulations also would require labeling if human or animal genes are used in plants. Four biotechnology crops have been approved for commercial release in South Africa, including varieties of cotton, corn, and soybeans. South Africa's longstanding biotechnology research and development program has developed local biotechnology varieties of corn, potatoes, sorghum, strawberries, and sugar cane.[55]

South Africa remains one of the few African countries that has approved the commercial release of biotechnology crops for human consumption, although a number of African countries have field tested biotechnology crops. Despite ongoing famine conditions, Zambia has refused U.S. emergency food aid because of its biotechnology components. The Zambian government reportedly seeks to prevent imported biotechnology food products from contaminating the country's domestic crops and jeopardizing its biotechnology-free food exports to the EU market (Zambia recently agreed to accept U.S. corn for distribution only to foreign refugees in that country). Zimbabwe, Mozambique, and Malawi also are concerned about seeds from biotechnology-derived food aid contaminating domestic crops and jeopardizing exports to the EU; however, those countries accept biotechnology corn that is quarantined and milled before distribution.[56]

The U.S. Agency for International Development (USAID) launched the Southern African Regional Program on Biotechnology to promote awareness and training programs on biotechnology among sub-Saharan southern African countries. USAID has established a partnership with seven Southern African Development Community (SADC) countries–Malawi, Mauritius, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe–to provide technical training in biosafety regulatory implementation. This program has as its goal to strengthen science-based regulation of biotechnology in the SADC region, as well as to promote conformity with the science-based standards set forth in the WTO.[57]

[54] U.S. Embassy, Tokyo, Japan, "U.S. and Japan Agree To Improve Testing of Food Corn for Starlink," Feb. 21, 2001, found at *http://www.fas.usda.gov/starlink.html, retrieved* Nov. 12, 2002, and USDA, FAS, *Japan*, GAIN Report JA 2011.

[55] AfricaBio, "South African Biotechnology," found at *http://www.africabio.com/policies/biotechsa.shtml, and USDA, FAS, South Africa: Food and Agricultural Import Regulations and Standards, GAIN Report SF2021*, Aug. 5, 2001.

[56] USAID, "Southern Africa: Complex Food Security Crisis, Situation Report No. 3, Nov. 1, 2002," found at *http://www.usaid.gov/htm_response/ofda/southernafrica_sr3_fy03.html*, retrieved Nov. 18, 2002.

[57] Ibid.

U.S. TRADE DEVELOPMENTS

Recent Developments

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The U.S. Department of Commerce reported that seasonally adjusted total exports of goods and services of $82.2 billion and imports of $120.2 billion in September 2002 resulted in a goods and services trade deficit of $38.0 billion; this was $0.3 billion less than the $38.3 billion deficit in August 2002.[2] September exports were $0.3 billion less than August exports of $82.5 billion, imports of goods and services at $120.2 billion were $0.6 billion less than August imports of $120.8 billion.

September 2002 merchandise exports remained constant at $58.3 billion. Merchandise imports decreased $0.4 billion to $100.2 billion, causing the merchandise trade deficit to decrease by about $0.4 billion in September to $41.9 billion from $42.3 billion in August 2002. For services, exports decreased to $23.8 billion in September from $24.2 billion in August. Imports of services decreased to $20.0 billion in September from $20.2 billion in August, resulting in a services trade surplus in September of about $3.8 billion, nearly $0.2 billion less than the $4.0 billion surplus in August 2002.

Changes in merchandise exports in August-September 2002 reflected an increase in capital goods ($0.2 billion). Decreases occurred in automotive vehicles, parts, and engines ($0.1 billion); and the statistical category ($0.2 billion). Consumer goods; industrial supplies and materials; and foods, feeds, and beverages were virtually unchanged.

Imports of goods in August-September reflected decreases in consumer goods ($0.4 billion); capital goods ($0.1 billion); industrial supplies and materials ($0.3 billion); and foods, feeds, and beverages ($0.1 billion). Increases occurred in automotive vehicles, parts, and engines ($0.3 billion); and in the "other goods" category ($0.1 billion). Additional information on U.S. trade developments in agriculture and specified manufacturing sectors in August-September 2002 are highlighted in tables 1 and 2, and figures 1 and 2. Services trade developments are highlighted in table 3.

In September 2002, exports of advanced technology products were $14.3 billion and imports of the same were about $17.1 billion, resulting in a deficit of $2.8 billion, following a deficit of $1.2 billion in August 2002. Exports of these products in September 2002 were about $0.8 billion less than the $15.1 billion recorded in August 2002, while September imports were about $0.8 billion more than the $16.3 billion imports in August.

The September 2002 trade data showed U.S. surpluses with the following countries (preceding month in parentheses): Australia, $0.5 billion ($0.5 billion in August 2002); Egypt, $0.1 billion ($0.3 billion). Deficits were recorded in September with China, $10.3 billion ($10.9 billion); Singapore, $0.1 billion (surplus of $0.2 billion); Argentina, $0.1 billion ($0.1 billion); Brazil, $0.4 billion ($0.4 billion); Canada, $4.6 billion ($4.1billion); Mexico, $3.0 billion ($3.5 billion); Japan, $5.9 billion ($5.3 billion); Korea, $1.1 billion ($1.0 billion); OPEC member countries, $2.9 ($3.7 billion); Taiwan, $1.2 billion ($1.3 billion); and Western Europe, $7.0 billion ($7.0 billion).

Exports of goods and services during January-September 2002 totaled about $728.0 billion, down from $769.2 billion during January-September 2001. Imports of goods and services increased to $1,031.9 billion, from $1,023.9 billion during the same

[1] Michael Youssef is an international economist in the USITC Office of Economics, Country and Regional Analysis Division. The views expressed in this article are those of the author. They are not the views of the U.S. International Trade Commission (USITC) as a whole or of any individual Commissioner.

[2] Data for this article were taken largely from U.S. Department of Commerce, Bureau of Economic Analysis, "U.S. International Trade in Goods and Services," *Commerce News*, FT-900, release of Nov.19, 2002, found at *http://www.census.gov/foreign-trade/www/press.html#current*, as well as at Internet address *http://www.bea.doc.gov/bea/newsrel/*.

Table 1

U.S. trade in goods and services, seasonally adjusted, August 2002-September 2002

Billion dollars

Item	Exports		Imports		Trade balance	
	Sept. 2002	Aug. 2002	Sept. 2002	Aug. 2002	Sept. 2002	Aug. 2002
Trade in goods[1] (see note)						
Including oil	58.3	58.3	100.2	100.6	-41.9	-42.3
Excluding oil	58.3	58.3	90.7	90.8	-32.4	-32.5
Trade in services[1]	23.8	24.2	20.0	20.2	3.8	4.0
Trade in goods and services[1]	82.2	82.5	120.2	120.8	-38.0	-38.3
Trade in goods[2]	64.0	64.2	109.3	110.6	-45.3	-46.4
Advanced technology products[3]	14.3	15.1	17.1	16.3	-2.8	-1.2

[1] Current dollars (balance-of-payments basis).

[2] Constant 1996 dollars (Census Bureau basis).

[3] Not seasonally adjusted.

Note.—Data on trade in goods in current dollars are presented on a balance-of-payments (BOP) basis that reflects adjustments for timing, coverage, and valuation of data compiled by the U.S. Treasury Department, Census Bureau. The major adjustments on a BOP basis exclude military trade, but include nonmonetary gold transactions and estimates of inland freight in Canada and Mexico that are not included in the Census Bureau data. Data may not add to totals due to rounding.

Source: Calculated from official data of the U.S. Department of Commerce, Exhibits 1, 9, 10, and 16, FT-900 release of Nov. 19, 2002, found at Internet address *http://www.census.gov/foreign-trade/www/press.html#current*.

Table 2

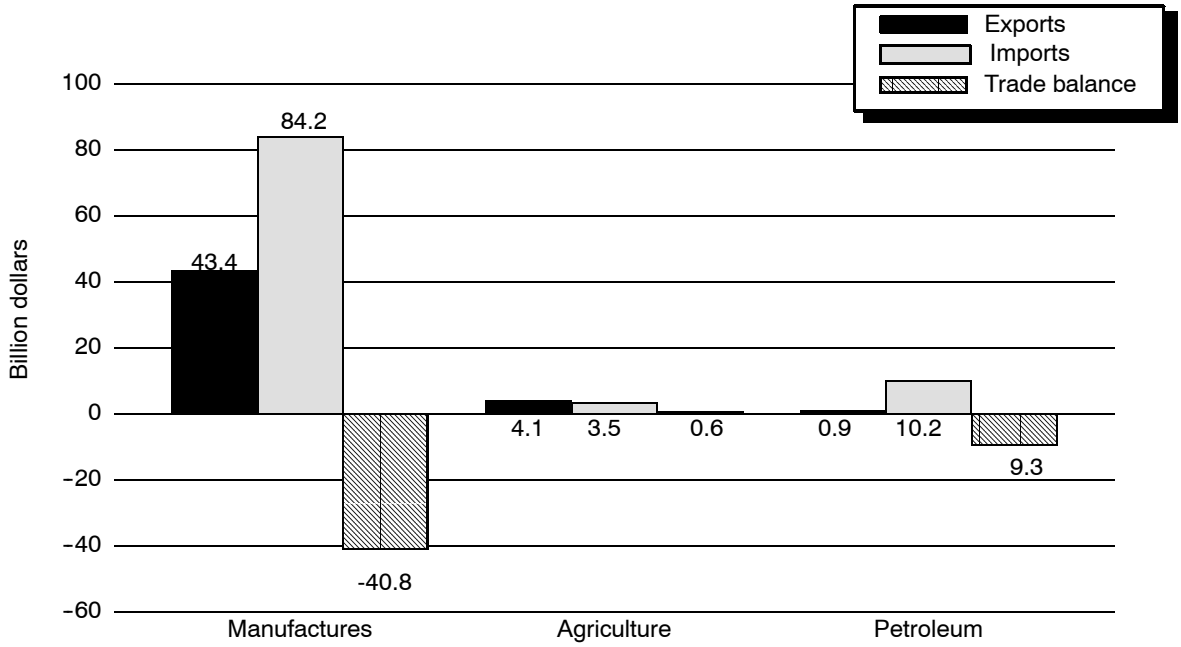
Nominal U.S. exports, imports, and trade balances, agriculture and specified manufacturing sectors, January 2001-September 2002

Manufacture sector	Exports			Imports			Trade balance		Change in exports, Jan.-Sept. 2002 over Jan.-Sept. 2001	Change in trade balance, Jan.-Sept. 2002 over Jan.-Sept. 2001	Share of total exports, Jan.-Sept. 2002
	Sept. 2002	Jan.-Sept. 2002	Jan.-Sept. 2001	Sept. 2002	Jan.-Sept. 2002	Jan.-Sept. 2001	Jan.-Sept. 2002	Jan.-Sept. 2001			
	Billion dollars									*Percent*	
ADP equipment & office machinery	2.5	22.6	30.3	6.6	56.6	57.2	-34.0	-26.9	-25.4	26.4	4.4
Airplane parts	1.1	10.5	12.0	0.4	3.8	4.7	6.7	7.3	-12.5	-8.2	2.0
Airplanes	2.1	20.8	20.5	1.0	9.3	10.7	11.5	9.8	1.5	17.3	4.0
Chemicals - inorganic	0.5	4.1	4.3	0.5	17.7	4.7	-13.6	-0.4	-4.7	3300.0	0.8
Chemicals - organic	1.4	12.1	12.6	2.5	22.4	22.5	-10.3	-9.9	-4.0	4.0	2.3
Electrical machinery	5.7	50.6	56.1	7.1	60.2	65.2	-9.6	-9.1	-9.8	5.5	9.8
General industrial machinery	2.5	22.7	24.7	2.8	26.6	25.5	-3.9	-0.8	-8.1	387.5	4.4
Iron & steel mill products	0.4	3.9	4.1	1.2	9.3	9.4	-5.4	-5.3	-4.9	1.9	0.8
Power-generating machinery	2.9	24.3	25.2	2.7	25.8	27.3	-1.5	-2.1	-3.6	-28.6	4.7
Scientific instruments	2.2	20.3	22.3	1.8	15.3	16.1	5.0	6.2	-9.0	-19.4	3.9
Specialized industrial machinery	1.8	17.7	20.2	1.4	13.8	15.2	3.9	5.0	-12.4	-22.0	3.4
Televisions, VCRs, etc.	1.6	14.7	18.4	6.2	47.7	46.0	-33.0	-27.6	-20.1	19.6	2.8
Textile yarn and fabric	0.9	7.7	7.8	1.4	12.2	11.1	-4.5	-3.3	-1.3	36.4	1.5
Vehicles	4.9	42.8	40.6	13.6	122.4	116.5	-79.6	-75.9	5.4	4.9	8.3
Other manufactures, not included above	14.8	134.4	142.9	34.8	275.9	284.2	-141.5	-141.3	-5.9	0.1	26.0
Manufactures	45.3	409.2	442.0	84.0	719.0	716.3	-309.8	-274.3	-7.4	12.9	79.2
Agriculture	4.0	38.2	38.6	3.3	31.0	29.5	7.2	9.1	-1.0	-20.9	7.4
Other goods, not included above	8.2	69.1	74.9	12.5	105.1	120.6	-36.0	-45.7	-7.7	-21.2	13.4
Total (Census basis)	57.5	516.5	555.5	99.8	855.1	866.4	-338.6	-310.9	-7.0	8.9	100.0

Note.—Data on trade in manufactures are presented on a Census Bureau basis. Data may not add to totals due to rounding.

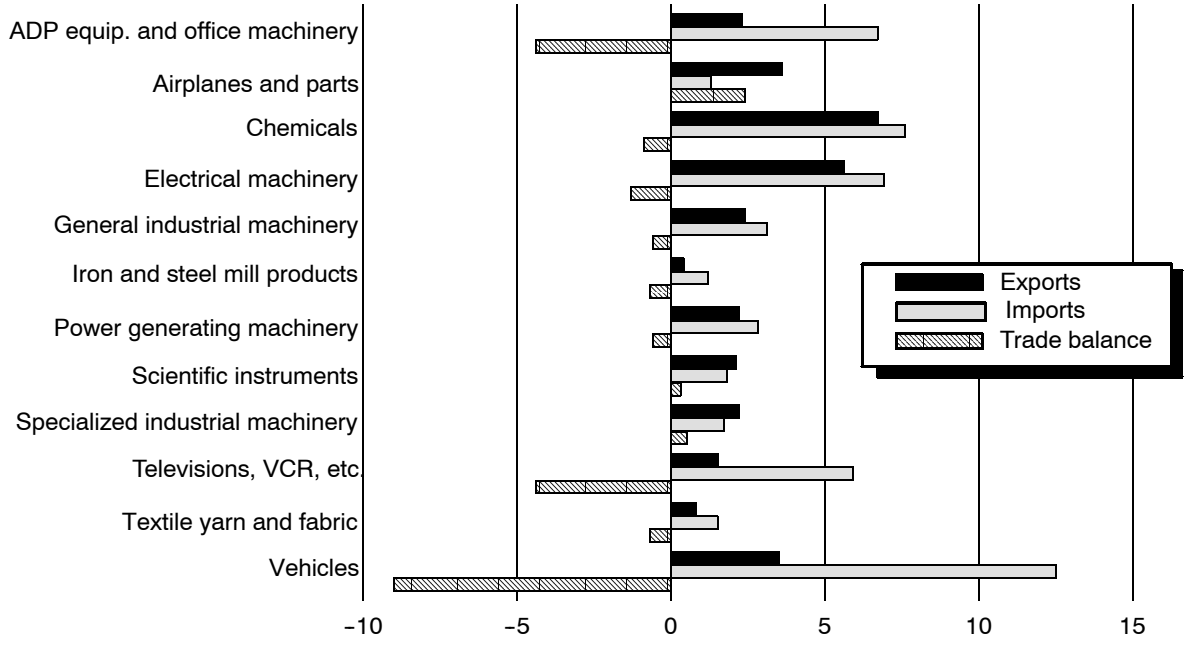
Source: Calculated from official data of the U.S. Department of Commerce, Exhibit 15, FT-900 release of Nov. 19, 2002, found at Internet address *http://www.census.gov/foreign-trade/www/press.html#current.*

Figure 1
U.S. trade by major commodity, July 2002



Source: Calculated from official data of the U.S. Department of Commerce, Exhibit 15, FT-900 release of Nov. 19, 2002.

Figure 2
U.S. trade in principal goods, July 2002



Source: Calculated from official data of the U.S. Department of Commerce, Exhibit 15, FT-900 release of November 19, 2002.

Table 3
Nominal U.S. exports, imports, and trade balances of services, by sectors, January 2001-September 2002, seasonally adjusted

Service sector	Exports		Imports		Trade balance		Change in exports Jan.-Sept. 2002 over Jan.-Sept. 2001	Change in imports Jan.-Sept. 2002 over Jan.-Sept. 2001
	Jan.- Sept. 2002	Jan.-Sept. 2001	Jan.- Sept. 2002	Jan.-Sept. 2001	Jan.-Sept. 2002	Jan.-Sept. 2001		
	Billion dollars						*Percent*	
Travel	51.8	58.4	44.3	47.2	7.5	11.2	-11.3	-6.1
Passenger fares	12.9	14.4	15.6	18.0	-2.7	-3.6	-10.4	-13.3
Other transportation services	20.8	21.6	28.3	29.8	-7.5	-8.2	-3.7	-5.0
Royalties and license fees	31.0	29.0	13.6	12.3	17.4	16.7	6.9	10.6
Other private sales	85.5	80.6	58.6	37.2	26.9	43.4	6.1	57.5
Transfers under U.S. military sales contracts	9.0	9.1	14.1	10.9	-5.1	-1.8	-1.1	29.4
U.S. Government miscellaneous services	0.6	0.6	2.2	2.2	-1.6	-1.6	0.0	0.0
Total	211.5	213.7	176.8	157.5	34.7	56.2	-1.0	12.3

Note.—Data on trade in services are presented on a balance-of-payments basis. Data may not add to totals due to rounding and seasonal adjustments.

Source: Calculated from official data of the U.S. Department of Commerce, Exhibits 3 and 4, FT-900 release of Nov. 19, 2002, found at Internet address *http://www.census.gov/foreign-trade/www/press.html#current.*

period. As a consequence, the trade deficit on goods and services increased to $303.9 billion for the January-September 2002 period, from $254.7 billion during January-September 2001.

The export of goods on a balance-of-payments basis during January-September 2002 decreased to $512.8 billion from $551.4 billion during the same 2001 period, a decrease of $38.6 billion; and imports of goods also decreased to $864.9 billion, down from $877.9 billion in January-September 2001. Consequently, the merchandise trade deficit increased to $352.1 billion from $326.6 billion. Regarding trade in services, exports in January-September 2002 decreased to $211.5 billion, from $213.7 billion in the same period of 2001, a decrease of about $2.2 billion. Imports of services increased to $176.8 billion from $157.5 billion, an increase of $19.3 billion. The surplus on trade in services decreased to $34.7 billion in January-September 2002 from $56.2 billion in the same period in 2001, a decrease of $21.5 billion.

The January-September 2002 exports of advanced technology products declined to $134.1 billion from $153.9 billion in January-September 2001. Imports declined to $143.6 billion in January-September 2002 from $147.1 billion in the same period of 2001. As a consequence, the trade surplus in these products of nearly $6.8 billion in January-September 2001 turned into a deficit of about $9.5 billion in January-September 2002.

The January-September 2002 trade data in merchandise goods showed trade deficits with the following countries (same period a year ago in parentheses): Canada, $37.3 billion ($41.4 billion in January-September 2001); China, $73.6 billion ($61.2 billion); Eastern Europe, $5.3 billion ($6.0 billion); EFTA, $4.4 billion, ($2.4 billion); the euro area, $47.8 billion ($39.8 billion); the European Union (EU-15), $58.4 billion ($44.3 billion); Japan, $50.0 billion ($51.2 billion); NICs, $15.2 billion ($15.5 billion); Mexico, $28.1 billion ($22.9 billion); OPEC, $24.8 billion ($32.5 billion); and Western Europe, $63.1 billion ($46.7 billion). South and Central American countries–such as Argentina, Brazil, and Colombia–recorded small changes in their trade balances. Taiwan's merchandise trade deficit with the United States was $10.1 billion, down from $11.5 billion in the same period of 2001. Trade surpluses were recorded with Australia, Egypt, Hong Kong, Netherlands, and Singapore. U.S. trade developments with major trading partners are highlighted in table 4.

Table 4
U.S. exports and imports of goods with major trading partners, January 2001-September 2002

Country/areas	Exports			Imports			Trade balance		Change in exports, Jan.-Sept. 2002 over Jan.-Sept. 2001	Change in imports, Jan.-Sept. 2002 over Jan.-Sept. 2001
	Sept. 2002	Jan.-Sept. 2002	Jan.-Sept. 2001	Sept. 2002	Jan.-Sept. 2002	Jan.-Sept. 2001	Jan.-Sept. 2002	Jan.-Sept. 2001		
	Billion dollars								*Percent*	
Total (Census basis)	57.5	516.5	555.5	99.8	855.1	866.4	-338.6	-310.9	-7.0	-1.3
North America	21.8	192.4	201.3	29.4	257.8	265.7	-65.4	-64.4	-4.4	-3.0
Canada	13.3	120.1	125.0	17.9	157.4	166.4	-37.3	-41.4	-3.9	-5.4
Mexico	8.5	72.3	76.3	11.4	100.4	99.2	-28.1	-22.9	-5.2	1.2
Western Europe	12.5	116.6	133.7	19.5	179.7	180.3	-63.1	-46.6	-12.8	-0.3
Euro Area	8.5	77.9	85.3	13.7	125.7	125.1	-47.8	-39.8	-8.7	0.5
European Union (EU-15)	11.5	106.6	121.0	17.9	165.0	165.3	-58.4	-44.3	-11.9	-0.2
France	1.5	13.9	15.0	2.2	21.1	22.7	-7.2	-7.7	-7.3	-7.0
Germany	2.3	19.6	23.0	5.1	44.6	45.1	-25.0	-22.1	-14.8	-1.1
Italy	0.7	7.3	7.4	1.7	17.8	18.0	-10.5	-10.6	-1.4	-1.1
Netherlands	1.5	13.9	14.7	0.8	7.2	7.1	6.7	7.6	-5.4	1.4
United Kingdom	2.7	25.2	31.6	3.3	30.2	31.1	-5.0	0.5	-20.3	-2.9
Other EU	0.8	7.8	8.8	2.6	20.5	17.9	-12.7	-9.1	-11.4	14.5
EFTA[1]	0.7	7.0	9.5	1.2	11.4	11.9	-4.4	-2.4	-26.3	-4.2
Eastern Europe/FSR[2]	0.5	5.0	5.1	1.3	10.3	11.1	-5.3	-6.0	-2.0	-7.2
Russia	0.2	1.8	2.0	0.5	4.7	5.1	-2.9	-3.1	-10.0	-7.8
Pacific Rim Countries	14.8	133.7	138.3	35.0	287.7	282.2	-154.0	-143.9	-3.3	1.9
Australia	1.0	9.7	8.1	0.6	4.8	4.9	4.9	3.2	19.8	-2.0
China	2.0	15.9	14.0	12.3	89.5	75.2	-73.6	-61.2	13.6	19.0
Japan	4.2	38.8	44.5	10.0	88.8	95.7	-50.0	-51.2	-12.8	-7.2
NICs[3]	5.9	52.6	55.1	7.9	67.8	70.6	-15.2	-15.5	-4.5	-4.0
Latin America	4.3	38.3	44.5	6.4	50.5	52.3	-12.2	-7.8	-13.9	-3.4
Argentina	0.1	1.1	3.2	0.2	2.2	2.3	-1.1	0.9	-65.6	-4.3
Brazil	1.0	9.3	12.3	1.5	11.4	11.0	-2.1	1.3	-24.4	3.6
OPEC	2.0	14.1	15.3	4.8	38.9	47.8	-24.8	-32.5	-7.8	-18.6
Other Countries	2.2	21.3	23.5	5.9	48.3	47.1	-27.0	-23.6	-9.4	2.5
Egypt	0.2	2.3	2.3	0.1	1.1	0.7	1.2	1.6	0.0	57.1
South Africa	0.2	1.9	2.3	0.4	2.9	3.5	–1.0	-1.2	-17.4	-17.1

[1] The European Free Trade Area (EFTA) includes Iceland, Liechtenstein, Norway, and Switzerland.

[2] Former Soviet Republics (FSR).

[3] The newly industrializing countries (NICs) include Hong Kong, Korea, Singapore, and Taiwan.

Note.—Country/area figures may not add to totals due to rounding. Exports of certain grains, oilseeds, and satellites are excluded from country/area exports but included in total export table. Also, some countries are included in more than one area. Data are presented on a Census Bureau basis.

Source: Calculated from official data of the U.S. Department of Commerce, Exhibits 14 and 14a, FT-900 release of Nov. 19, 2002, found at Internet address *http://www.census.gov/foreign-trade/www/press.html#current*.

U.S. Labor Productivity and Costs, Third Quarter, 2002

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The surge in U.S. labor productivity has been a major driving force of the "New Economy" boom years of the late 1990s. Sustainable rates of economic growth, low inflation, reduced rates of unemployment, advances in computing and telecommunications technologies, and increased competitiveness due to globalization of economic production and sourcing have also characterized this so-called New Economy.

Labor productivity–as measured by output per hour of all persons–increased in the third quarter of 2002 in both business and non-farm business sector, according to the Bureau of Labor Statistics (BLS) of the U.S. Department of Labor. Productivity growth in the third quarter was 5.4 percent in the business sector and 5.1 percent in the non-farm business sector, at seasonally adjusted annual rates. All data following are seasonally adjusted annual rates from a year ago.

Productivity increased by 5.4 percent in the business sector (which includes farms), as output grew by 5.2 percent but hours worked declined by 0.2 percent. The 5.1 percent increase in non-farm business productivity also reflected a 5.1 percent growth in output, but no change in non-farm business hours (table 1 and 2). In manufacturing, productivity increases in the third quarter were (table 3, 4, and 5):

5.5 percent in manufacturing,
8.8 percent in durable goods manufacturing,
1.3 percent in nondurable goods manufacturing.

BLS data show that the 5.5 percent increase in manufacturing productivity in the third quarter follows a 4.2-percent rise in the previous quarter. Output and hours worked in manufacturing, which include about 16 percent of U.S. business sector employment, tend to vary more from quarter to quarter than data for the more aggregate business and non-farm business sectors. Third-quarter measures are summarized in table 6.

BLS advises that the data sources and methods used in the preparation of the manufacturing series differ from those used in preparing the business and non-farm business series, and these measures are not directly comparable. That is because output measures for business and non-farm business are based on measures of gross domestic product (GDP) prepared by the Bureau of Economic Analysis of the U.S. Department of Commerce, whereas, quarterly output measures for manufacturing reflect indexes of industrial production independently prepared by the Board of Governors of the Federal Reserve System.

Business Sector

In the business sector (which includes farms), BLS reported that productivity increased by 5.4 percent (annual rate) in the third quarter from the second quarter of 2002. Output increased by 5.2 percent, while hours of all persons engaged in the sector declined by 0.2 percent. In the second quarter, productivity in the business sector rose by 1.8 percent, reflecting a 0.6-percent rise in output and a 1.2-percent decline in hours.

Hourly compensation increased at an annual rate of 5.3 percent in the third quarter of 2002. In the second quarter, hourly compensation increased by 4.2 percent, and in the first quarter hourly compensation increased by 3.0 percent. This measure includes wages and salaries, supplements, employer contributions to employee benefit plans, and taxes. Real hourly compensation increased by 3.4 percent in the third quarter of 2002.

[1] Michael Youssef is an international economist in the USITC Office of Economics, Country and Regional Analysis Division. The views expressed in this article are those of the author. They are not the views of the U.S. International Trade Commission (USITC) as a whole or of any individual Commissioner.

Table 1
Business sector: Productivity, hourly compensation, unit labor costs, and prices, seasonally adjusted

Year and quarter	Output per hour of all persons	Output	Hours of all output	Compensation per hour	Real compensation per hour	Unit labor costs	Unit non-labor payments	Implicit price deflator
				Indexes 1992=100				
2000:Q1	115.3	138.4	120.1	131.4	110.5	114.0	110.7	112.8
2000:Q2	117.2	140.3	119.7	132.4	110.5	113.0	114.1	113.4
2000:Q3	117.3	140.4	119.7	135.0	111.7	115.1	111.2	113.7
2000:Q4	117.9	140.7	119.4	136.3	111.9	115.6	112.0	114.3
2000:Annual	116.9	140.0	119.7	133.8	111.2	114.4	112.0	113.5
2001:Q1	117.5	140.4	119.5	137.3	111.8	116.9	112.3	115.2
2001:Q2	117.4	139.4	118.7	137.5	111.0	117.1	113.6	115.8
2001:Q3	117.9	139.1	117.9	137.8	111.1	116.8	115.5	116.4
2001:Q4	120.1	140.3	116.8	138.3	111.6	115.1	117.2	115.9
2001:Annual	118.2	139.8	118.2	137.7	111.4	116.5	114.7	115.8
2002:Q1	122.5	142.3	116.1	139.3	112.0	113.7	119.9	116.0
2002:Q2	123.1	142.5	115.8	140.8	112.2	114.4	119.3	116.2
2002:Q3	124.7	144.3	115.7	142.6	113.2	114.3	119.7	116.3
				Percent change from previous quarter at annual rate				
2000:Q1	0.3	2.2	1.9	14.7	10.3	14.4	-15.1	2.4
2000:Q2	6.7	5.4	-1.2	3.0	0.0	-3.5	12.9	2.2
2000:Q3	0.4	0.4	0.0	8.3	4.6	7.8	-9.6	1.1
2000:Q4	2.1	0.9	-1.2	3.7	0.7	1.6	2.6	1.9
2000:Annual	3.0	4.1	1.0	6.8	3.4	3.7	-1.7	1.7
2001:Q1	-1.5	-1.0	0.4	3.1	-0.6	4.7	1.1	3.4
2001:Q2	-0.2	-2.8	-2.6	0.5	-2.6	0.7	4.9	2.2
2001:Q3	1.8	-0.9	-2.6	0.9	0.2	-0.9	6.8	1.8
2001:Q4	7.6	3.5	-3.9	1.4	1.7	-5.8	6.1	-1.6
2001:Annual	1.1	-0.2	-1.3	2.9	0.2	1.8	2.4	2.0
2002:Q1	8.3	5.9	-2.2	3.0	1.6	-4.9	9.6	0.3
2002:Q2	1.8	0.6	-1.2	4.2	0.8	2.4	-2.0	0.7
2002:Q3	5.4	5.2	-0.2	5.3	3.4	-0.1	1.3	0.4

Table 1—*Continued*

Business sector: Productivity, hourly compensation, unit labor costs, and prices, seasonally adjusted

Year and quarter	Output per hour of all persons	Output	Hours of all output	Compensation per hour	Real compensation per hour	Unit labor costs	Unit non-labor payments	Implicit price deflator
			Percent change from corresponding quarter of preceding year					
2000:Q1	2.3	4.6	2.3	5.9	2.5	3.5	-2.0	1.4
2000:Q2	4.1	5.4	1.3	6.5	3.1	2.3	0.8	1.7
2000:Q3	3.3	4.1	0.7	7.7	4.1	4.3	-2.5	1.7
2000:Q4	2.4	2.2	-0.1	7.3	3.8	4.9	-2.9	1.9
2000:Annual	3.0	4.1	1.0	6.8	3.4	3.7	-1.7	1.7
2001:Q1	1.9	1.4	-0.5	4.5	1.2	2.6	1.4	2.2
2001:Q2	0.2	-0.7	-0.9	3.9	0.5	3.6	-0.4	2.1
2001:Q3	0.5	-1.0	-1.5	2.0	-0.6	1.5	3.8	2.3
2001:Q4	1.9	-0.3	-2.2	1.5	-0.3	-0.4	4.7	1.4
2001:Annual	1.1	-0.2	-1.3	2.9	0.2	1.8	2.4	2.0
2002:Q1	4.3	1.4	-2.8	1.4	0.2	-2.8	6.8	0.7
2002:Q2	4.8	2.3	-2.5	2.4	1.1	-2.4	5.0	0.3
2002:Q3	5.8	3.8	-1.9	3.5	1.9	-2.2	3.6	0.0

Table 2
Non-farm business sector: Productivity, hourly compensation, unit labor costs, and prices, seasonally adjusted

Year and quarter	Output per hour of all persons	Output	Hours of all output	Compensation per hour	Real compensation per hour	Unit labor costs	Unit non-labor payments	Implicit price deflator
				Indexes 1992=100				
2000:Q1	114.7	138.7	120.9	130.8	110.0	114.0	112.3	113.4
2000:Q2	116.4	140.5	120.7	131.5	109.8	113.0	115.6	113.9
2000:Q3	116.6	140.6	120.6	134.3	111.1	115.2	112.8	114.3
2000:Q4	117.1	141.0	120.4	135.3	111.2	115.6	113.4	114.8
2000:Annual	116.2	140.2	120.6	133.0	110.6	114.4	113.5	114.1
2001:Q1	116.7	140.7	120.6	136.3	110.9	116.8	113.8	115.7
2001:Q2	116.6	139.7	119.8	136.3	110.1	116.9	115.3	116.3
2001:Q3	117.2	139.4	118.9	136.7	110.2	116.6	117.2	116.8
2001:Q4	119.3	140.4	117.7	137.2	110.7	115.0	119.2	116.5
2001:Annual	117.5	140.1	119.2	136.6	110.5	116.3	116.4	116.3
2002:Q1	121.8	142.5	117.0	138.2	111.1	113.4	121.7	116.4
2002:Q2	122.3	142.9	116.8	139.5	111.2	114.0	121.7	116.8
2002:Q3	123.8	144.7	116.8	141.2	112.0	114.0	121.9	116.9
				Percent change from previous quarter at annual rate				
2000:Q1	0.2	1.9	1.7	15.2	10.7	14.9	-15.3	2.7
2000:Q2	6.0	5.4	-0.6	2.2	-0.7	-3.6	12.2	1.9
2000:Q3	0.6	0.2	-0.4	8.7	4.9	8.0	-9.1	1.4
2000:Q4	1.7	1.1	-0.6	3.1	0.2	1.4	2.1	1.6
2000:Annual	2.9	4.0	1.0	7.0	3.5	3.9	-1.7	1.8
2001:Q1	-1.5	-0.9	0.5	2.8	-0.9	4.3	1.5	3.3
2001:Q2	-0.1	-2.7	-2.6	0.1	-2.9	0.3	5.1	2.0
2001:Q3	2.1	-0.8	-2.9	1.0	0.3	-1.1	6.8	1.7
2001:Q4	7.3	2.9	-4.1	1.5	1.8	-5.4	6.9	-1.0
2001:Annual	1.1	-0.1	-1.2	2.7	-0.1	1.6	2.5	1.9
2002:Q1	8.6	6.2	-2.2	2.9	1.4	-5.3	8.8	-0.2
2002:Q2	1.7	0.9	-0.7	3.9	0.5	2.2	0.1	1.4
2002:Q3	5.1	5.1	0.0	4.9	3.0	-0.2	0.4	0.1

Table 2—*Continued*

Non-farm business sector: Productivity, hourly compensation, unit labor costs, and prices, seasonally adjusted

Year and quarter	Output per hour of all persons	Output	Hours of all output	Compensation per hour	Real compensation per hour	Unit labor costs	Unit non-labor payments	Implicit price deflator
			Percent change from corresponding quarter of preceding year					
2000:Q1	2.3	4.5	2.1	6.2	2.8	3.7	-1.8	1.7
2000:Q2	4.0	5.4	1.3	6.6	3.2	2.5	0.7	1.8
2000:Q3	3.3	3.9	0.6	7.9	4.3	4.5	-2.6	1.8
2000:Q4	2.1	2.2	0.0	7.2	3.7	4.9	-3.1	1.9
2000:Annual	2.9	4.0	1.0	7.0	3.5	3.9	-1.7	1.8
2001:Q1	1.7	1.4	-0.3	4.2	0.9	2.4	1.4	2.1
2001:Q2	0.2	-0.6	-0.8	3.6	0.3	3.5	-0.3	2.1
2001:Q3	0.5	-0.8	-1.4	1.8	-0.8	1.2	3.9	2.2
2001:Q4	1.9	-0.4	-2.3	1.4	-0.4	-0.5	5.1	1.5
2001:Annual	1.1	-0.1	-1.2	2.7	-0.1	1.6	2.5	1.9
2002:Q1	4.4	1.3	-2.9	1.4	0.1	-2.9	6.9	0.6
2002:Q2	4.9	2.3	-2.5	2.3	1.0	-2.4	5.6	0.5
2002:Q3	5.6	3.8	-1.8	3.3	1.7	-2.2	4.0	0.1

Table 3
Manufacturing sector: Productivity, hourly compensation, and unit labor costs, seasonally adjusted

Year and quarter	Output per hour of all persons	Output	Hours of all persons	Compensation per hour	Real compensation per hour	Unit labor costs
			Indexes 1992=100			
2000:Q1	133.6	138.3	103.5	131.4	110.5	98.4
2000:Q2	134.9	139.8	103.6	129.3	107.9	95.9
2000:Q3	135.4	139.3	102.9	132.2	109.4	97.7
2000:Q4	135.9	137.6	101.3	131.5	108.0	96.7
2000:Annual	134.9	138.7	102.8	131.1	109.0	97.2
2001:Q1	135.4	135.1	99.8	132.0	107.4	97.5
2001:Q2	135.4	133.0	98.2	133.0	107.4	98.2
2001:Q3	136.4	131.3	96.3	133.3	107.5	97.8
2001:Q4	137.6	129.2	93.9	134.3	108.3	97.6
2001:Annual	136.2	132.1	97.1	133.1	107.7	97.8
2002:Q1	140.9	130.2	92.4	135.6	109.0	96.2
2002:Q2	142.3	131.3	92.3	136.6	108.9	96.0
2002:Q3	144.2	132.3	91.8	138.1	109.6	95.8
			Percent change from previous quarter at annual rate			
2000:Q1	4.5	2.7	-1.7	25.3	20.5	19.9
2000:Q2	3.8	4.4	0.5	-6.3	-9.0	-9.7
2000:Q3	1.6	-1.3	-2.8	9.5	5.8	7.8
2000:Q4	1.6	-4.8	-6.3	-2.3	-5.1	-3.8
2000:Annual	4.1	2.5	-1.5	7.4	3.9	3.2
2001:Q1	-1.5	-7.1	-5.6	1.6	-2.1	3.1
2001:Q2	0.0	-6.2	-6.2	3.1	-0.1	3.1
2001:Q3	2.9	-4.9	-7.6	1.0	0.3	-1.9
2001:Q4	3.8	-6.3	-9.7	2.9	3.2	-0.9
2001:Annual	0.9	-4.8	-5.6	1.5	-1.2	0.6
2002:Q1	9.7	3.0	-6.1	3.8	2.4	-5.3
2002:Q2	4.2	3.5	-0.7	3.2	-0.2	-1.0
2002:Q3	5.5	3.2	-2.2	4.4	2.5	-1.0

Table 3—*Continued*
Manufacturing sector: Productivity, hourly compensation, and unit labor costs, seasonally adjusted

Year and quarter	Output per hour of all persons	Output	Hours of all persons	Compensation per hour	Real compensation per hour	Unit labor costs
			Percent change from corresponding quarter of preceding year			
2000:Q1	4.4	3.6	-0.8	8.9	5.5	4.3
2000:Q2	4.7	3.8	-0.8	6.9	3.5	2.1
2000:Q3	4.3	2.6	-1.7	7.9	4.3	3.4
2000:Q4	2.9	0.2	-2.6	5.9	2.4	2.9
2000:Annual	4.1	2.5	-1.5	7.4	3.9	3.2
2001:Q1	1.3	-2.3	-3.6	0.5	-2.7	-0.9
2001:Q2	0.4	-4.9	-5.2	2.9	-0.5	2.5
2001:Q3	0.7	-5.7	-6.4	0.8	-1.8	0.1
2001:Q4	1.3	-6.1	-7.3	2.1	0.3	0.8
2001:Annual	0.9	-4.8	-5.6	1.5	-1.2	0.6
2002:Q1	4.0	-3.7	-7.4	2.7	1.4	-1.3
2002:Q2	5.1	-1.3	-6.1	2.7	1.4	-2.3
2002:Q3	5.8	0.8	-4.7	3.6	2.0	-2.1

Table 4
Durable manufacturing sector: Productivity, hourly compensation, and unint labor costs, seasonally adjusted

Year and quarter	Output per hour of all persons	Output	Hours of all persons	Compensation per hour	Real compensation per hour	Unit labor costs
			Indexes 1992=100			
2000:Q1	148.6	162.9	109.7	130.8	109.9	88.0
2000:Q2	150.0	165.2	110.2	127.5	106.4	85.0
2000:Q3	150.3	164.6	109.5	130.6	108.0	86.9
2000:Q4	150.1	162.0	107.9	128.4	105.5	85.5
2000:Annual	149.7	163.7	109.3	129.3	107.5	86.4
2001:Q1	149.0	157.9	106.0	129.4	105.3	86.8
2001:Q2	149.1	155.3	104.1	130.5	105.4	87.5
2001:Q3	150.1	152.2	101.4	130.2	105.0	86.7
2001:Q4	150.9	148.6	98.5	131.8	106.3	87.3
2001:Annual	149.8	153.5	102.5	130.4	105.5	87.1
2002:Q1	155.7	150.3	96.5	132.7	106.7	85.2
2002:Q2	158.0	152.3	96.4	133.6	106.5	84.6
2002:Q3	161.3	154.2	95.5	135.0	107.1	83.7
			Percent change from previous quarter at annual rate			
2000:Q1	7.6	6.3	-1.2	29.7	24.6	20.5
2000:Q2	3.9	5.8	1.8	-9.6	-12.1	-13.0
2000:Q3	0.8	-1.6	-2.3	9.9	6.1	9.1
2000:Q4	-0.6	-6.2	-5.7	-6.5	-9.2	-6.0
2000:Annual	4.4	3.6	-0.7	7.7	4.2	3.2
2001:Q1	-3.0	-9.7	-6.9	3.1	-0.6	6.2
2001:Q2	0.4	-6.5	-6.9	3.6	0.4	3.2
2001:Q3	2.7	-7.6	-10.0	-1.0	-1.7	-3.6
2001:Q4	2.3	-9.2	-11.2	5.0	5.4	2.7
2001:Annual	0.0	-6.2	-6.2	0.9	-1.9	0.8
2002:Q1	13.2	4.7	-7.5	2.8	1.3	-9.2
2002:Q2	6.0	5.4	-0.5	2.8	-0.6	-3.0
2002:Q3	8.8	4.9	-3.5	4.3	2.3	-4.2

Table 4—*Continued*
Durable manufacturing sector: Productivity, hourly compensation, and unint labor costs, seasonally adjusted

Year and quarter	Output per hour of all persons	Output	Hours of all persons	Compensa-tion per hour	Real compensa-tion per hour	Unit labor costs
			Percent change from corresponding quarter of preceding year			
2000:Q1	5.2	5.1	-0.1	10.5	7.0	5.0
2000:Q2	5.1	5.3	0.2	7.4	4.0	2.2
2000:Q3	4.3	3.2	-1.1	8.1	4.5	3.6
2000:Q4	2.9	1.0	-1.9	4.8	1.4	1.8
2000:Annual	4.4	3.6	-0.7	7.7	4.2	3.2
2001:Q1	0.3	-3.1	-3.3	-1.1	-4.2	-1.3
2001:Q2	-0.6	-6.0	-5.5	2.3	-1.0	3.0
2001:Q3	-0.1	-7.5	-7.4	-0.3	-2.8	-0.2
2001:Q4	0.6	-8.2	-8.8	2.6	0.8	2.1
2001:Annual	0.0	-6.2	-6.2	0.9	-1.9	0.8
2002:Q1	4.5	-4.8	-8.9	2.6	1.3	-1.9
2002:Q2	5.9	-1.9	-7.4	2.4	1.1	-3.4
2002:Q3	7.5	1.3	-5.8	3.7	2.1	-3.5

Table 5

Nondurable manufacturing sector: Productivity, hourly compensation, and unit labor costs, seasonally adjusted

Year and quarter	Output per hour of all persons	Output	Hours of all persons	Compensation per hour	Real compensation per hour	Unit labor costs
			Indexes 1992=100			
2000:Q1	120.6	114.9	95.3	130.6	109.8	108.3
2000:Q2	121.8	115.6	95.0	130.4	108.9	107.1
2000:Q3	122.6	115.4	94.1	133.2	110.2	108.7
2000:Q4	123.9	114.5	92.4	135.0	110.9	108.9
2000:Annual	122.2	115.1	94.2	132.3	110.0	108.3
2001:Q1	123.9	113.4	91.6	134.7	109.7	108.7
2001:Q2	123.6	111.7	90.4	135.5	109.4	109.6
2001:Q3	124.4	111.3	89.5	137.2	110.6	110.3
2001:Q4	125.9	110.5	87.8	137.1	110.6	108.9
2001:Annual	124.4	111.7	89.8	136.1	110.1	109.4
2002:Q1	127.5	110.8	86.9	139.1	111.8	109.1
2002:Q2	128.3	111.2	86.7	140.4	112.0	109.5
2002:Q3	128.7	111.6	86.7	142.1	112.8	110.4
			Percent change from previous quarter at annual rate			
2000:Q1	0.8	-1.8	-2.5	17.8	13.3	17.0
2000:Q2	3.8	2.4	-1.4	-0.5	-3.4	-4.2
2000:Q3	2.6	-0.9	-3.5	8.7	4.9	5.9
2000:Q4	4.6	-3.0	-7.2	5.6	2.5	0.9
2000:Annual	3.8	1.1	-2.6	6.7	3.3	2.9
2001:Q1	-0.1	-3.7	-3.6	-0.8	-4.4	-0.7
2001:Q2	-0.9	-5.9	-5.0	2.3	-0.8	3.2
2001:Q3	2.5	-1.5	-3.8	5.1	4.4	2.5
2001:Q4	4.9	-2.9	-7.4	-0.3	0.0	-5.0
2001:Annual	1.8	-2.9	-4.7	2.9	0.1	1.0
2002:Q1	5.3	1.2	-3.9	6.0	4.5	0.6
2002:Q2	2.4	1.5	-0.9	3.9	0.5	1.5
2002:Q3	1.3	1.2	-0.1	4.9	3.0	3.5

Table 5—*Continued*

Nondurable manufacturing sector: Productivity, hourly compensation, and unit labor costs, seasonally adjusted

Year and quarter	Output per hour of all persons	Output	Hours of all persons	Compensation per hour	Real compensation per hour	Unit labor costs
			Percent change from corresponding quarter of preceding year			
2000:Q1	3.4	1.6	-1.8	6.1	2.8	2.6
2000:Q2	4.4	1.8	-2.5	5.8	2.5	1.4
2000:Q3	4.4	1.7	-2.5	7.4	3.8	2.9
2000:Q4	2.9	-0.8	-3.7	7.7	4.2	4.6
2000:Annual	3.8	1.1	-2.6	6.7	3.3	2.9
2001:Q1	2.7	-1.3	-3.9	3.1	-0.1	0.4
2001:Q2	1.5	-3.4	-4.8	3.9	0.5	2.3
2001:Q3	1.5	-3.5	-4.9	3.0	0.4	1.5
2001:Q4	1.6	-3.5	-5.0	1.5	-0.3	0.0
2001:Annual	1.8	-2.9	-4.7	2.9	0.1	1.0
2002:Q1	2.9	-2.3	-5.0	3.2	2.0	0.3
2002:Q2	3.7	-0.4	-4.0	3.6	2.3	-0.1
2002:Q3	3.4	0.2	-3.1	3.6	2.0	0.1

Table 6
Productivity and costs: Revised third-quarter 2002 measures (Seasonally adjusted annual rates)

Sector	Productivity	Output	Hours	Hourly compensation	Real hourly compensation	Unit labor costs
			Percent change from preceding quarter			
Business	5.4	5.2	-0.2	5.3	3.4	-0.1
Non-farm business	5.1	5.1	0.0	4.9	3.0	-0.2
Manufacturing	5.5	3.2	-2.2	4.4	2.5	-1.0
Durable	8.8	4.9	-3.5	4.3	2.3	-4.2
Nondurable	1.3	1.2	-0.1	4.9	3.0	3.5
			Percent change from same quarter a year ago			
Business	5.8	3.8	-1.9	3.5	1.9	-2.2
Non-farm business	5.6	3.8	-1.8	3.3	1.7	-2.2
Manufacturing	5.8	0.8	-4.7	3.6	2.0	-2.1
Durable	7.5	1.3	-5.8	3.7	2.1	-3.5
Nondurable	3.4	0.2	-3.1	3.6	2.0	0.1

Unit labor costs, which reflect changes in both hourly compensation and productivity, decreased by 0.1 percent during the third quarter. In the second quarter, unit labor costs had increased by 2.4 percent, following a decrease of 4.9 percent in the first quarter of 2002. The implicit price deflator for the business sector increased by 0.4 percent during the third quarter of 2002, down from the 0.7 percent increase in the second quarter.

Non-farm Business Sector

In the non-farm business sector, BLS reported that productivity grew by 5.1 percent during the third quarter of 2002, as output also increased by 5.1 percent and hours worked of all persons showed no change. Hours worked reflects a 0.6 percent increase in employment combined with a 0.5 percent decline in average weekly hours at work. In the second quarter of 2002 non-farm business productivity rose by 1.7 percent, as output rose by 0.9 percent and hours decreased by 0.7 percent (table 2).

Hourly compensation increased by 4.9 percent annual rate in the third quarter of 2002. Real hourly compensation rose at a 3.0 percent annual rate during the third quarter. In the second quarter of 2002, real hourly compensation rose by 0.5 percent.

Unit labor costs decreased 0.2 percent during the third quarter of 2002. In the second quarter, unit labor costs in the non-farm business sector had increased by 2.2 percent. The implicit price deflator for non-farm business output rose by 0.1 percent in the third quarter of 2002.

Manufacturing Sector

In the manufacturing sector BLS reported that productivity increased by 5.5 percent in the third quarter of 2002, as output grew by 3.2 percent and hours of all persons fell by 2.2 percent. In the second quarter, labor productivity increased by 4.2 percent, reflecting a 3.5 percent increase in output and 0.7 percent decline in hours worked. Total manufacturing output has increased in each of the last three quarters, after having fallen in each of the six previous quarters.

In durable goods, productivity grew by 8.8 percent in the third quarter as output increased by 4.9 percent and hours worked of all persons fell by 3.5 percent. In nondurable goods productivity increased by 1.3 percent, as output rose by 1.2 percent and hours worked of all persons decreased by 0.1 percent (tables 3, 4, and 5).

Hourly compensation of manufacturing workers increased by an average of 4.4 percent during the third quarter, the largest increase in this series since the third quarter of 2000, when it grew by 9.5 percent. Hourly compensation grew by 4.3 percent in durable goods and by 4.9 percent in nondurable goods in the third quarter of 2002. Real hourly compensation in total manufacturing rose by 2.5 percent in the third quarter.

Unit labor costs in manufacturing decreased by 1.0 percent in the third quarter of 2002, the fifth consecutive quarterly decline in these costs. In the durable goods sector, unit labor costs in the third quarter fell by 4.2 percent, and in nondurable goods sector, unit labor costs rose by 3.5 percent.

Definitions and Sources

Labor Hours

BLS noted that hours worked data used for accounting for labor productivity and cost measures include hours worked for all persons working in the sector–wage and salary workers, the self–employed, and unpaid family workers. The primary source of hours worked and employment data is the BLS Current Employment Statistics (CES) program, which provides monthly survey data on the number of jobs held by wage and salary workers in non–farm establishments. The CES also provides average weekly paid hours of production and non–supervisory workers in these establishments.

The Office of Productivity and Technology estimates average weekly paid hours of non–production and supervisory workers. Weekly paid hours are adjusted to hours at work using the BLS Hours at Work survey, conducted for this purpose.

Data from the BLS Current Population Survey (CPS) are used for farm labor. In the non–farm sector, both the National Income and Product Accounts (NIPA) prepared by the Bureau of Economic Analysis (BEA) of the Department of Commerce and the CPS, are used to measure labor input for government enterprises, proprietors, and unpaid family workers.

Output

Business sector output is calculated as an annual–weighted index constructed after excluding from gross domestic product (GDP) the following outputs: General government, non–profit institutions, paid employees of private households, and the rental value of owner–occupied dwellings. Corresponding exclusions also are made in labor inputs. According to BLS business sector output accounted for about 77 percent of the value of GDP in 1996. Non–farm business output, which excludes farming, accounted for about 76 percent of GDP in 1996.

Annual indexes for manufacturing and its durable and nondurable goods components are constructed by the BLS by deflating current–dollar industry value of production data from the U.S. Bureau of the Census with deflators from the Bureau of Economic Analysis (BEA). These deflators are based on data from the BLS producer price program and other sources. The industry shipments are aggregated using annual weights, and intra–sector transactions are removed. Quarterly manufacturing output measures are based on the index of industrial production prepared monthly by the Board of Governors of the Federal Reserve System adjusted to be consistent with annual indexes of manufacturing sector output prepared by BLS. BLS defines durables as to include the following 2–digit SIC industries: Primary metal industries; fabricated metal products; non–electrical machinery; industrial and commercial machinery and computer equipment; electronic and other electrical equipment; transportation equipment; instruments; lumber and lumber products; furniture and fixtures; stone, clay, and glass and concrete products; and miscellaneous manufactures. Nondurables include: Food and kindred products, tobacco products, textile mill products, apparel products, paper and allied products, printing and publishing, chemicals and chemical products, petroleum refining and related industries, rubber and plastic products, and leather and leather products.

Non–financial corporate output is an annual–weighted index calculated by the BLS on the basis of the costs incurred and the incomes earned from production. The output measure excludes the following outputs from GDP: general government; non–profit institutions; employees of private households; the rental value of owner–occupied dwellings; unincorporated business; and those corporations which are depository institutions, non–depository institutions, security and commodity brokers, insurance carriers, regulated investment offices, small business investment offices, and real estate investment trusts. Non–financial corporations accounted for about 53 percent of the value of GDP in 1996.

Productivity

Productivity measures describe the relationship between real output and the labor time involved in its production. These measures show the changes from period to period in the amount of goods and services produced per hour. Although these measures relate output to hours at work of all persons engaged in a sector, they do not measure the specific contribution of labor, capital, or any other factor of production. Rather, they reflect the joint effects of many influences, including changes in technology; capital investment; level of output; utilization of capacity, energy, and materials; the organization of production; managerial skill; and the characteristics and effort of the work force.

INTERNATIONAL ECONOMIC COMPARISONS

U.S. Economic Performance Relative to Other Group of Seven (G-7) Members

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Economic Growth

The real gross domestic product (GDP) of the United States–the output of goods and services produced in the United States measured in 1996 prices–increased at an annual rate of 4.0 percent in the third quarter of 2002. In the second quarter of 2002, real GDP increased at an annual rate of 1.3 percent, according to estimates by the U.S. Department of Commerce Bureau of Economic Analysis.[2] For the year 2001, real GDP grew by 0.3 percent, following a growth rate of 3.8 percent in the year 2000. The major contributors to the increase in the third quarter of 2002 were personal consumption expenditures, equipment and software, exports, and government spending. However, the contributions of these components were partly offset by a decrease in nonresidential structures. Imports, which are a subtraction in the calculation of GDP, increased.

The annualized rate of real GDP growth in the third quarter of 2002 was 1.1 percent in Italy, 3.0 percent in Japan, 3.4 percent in the United Kingdom, 1.1 percent in Germany, 3.1 percent in Canada, and 0.9 percent in France. For EU members linked by the euro currency, the euro area (EU-12) GDP growth rate was 1.3 percent in the third quarter of 2002.

Industrial Production

The Federal Reserve Board reported that U.S. industrial production fell 0.8 percent in October 2002, its third consecutive monthly decline. The rate of capacity utilization for total industry fell 0.6 percentage point to 75.2 percent from 75.8 percent, a level 6.7 percent below its 1967-2001 average.

By market groups, the output of consumer goods decreased 0.8 percent in October, its third consecutive monthly decline. The production of consumer durable goods fell 2.5 percent, as a 4.4 percent decline in the output of automotive products accounted or much of the drop. The production of consumer nondurable goods fell 0.3 percent. The production of business equipment dropped 2.0 percent in October following a decline of 1.5 percent in September. The output of industrial materials fell 0.7 percent, the largest since December 2001.

By industry group, manufacturing output decreased 0.7 percent in October 2002 following decreases of 0.4 percent in September, and 0.1 percent in August. The index for durable goods decreased 1.2 percent, and the index for nondurables slipped 0.2 percent. The largest decline in durable goods industries was in motor vehicles and parts, which dropped 5.2 percent due to parts shortages resulting from effects of the port

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[2] Data for this article were taken largely from the following sources: U.S. Department of Commerce, Bureau of Economic Analysis, "Gross Domestic Product," *BEA News Release*, found at Internet address *http://www.bea.doc.gov/bea/newsrel/gdp.htm*; Federal Reserve Board, "Industrial Production and Capacity Utilization," G.17 (419) Release, found at Internet address *http://www.federalreserve.gov/releases/G17/Current/*; U.S. Department of Labor, Bureau of Labor Statistics, "Consumer Price Index," *USDL-01*, found at Internet address *http://www.bls.gov/news.release/cpi.nr0.htm*; U.S. Department of Labor, Bureau of Labor Statistics, "The Employment Situation," *USDL-01*, found at Internet address *http://www.bls.gov/news.release/empsit.nr0.htm*; and the Conference Board, Consumer Research Center, "Forecasters' Forecasts," facsimile transmission, used with permission.

shutdown on the West Coast. This decline followed a decrease of 1.3 percent in September. Excluding motor vehicles and parts, manufacturing output was unchanged. Output of utilities decreased 1.6 percent, and production in mining declined 1.0 percent. Utilities output declined by 1.6 percent.

Other G-7 member countries reported the following growth rates of industrial production. For the year ending September 2002, Japan reported an increase of 5.2 percent, Italy reported an increase of 1.2 percent, but United Kingdom reported a decrease of 2.5 percent, Germany reported a decrease of 1.3 percent, and France reported a decrease of 1.1 percent. For the year ending August 2002, Canada reported an increase of 3.1 percent. The euro area reported a decrease of 0.6 percent for the year ending September 2002.

Prices

The seasonally adjusted U.S. Consumer Price Index (CPI) rose by 0.3 percent in October 2002, following a 0.2 percent increase in September, and a 0.3 percent increase in August, according to the U.S. Department of Labor. For the year ended October 2002, consumer prices increased 1.9 percent.

During the year ended in October 2002, France reported an increase of 1.9 percent, Germany reported an increase of 1.3 percent, Italy reported an increase of 2.7 percent, and the United Kingdom reported an increase of 2.1 percent. During the year ending in September 2002, prices increased by 2.3 percent in Canada, but declined by 0.7 percent in Japan. Prices increased by 2.2 percent in the euro area in the year ending October 2002.

Employment

The U.S. Department of Labor, Bureau of Labor Statistics reported that the U.S. unemployment rate at 6.0 percent in October 2002. Job losses continued in the manufacturing industry but were offset by gains in services. In other G-7 countries, the latest unemployment rates were reported to be 7.6 percent in Canada, 9.0 percent in France, 9.9 percent in Germany, 9.0 percent in Italy, 5.4 percent in Japan, and 5.3 percent in the United Kingdom. The unemployment rate in the euro area was 8.3 percent.

Forecasts

Despite the terrorist attacks in the United States of September 11, 2001, the U.S. economy has been ranked as the most competitive in the world, according to the World Economic Forum's most recent Global Competitiveness Report. The report constructs a "growth competitiveness index" for 80 industrialized and emerging economies. The index includes several factors that influence a country's economic prospects over the next five to eight years, such as technology, public institutions, and the macroeconomic environment. The U.S. strong performance in technology–particularly in research and development, with collaboration between universities and business, as well as the strong level of tertiary education–helped to rank the U.S. economy in first place. The other economies in the top 30 were ranked in order as Finland, Taiwan, Singapore, Sweden, Switzerland, Australia, Canada, Norway, Britain, Japan, Hong Kong. Israel, Chile, South Korea, Ireland, Thailand, South Africa, China, Czech Republic, Mexico, Brazil, India, Poland, Colombia, Philippines, Argentina, Russia, Indonesia, and Turkey.

In testimony before the U.S. Congress Joint Economic Committee, Alan Greenspan–chairman of the Federal Reserve Board of Governors–noted that the U.S. economy shows remarkable strength despite the forces that have continued to burden it, the lengthy adjustment of capital spending due to the decline in equity values, the fallout from the revelations of corporate malfeasance, and the heightened political risks in areas such as the Middle East. U.S. real GDP grew by 3 percent over the past four quarters despite these obstacles, a very respectable pace compared to the sluggish growth in other major world economies.[3]

OECD Forecasts[4]

Forecasts by the Organization of Economic Co-operation and Development (OECD) in its preliminary editions of its *Economic Outlook*, released November 21, 2002, show assuring rates of growth in the coming years for the United States compared to other OECD economies. U.S. real GDP is projected to grow by 2.3 percent in 2002, by 2.6 percent in 2003, and by 3.6 percent in 2004. In contrast, Japan's real GDP is projected to decline by 0.7 percent in 2002, and then increase by only 0.8 percent in 2003, and by 0.9 percent in 2004. In the euro area, real GDP is projected to grow by 0.8 percent in 2002, by 1.8 percent in 2003, and by 2.7 percent in 2004. In the European Union, real GDP is projected to grow by 0.9 percent in 2002, by 1.9 percent in 2003, and by 2.7 percent in 2004. Real GDP for the whole OECD area–the world's industrialized economies as a group–is projected to grow by 1.5 percent in 2002, by 2.2 percent in 2003, and by 3.0 percent in 2004.

[3] Testimony of Chairman Alan Greenspan before the U.S. Congress Joint Economic Committee, "The economic outlook," Nov. 13, 2002, found at Internet address *http://www.federalreserve.gov/,* retrieved on Dec. 5, 2002.

[4] OECD, *Economic Outlook No. 72*, Preliminary Edition, November 2002, found at Internet address *http://www.oecd.org/*, retrieved on Dec. 5, 2002.

Inflation is projected to remain subdued in the United States, rising from 1.1 percent in 2002 to 1.3 percent in both 2003 and 2004. In Japan, deflationary price pressures are expected to remain throughout the three year period as prices are projected to decline by 1.0 percent in 2002, 1.6 percent in 2003, and by 1.4 percent in 2004. In the euro area (EU-12), inflation is projected to slow from 2.2 percent in 2002 to 1.9 percent in 2003, and to 1.8 percent in 2004. In the somewhat larger area of the European Union (EU-15), inflation is projected to slow from 2.4 percent in 2002 to 2.0 percent in 2003, and to 1.9 percent in 2004. In the overall OECD area, inflation is projected to slow from 2.2 percent in 2002 to 1.8 percent in 2003, and to 1.6 percent in 2004.

Unemployment is projected to remain at 5.8 percent in the United States in 2002, rise slightly to 6.0 percent in 2003, then fall back to 5.7 percent in 2004. In Japan, unemployment is projected to stay at 5.5 percent in 2002, and remain at a 5.6 percent level in both 2003 and 2004. In the euro area, unemployment is projected to remain high at 8.3 percent in 2002, rise to 8.5 percent in 2003, and decline slightly to 8.3 percent in 2004. In the European Union, unemployment is projected to rise from 7.6 percent in 2002 to 7.8 percent in 2003, and then decline to 7.5 percent in 2004. In total OECD area, unemployment is projected to remain around 6.7 to 6.8 percent during the three year period.

The U.S. current account deficit, as a percent of GDP, is projected to remain high in the three years, growing by 0.2 percent from 4.9 percent in 2002 to 5.1 percent in 2003 and to 5.3 percent of GDP in 2004. In Japan, the current account surplus is projected to grow from 3.2 percent, of GDP in 2002 to 3.8 percent in 2003, and to 4.2 percent in 2004. In the euro area, the current account surplus is projected to grow from 0.9 percent in 2002 and 2003 to 1.2 percent in 2004. The overall OECD current account deficit, as a percent of GDP, is projected to remain at 1.2 percent over the three years.

World trade volume–the average of world merchandise imports plus exports–is projected to increase by 2.2 percent in 2002, but grow substantially more in 2003 and 2004, by 7.7 percent and 8.8 percent respectively.

Private Economic Forecasts

Economic prospects also improved, according to private forecasters, despite the terrorist attacks in the United States on September 11, 2001. Seven major U.S. forecasters expect real GDP growth in the United States during the fourth quarter of 2002, to reach an average annualized rate of 2.4 percent. The overall growth rate for the year 2002 is expected to average 2.5 percent. In the first and second quarters of 2003, GDP is projected to grow at 3.5 percent and 3.7 percent, respectively. Table 1 shows macroeconomic projections for the U.S. economy from October 2002 to September 2003, and the simple average of these forecasts. Forecasts of all the economic indicators, except unemployment, are presented as percentage changes from the preceding quarter, on an annualized basis. The forecasts of the unemployment rate are averages for the quarter. The average of the forecasts points to an unemployment rate of 6.1 percent in the third and fourth quarters of 2002, remains at 6.1 percent for the year 2002, and then slows slightly during the first and second quarter of 2003. Inflation, as measured by the GDP deflator, is expected to remain subdued, reaching an average of about 1.7 percent in the fourth quarter of 2002. For the year, inflation is projected to remain at 1.2 percent, and then rise by 1.9 percent in the year 2003 (table 1).

Table 1

Projected changes of selected U.S. economic indicators, by quarter and year, April 2002–September 2003

	Conference Board	Macro-economic Advisers	E.I. Dupont	UCLA	Regional Forecasting Associates	Merrill Lynch Capital Markets	Eaton Corporation	Mean of forecasts
				Percent (see note)				
GDP, constant dollars								
2002 Q:II (actual) . . .	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Q:III	3.6	4.3	3.7	2.6	3.5	4.5	3.1	3.6
Q:IV	3.0	1.1	2.0	2.5	1.9	2.5	3.9	2.4
2003 Q:I	4.7	2.3	2.5	2.6	2.5	2.5	4.1	3.0
Q:II	3.2	3.7	3.0	2.7	3.3	4.0	4.7	3.5
Q:III	4.3	4.0	3.0	3.2	3.8	4.5	3.4	3.7
Annual 2002 . .	2.5	2.5	2.4	2.3	2.9	2.6	2.5	2.5
Annual 2003 . .	3.7	2.8	2.7	2.7	3.5	3.3	3.7	3.2
Unemployment, average rate								
2002 Q:II (actual) . . .	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
Q:III	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
Q:IV	6.0	6.0	5.9	6.1	6.3	6.1	6.0	6.1
2003 Q:I	6.1	6.0	5.9	6.2	6.3	6.3	6.2	6.1
Q:II	6.0	5.7	5.8	6.1	6.2	6.2	6.1	6.0
Q:III	5.7	5.6	5.7	6.1	6.1	6.0	5.9	5.9
Annual 2002 . .	5.9	5.8	5.8	5.9	6.0	5.9	5.9	5.9
Annual 2003 . .	5.8	5.7	5.8	6.1	6.1	6.1	6.0	5.9
GDP price deflator								
2002 Q:II (actual) . . .	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Q:III	1.3	1.3	1.5	1.2	1.7	1.3	2.9	1.6
Q:IV	2.6	1.0	1.5	1.1	1.8	1.2	2.6	1.7
2003 Q:I	3.4	1.3	1.4	1.4	1.8	1.5	2.9	2.0
Q:II	3.0	1.5	1.4	1.7	2.2	0.6	2.4	1.8
Q:III	3.0	1.9	1.8	2.3	2.1	1.2	2.4	2.1
Annual 2002 . .	1.2	1.1	1.2	1.1	1.5	1.1	1.4	1.2
Annual 2003 . .	2.7	1.4	1.5	1.6	2.2	1.2	2.5	1.9

Note.—Projected changes in percent represent annualized percentage rates of change from the preceding period, except for the unemployment rate which represents a simple percentage rate of the U.S. labor force. Quarterly data are seasonally adjusted.

Source: Calculated from data supplied by the Conference Board. Used with permission. Forecast date, September 2002.

STATISTICAL TABLES

Table 1
Unemployment rates in G-7 countries, by specified periods, 2000-September 2002[1]

Country	Percent													
	2000				2001				2002					
	Q:I	Q:II	Q:III	Q:IV	Q:I	Q:II	Q:III	Q:IV	Q:I	Q:II	Q:III	July	Aug.	Sept.
United States ...	4.0	4.0	4.1	4.0	4.2	4.5	4.8	5.6	5.6	5.9	5.7	5.9	5.7	5.6
Canada	6.1	6.0	6.1	6.1	6.2	6.3	6.5	6.9	7.1	6.9	7.0	6.8	7.0	7.1
Japan	4.8	4.7	4.7	4.8	4.8	4.9	5.2	5.5	5.3	5.4	8.5	5.4	5.5	8.5
France	9.6	9.3	9.0	8.6	8.5	8.4	8.5	8.6	8.6	8.7	9.1	8.8	8.8	5.2
Germany	8.3	8.1	8.0	7.8	7.9	8.0	8.0	8.1	8.2	8.4	5.0	8.5	8.5	
Italy	11.2	10.9	10.5	10.1	10.0	9.7	9.5	9.3	9.2	9.2		9.1	4.9	
United Kingdom .	5.8	5.5	5.4	5.2	5.1	5.0	5.1	5.2	5.1	5.2		5.2		

[1] Rates presented on a civilian labor force basis, seasonally adjusted. Rates for foreign countries adjusted to be comparable to the U.S. rate.

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Unemployment Rates in Nine Countries, Civilian Labor Force Basis, Approximating U.S. Concepts, Seasonally Adjusted, 1990–2002," release of Nov. 1, 2002, found at Internet address *ftp://ftp.bls.gov/pub/special.requests/ForeignLabor/flsjec.txt*.

Table 2
Consumer prices of G-7 countries, by specified periods, 2000-September 2002

Country	Percent, change from same period of previous year													
	2000				2001				2002					
	Q:I	Q:II	Q:III	Q:IV	Q:I	Q:II	Q:III	Q:IV	Q:I	Q:II	Q:III	July	Aug.	Sept.
United States ...	3.2	3.3	3.5	3.4	3.4	3.4	2.7	1.9	1.3	1.3	1.6	1.5	1.8	1.5
Canada	2.7	2.4	2.7	3.1	2.8	3.6	2.7	1.1	1.5	1.3	2.3	2.1	2.6	2.3
Japan	-0.7	-0.7	-0.7	-0.5	-0.4	-0.7	-0.8	-1.0	-1.4	-0.9	-0.8	-0.8	-0.9	-0.7
France	1.5	1.5	1.9	1.9	1.3	2.0	1.8	1.4	2.1	1.6	1.8	1.6	1.8	1.8
Germany	1.8	1.6	2.1	2.3	2.5	3.2	2.5	1.8	1.9	1.2	1.0	1.0	1.1	1.0
Italy	2.4	2.5	2.6	2.7	2.9	3.1	2.8	2.4	2.5	2.3	2.4	2.2	2.4	2.6
United Kingdom .	2.3	3.1	3.2	3.1	2.5	1.9	1.8	1.0	1.2	1.2	1.5	1.5	1.4	1.7

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Consumer Prices in Nine Countries, Percent Change from Same Period of Previous Year, 1990-2002," release of Nov. 1, 2002, found at Internet address *ftp://ftp.bls.gov/pub/special.requests/ForeignLabor/flscpim.txt.*

Table 3
U.S. trade balances by major commodity categories and by specified periods, July 2001-July 2002[1]

Commodity categories	Billion dollars												
	2001						2002						
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
Manufactures	-35.0	-33.2	-31.5	-38.6	-32.9	-26.8	-31.6	-30.5	-28.9	-34.3	-33.4	-33.1	-40.8
Agriculture	0.7	1.3	0.8	1.7	1.9	1.5	1.3	1.5	0.9	0.3	0.5	0.7	0.6
Petroleum[2]	-9.7	-9.0	-8.2	-8.0	-6.4	-5.8	-6.7	-5.4	-7.4	-9.2	-9.4	-8.9	-9.3
Dollar unit price of U.S. petroleum imports[2]	22.34	22.15	22.99	19.94	17.13	15.51	16.31	16.56	19.18	22.48	23.76	23.30	23.72

[1] Exports, f.a.s. value, not seasonally adjusted. Imports, customs value, not seasonally adjusted.

[2] Petroleum and selected products, not seasonally adjusted.

Source: Calculated from official data of the U.S. Department of Commerce, Exhibits 15 and 17, FT-900 release of Nov. 19, 2002, found at Internet address *http://www.census.gov/foreign-trade/www/press.html#current.*