

Shifts in U.S. Merchandise Trade 2008

July 2009
Publication No. 4089

Investigation No. 332-345
United States International Trade Commission



U.S. International Trade Commission

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Introduction

The annual *Shifts in U.S. Merchandise Trade* report is prepared on the basis of more than 250 major industry/commodity groups and subgroups identified by the U.S. International Trade Commission (the Commission). The report contains the analysis of international trade analysts of the Commission's Office of Industries, who routinely monitor trade developments in all natural resource, agricultural, and manufacturing industries. The report is divided into three parts.

Part I presents an analysis of U.S. merchandise trade in 10 merchandise sectors¹ and overall economic performance from 2007 to 2008. U.S. merchandise trade performance in 2008 is summarized and compared with such performance in 2007. Coverage of the individual merchandise sectors includes data showing U.S. export, import, and trade balance shifts by sectors, industry/commodity groups (and in some cases subgroups), and shifts in trade with U.S. trade partners. Major shifts in trade are highlighted and examined in greater detail in the rest of the report. Part I also examines U.S. imports from trade partners eligible for U.S. trade preference programs, most notably imports from beneficiaries of the African Growth and Opportunity Act, the Andean Trade Preference Act, the Caribbean Basin Initiative, and the Generalized System of Preferences.

Part II examines the shifts in U.S. trade with each of the top five U.S. trade partners—Canada, China, the EU, Japan, and Mexico. Also examined are shifts in trade with Brazil, India, and Russia—U.S. trading partners that are growing in significance. Summary tables show the important shifts in U.S. bilateral trade and highlight leading changes in industry/commodity groups for each of the major trade partners.

Part III presents a general overview for each of the 10 merchandise sectors, identifying significant shifts in trade within each sector. Each sector chapter includes a statistical summary table of industry/commodity groups or subgroups, showing absolute and percent changes in bilateral trade in a year-to-year comparison of 2007 and 2008.² In addition to the sectoral analyses, shifts in 20 specific industry/commodity groups are examined in greater detail. These industry/commodity groups were selected based on absolute and percentage shifts in trade; such shifts must have exceeded \$1.0 billion and 50 percent.

¹ The 10 sectors are agricultural products; chemicals and related products; electronic products; energy-related products; forest products; minerals and metals; miscellaneous manufactures; machinery; transportation equipment; and textiles, apparel, and footwear.

² For trade-monitoring purposes, the USITC assigns U.S. Harmonized Tariff Schedule (HTS) import headings/subheadings, and the corresponding Schedule B export categories, to industry/commodity groups and subgroups. These groups are aggregated into the 10 sectors analyzed in this report.

Part I: U.S. Merchandise Trade and Overall Economic Performance

This part of the report presents an analysis of U.S. merchandise trade and overall economic performance from 2007 to 2008. Overall U.S. merchandise trade performance in 2008 is summarized for 10 merchandise sectors and compared with such performance for 2007. Coverage of the individual merchandise sectors includes data showing U.S. export, import, and trade balance shifts by sectors, industry/commodity groups (and in some cases subgroups), and shifts in trade with U.S. trade partners. Major shifts in trade are highlighted and examined in greater detail in the rest of the report. Part I also examines U.S. imports under trade preference programs, most notably the African Growth and Opportunity Act, the Andean Trade Preference Act, the Caribbean Basin Initiative, and the Generalized System of Preferences.

Overall Economic Performance

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In 2008, U.S. merchandise trade reached a record high, with the merchandise trade deficit increasing by \$24.2 billion (3 percent) to \$920.7 billion (table US.1). U.S. domestic merchandise exports and imports for consumption were \$1.2 trillion and \$2.1 trillion, respectively, in 2008, an increase of 12 percent and 8 percent.¹ Total trade in goods and services (exports plus imports) was up by 9 percent to almost \$4.4 trillion; U.S. exports of goods and services totaled \$1.8 trillion while U.S. imports were \$2.5 trillion.² The downturn in the world economy contributed to a decrease in U.S. trade in last quarter 2008, when both exports and imports decreased.

The United States is a significant exporter of capital goods and industrial supplies and materials (which includes energy-related products). According to the Bureau of Economic Analysis, In 2008 exports of capital goods accounted for 36 percent of all U.S. merchandise exports, followed by industrial supplies and materials (30 percent), and motor vehicles, parts, and engines (9 percent). The remainder of U.S. merchandise exports consisted of consumer goods (12 percent); foods, feeds, and beverages (8 percent); and other products (4 percent).³ As in previous years, the largest component of U.S. imports in 2008 was industrial supplies and materials, accounting for 37 percent of all merchandise imports, followed by imports of consumer goods (23 percent) and capital goods (22 percent).⁴

¹ Although not a focus of this report, in 2008 U.S. services exports and imports were \$551.6 billion and \$407.6 billion, respectively, resulting in a surplus of \$144.1 billion. The services surplus rose to a record high in 2008, increasing by 21 percent over 2007. U.S. services exports increased across almost all services sectors, with “other private services” (e.g., business, professional, and technical services; insurance services; and financial services) increasing the most on a value basis (\$17.6 billion). “Other private services” and “other transportation” (e.g., freight and port services) registered the largest jumps in imports (\$9.8 billion and \$5.8 billion, respectively). USDOC, Census, “FT900: U.S. International Trade in Goods and Services,” exhibit 1, February 11, 2009.

² Aggregate merchandise goods trade data are reported on a balance of payments (BOP) basis. Trade data reported on a BOP basis are adjusted by the Bureau of Economic Analysis (BEA) to bring the data in line with BEA national and international accounts. The BEA also reports the data for international trade in services from the balance of payments. Data on individual components of U.S. merchandise exports and country trade are reported on a Census basis. These data are not adjusted for consistency with the balance of payments. USDOC, Census, “FT900: U.S. International Trade in Goods and Services,” exhibit 1, February 11, 2009. The overall trade deficit decreased to 4.8 percent of U.S. gross domestic product (GDP) in 2008, compared with 5.1 percent in 2007. USDOC, BEA, “U.S. International Trade in Goods and Services,” March 13, 2009.

³ Ibid., exhibit 13. The Bureau of Economic Analysis was product groupings that cannot be directly compared to the sectors that are broken out in table 1 and referred to throughout the report. In 2008, the four largest export product categories by sector, together accounted for 63 percent of total exports. These sectors included transportation equipment, chemicals and related products, electronic products, and agricultural products.

⁴ Ibid. The Bureau of Economic Analysis was product groupings that cannot be directly compared to the sectors that are broken out in table 1 and referred to throughout the report. In 2008, the four largest import product categories, by sector, together accounted for 64 percent of total imports. These sectors included energy-related products, electronic products, transportation equipment, and chemicals and related products.

TABLE US.1 U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by major industry/commodity sectors, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
Agricultural products	66,908	68,698	76,924	96,041	121,077	25,036	26.1	
Forest products	25,637	27,809	30,156	33,088	35,362	2,273	6.9	
Chemicals and related products	121,383	132,734	149,848	169,409	189,784	20,375	12.0	
Energy-related products	21,783	29,892	38,999	46,674	81,737	35,063	75.1	
Textiles and apparel	17,663	17,864	18,088	17,535	17,805	271	1.5	
Footwear	450	507	573	578	673	95	16.4	
Minerals and metals	50,588	62,911	82,944	100,260	119,753	19,493	19.4	
Machinery	75,096	80,405	92,886	101,289	107,869	6,580	6.5	
Transportation equipment	158,135	182,731	218,326	249,421	256,413	6,992	2.8	
Electronic products	149,564	155,552	169,381	172,502	174,810	2,308	1.3	
Miscellaneous manufactures	16,223	18,435	22,438	25,954	27,821	1,867	7.2	
Special provisions	23,753	26,454	28,925	33,607	36,716	3,109	9.3	
Total	727,183	803,992	929,486	1,046,358	1,169,821	123,464	11.8	
U.S. imports of merchandise for consumption:								
Agricultural products	67,012	73,050	81,456	88,136	96,238	8,102	9.2	
Forest products	47,591	50,003	50,416	46,561	42,291	-4,270	-9.2	
Chemicals and related products	141,683	163,050	179,410	194,331	223,492	29,160	15.0	
Energy-related products	195,553	273,197	319,168	344,829	472,325	127,496	37.0	
Textiles and apparel	94,045	100,485	104,563	107,678	104,329	-3,349	-3.1	
Footwear	16,498	17,834	19,038	19,270	19,451	181	0.9	
Minerals and metals	120,897	137,367	169,510	174,207	184,994	10,787	6.2	
Machinery	101,958	116,187	131,091	139,131	142,560	3,429	2.5	
Transportation equipment	264,620	282,881	303,979	309,924	288,235	-21,688	-7.0	
Electronic products	280,463	305,667	332,485	353,009	351,622	-1,387	-0.4	
Miscellaneous manufactures	78,669	86,559	94,099	103,905	100,837	-3,069	-3.0	
Special provisions	51,171	56,098	59,837	61,882	64,109	2,227	3.6	
Total	1,460,160	1,662,380	1,845,053	1,942,863	2,090,483	147,620	7.6	
U.S. merchandise trade balance:								
Agricultural products	-104	-4,352	-4,532	7,906	24,839	16,933	214.2	
Forest products	-21,953	-22,194	-20,260	-13,473	-6,930	6,543	48.6	
Chemicals and related products	-20,299	-30,317	-29,562	-24,923	-33,708	-8,785	-35.3	
Energy-related products	-173,770	-243,304	-280,170	-298,155	-390,588	-92,433	-31.0	
Textiles and apparel	-76,382	-82,621	-86,476	-90,143	-86,523	3,620	4.0	
Footwear	-16,048	-17,327	-18,465	-18,692	-18,778	-86	-0.5	
Minerals and metals	-70,309	-74,456	-86,567	-73,947	-65,240	8,706	11.8	
Machinery	-26,863	-35,783	-38,205	-37,842	-34,690	3,151	8.3	
Transportation equipment	-106,485	-100,150	-85,654	-60,503	-31,823	28,680	47.4	
Electronic products	-130,899	-150,115	-163,105	-180,507	-176,812	3,695	2.0	
Miscellaneous manufactures	-62,445	-68,124	-71,661	-77,951	-73,015	4,936	6.3	
Special provisions	-27,418	-29,644	-30,912	-28,275	-27,393	882	3.1	
Total	-732,977	-858,388	-915,567	-896,505	-920,661	-24,156	-2.7	

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

Note: Calculations based on unrounded data. Sectors are ordered by the level of processing of the products classified therein.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

Merchandise sectors with the highest annual rates of export and import growth were foods, feeds, and beverages, and industrial supplies and materials, both due largely to higher world commodity prices. Among export sectors, foods, feeds, and beverages exhibited the highest annual growth rate (29 percent), reflecting higher prices and export values of agricultural commodities such as corn, wheat, and soybeans. The value of exports of industrial materials and supplies grew by 22 percent, followed by consumer goods (10 percent) and capital goods (5 percent), whereas motor vehicles, parts, and engines registered a slight decline (0.1 percent). On the import side, industrial supplies and materials grew by 22 percent in value, followed by foods, feeds, and beverages (9 percent), capital goods (2 percent), and consumer goods (2 percent); motor vehicles, parts, and engines registered a significant decrease (10 percent).⁵ Important factors affecting U.S. trade performance in 2008 included rapidly rising agricultural and industrial commodity prices and exchange rate fluctuations. In addition, the global financial crisis and declining GDPs in major trading countries also affected U.S. trade.

Prices for agricultural commodities, including wheat, corn, and soybeans, rose strongly in the first half of 2008 due to the overall depreciation of the dollar against major currencies, increased global food demand, and higher energy prices.⁶ Although agricultural prices fell in the latter part of 2008 due to the slowdown in the world economy, they were still significantly higher on average for full year 2008 than in 2007. For example, average export unit values were up by 48 percent for wheat, 45 percent for corn, and 49 percent for soybeans in 2008. These record-high commodity prices were largely responsible for the increased value of U.S. agricultural crop exports in 2008.

The 2008 merchandise trade deficit was substantially affected by higher global prices for crude petroleum, which resulted in a large increase in the value of U.S. imports of energy-related products. Imports of energy-related products grew by 37 percent in 2008 to reach a record high of \$472.3 billion (table US.1). In contrast, U.S. imports of non-energy-related merchandise grew by a mere 1 percent. As a result, imports of energy-related products increased as a share of total imports on a value basis, from 18 percent in 2007 to 23 percent in 2008. World crude petroleum prices increased to an average of \$95 per barrel in 2008, up from an average of \$68 per barrel in the previous year.⁷

The 2008 shift in U.S. merchandise trade balances with major trading partners reflects a number of economic factors, including the depreciation of the dollar against currencies such as the Japanese yen and the euro and slower economic growth throughout the year in the United States and major trading partners.⁸ The trade-weighted average value of the dollar measured against a broad basket of foreign currencies fell by nearly 4 percent in 2008, contributing to the strong growth in exports in the first eight months of the year and the decrease in the merchandise trade deficits with the EU and Japan.⁹ The trade deficit with China increased by 3 percent, although the dollar depreciated by approximately 9 percent against the yuan in 2008. The trade deficit with Canada also increased, reflecting a higher value of imports of crude petroleum.

⁵ Ibid.

⁶ Trostle, "Fluctuating Food Commodity Prices," November 2008.

⁷ USDOE, EIA, *Monthly Energy Review*, February 2009.

⁸ On December 1, 2008, the National Bureau of Economic Research declared that the United States officially entered a recession in December 2007. This, followed by the banking crisis of 2008, weakened consumer confidence and slowed consumer consumption across most discretionary categories. Standard & Poor's, *Industry Surveys*, February 19, 2009, 1.

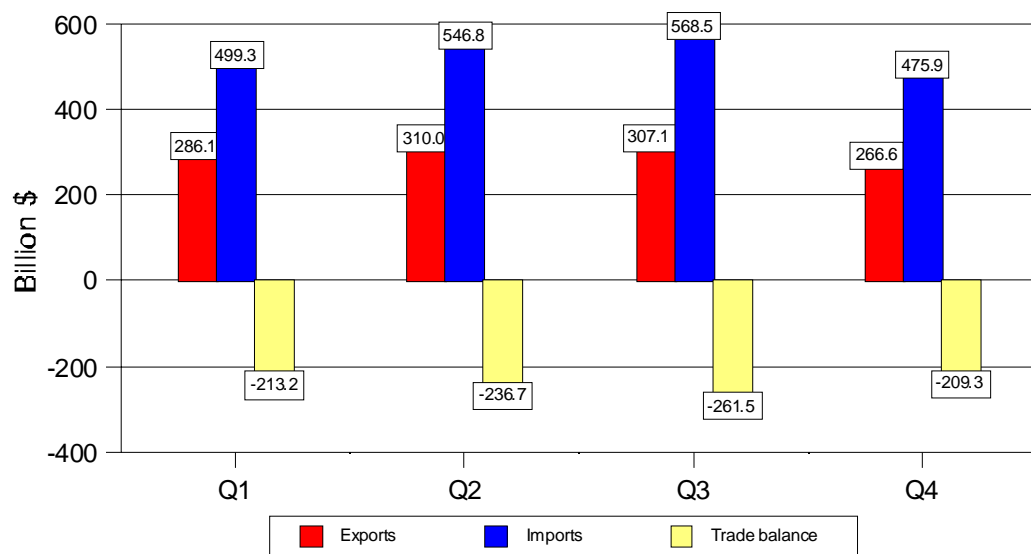
⁹ Board of Governors of the Federal Reserve System, "Foreign Exchange Rates," January 2, 2009.

U.S. real GDP growth declined from 2.0 percent in 2007 to 1.1 percent in 2008 and contributed to slower growth in U.S. imports, particularly non-energy-related goods.¹⁰ Average global real GDP growth was slower in 2008 (4 percent) than in 2007 (5 percent), which contributed to a slowdown in U.S. trade, particularly in fourth quarter 2008.¹¹ Real income growth for many major U.S. export markets—including Canada, the EU, Mexico, and Japan—was much lower than the world average, ranging from 0.5 percent in Japan to 1.9 percent in Mexico. By contrast, real GDP in China increased at a faster-than-average rate of 10 percent in 2008.

Fourth Quarter U.S. Trade

U.S. merchandise exports and imports grew steadily through the first two quarters of 2008. U.S. exports fell slightly in the third quarter while U.S. imports continued to grow. However, U.S. imports and exports both dropped substantially in the fourth quarter, reflecting the acceleration of the 2008 economic downturn (figure US.1). Overall, U.S. domestic merchandise exports grew by 18 percent through third quarter 2008, compared with the same period in 2007, but fell by 13 percent in the last quarter. Similarly, imports rose by 13 percent through third quarter 2008, but fell by 16 percent in the last quarter of the year. U.S. exports and imports of consumer goods posted the largest declines in fourth quarter 2008, followed by exports of motor vehicles, parts, and engines.

FIGURE US.1 U.S. merchandise exports, imports, and trade balance, by quarter, 2008



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

¹⁰ For a description of the effects of the financial crisis on world trade, see Michael Ferrantino, “The Global Trade Contraction,” April 2009.

¹¹ Council of Economic Advisors, *2009 Economic Report of the President*, table B112, 2009.

U.S. Trade by Industry/Commodity Groups and Sectors¹²

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U.S. Trade Balance

All industry/commodity sectors except agricultural products registered a trade deficit in 2008, and the overall merchandise deficit increased by 3 percent to \$920.7 billion (table US.1). However, despite the overall increase in the deficit, only two merchandise sectors registered larger deficits—energy-related products and chemicals and related products. The largest deficit (\$390.6 billion), as well as the largest absolute deficit increase, was in energy-related products—principally crude petroleum, petroleum products, and natural gas and components. The deficit trend in this sector resulted from substantially higher prices throughout the first half of 2008. The deficit in chemicals and related products increased as higher world energy prices contributed to the rise in value of fertilizer imports. The economic slowdown also increased demand for less expensive medicinal chemicals from abroad. The electronic products sector recorded the second-largest trade deficit in 2008 (\$176.8 billion), although the deficit in this sector decreased by 2 percent. The U.S. deficit in transportation equipment experienced the largest absolute decline, falling by \$28.7 billion (or 47 percent) to \$31.8 billion, as imports of motor vehicles declined due to the weakening U.S. economy.

U.S. Exports

In 2008, U.S. exports increased in all merchandise sectors, rising by a combined total of \$123.5 billion (12 percent) to \$1.2 trillion and setting a new high for total U.S. exports (table US.1). The greatest absolute increase was in energy-related products; exports grew by \$35.1 billion (75 percent) to \$81.7 billion in 2008. Most of the growth occurred in petroleum products, which increased by \$27.3 billion (87 percent) to \$58.8 billion. U.S. exports of petroleum products, primarily destined for Canada and Mexico, tend to fluctuate based on refinery output in the major U.S. export markets.¹³ Although the quantity of petroleum-product exports grew by 26 percent, the increase in the value of such exports was driven primarily by higher prices of crude petroleum, the principal feedstock.¹⁴

In 2008, U.S. exports of agricultural products increased by \$25.0 billion, or 26 percent. The largest increases were in cereals and oilseeds, which accounted for a combined \$13.3 billion

¹² Each of the 10 industry sectors is analyzed in a separate chapter of part III in this report. They are: agricultural products; chemicals and related products; electronic products; energy-related products; forest products; machinery; minerals and metals; miscellaneous manufactures; transportation equipment; and textiles, apparel, and footwear.

¹³ For example, if a refinery in Canada closes for routine maintenance, U.S. exports could increase to supplement the decreases in Canadian production.

¹⁴ World prices for crude petroleum increased from an average of \$68 per barrel in 2007 to an average of \$95 per barrel in 2008.

(53 percent) of the growth of agricultural products (table US.2). Exports by these industries (primarily corn, wheat, and soybeans) grew largely as a result of record-high commodity prices throughout summer 2008, resulting from increased demand in developing countries, the depreciation of the U.S. dollar relative to other major currencies, and increased energy costs.¹⁵

U.S. exports of chemicals and related products increased by \$20.4 billion (12 percent) to \$189.8 billion in 2008. Medicinal chemicals accounted for the largest absolute increase in this sector, growing by approximately \$5.1 billion, followed by fertilizers, which rose by \$3.7 billion. Much of the growth in exports of medicinal chemicals, principally used in the production of pharmaceuticals, resulted from growing related-party transfers between the United States and the EU, primarily Germany.¹⁶ Increased global sales of pharmaceuticals, largely due to rising demand in emerging markets, also contributed to the growth in U.S. medicinal chemical exports. The increase in the value of fertilizer exports can be attributed to higher world prices resulting from tight supplies and higher input and energy prices.

U.S. exports of minerals and metals increased by \$19.5 billion (19 percent) to \$119.8 billion in 2008. Precious metals and non-numismatic coins accounted for the largest share of the growth, increasing by \$7.2 billion (38 percent); gold exports accounted for most of the increase in precious metals exports. Exports of steel mill products and iron and steel waste and scrap increased by \$4.2 billion and \$3.5 billion, respectively, and together accounted for 40 percent of the growth in minerals and metals exports. The increase in U.S. minerals and metals exports can be attributed to the depreciation of the U.S. dollar against major currencies, decreased demand in the United States, and rising global metal prices.

U.S. Imports

In 2008, U.S. imports increased by \$147.6 billion (8 percent) to a record \$2.1 trillion. Energy-related products accounted for \$127.5 billion of the overall import increase, followed by chemicals and related products, which increased by \$29.2 billion. Imports of transportation equipment declined by \$21.7 billion (7 percent), principally due to decreased demand for motor vehicles as a result of the weakening U.S. economy. Crude petroleum, petroleum products, and medicinal chemicals recorded the largest commodity group increases in 2008, accounting for a combined \$124.5 billion (84 percent) of import growth. Production cuts and disruptions, such as labor unrest, in certain crude petroleum exporting countries, along with increased demand from developing countries in the first half of 2008, helped drive up world prices and the value of U.S. crude petroleum imports.¹⁷ Although the quantity of U.S. crude petroleum imports actually declined slightly, the value increased by \$88.5 billion (47 percent) to \$275.0 billion and accounted for 58 percent of total imports in the energy-related products sector in 2008. U.S. imports of crude petroleum continued to account for more than 60 percent of domestic consumption.

¹⁵ Trostle, "Fluctuating Food Commodity Prices," November 2008.

¹⁶ Frost & Sullivan, "Use of Therapeutic Monoclonal Antibodies Increasing in Europe," September 15, 2008.

¹⁷ See Energy-related Products chapter for more details.

TABLE US.2 Leading changes in U.S. exports and imports of all sectors, 2004–08^a

Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. EXPORTS:							
Increases:							
Petroleum products (EP005)	12,651	18,302	26,407	31,484	58,765	27,282	86.7
Cereals (AG030)	12,683	11,096	13,341	20,860	28,625	7,765	37.2
Precious metals and non-numismatic coins (MM020)	6,204	7,522	13,360	19,289	26,534	7,245	37.6
Oilseeds (AG032)	6,911	6,527	7,172	10,346	15,853	5,507	53.2
Medicinal chemicals (CH019)	27,098	29,296	32,460	37,041	42,146	5,105	13.8
Steel mill products (MM025)	7,015	9,331	10,479	12,535	16,737	4,202	33.5
Fertilizers (CH010)	2,718	3,005	3,014	3,470	7,171	3,701	106.7
Decreases:							
Semiconductor manufacturing equipment and robotics (MT019)	13,257	11,435	14,733	17,476	12,385	-5,090	-29.1
Aircraft, spacecraft, and related equipment (TE013)	40,076	47,981	64,374	73,406	69,516	-3,890	-5.3
Certain motor-vehicle parts (TE010)	30,785	31,524	33,346	34,052	30,985	-3,067	-9.0
Computers, peripherals, and parts (EL017)	27,350	28,862	29,969	28,051	26,554	-1,498	-5.3
All other	540,434	599,110	680,831	758,350	834,550	76,200	10.0
TOTAL	727,183	803,992	929,486	1,046,358	1,169,821	123,464	11.8
U.S. IMPORTS:							
Increases:							
Crude petroleum (EP004)	100,338	137,331	171,243	186,476	274,950	88,474	47.4
Petroleum products (EP005)	51,579	77,684	89,448	98,577	126,441	27,864	28.3
Medicinal chemicals (CH019)	52,677	56,104	65,218	71,777	79,943	8,166	11.4
Natural gas and components (EP006)	34,195	46,211	45,118	44,910	52,757	7,847	17.5
Steel mill products (MM025)	21,559	23,534	31,500	29,204	36,870	7,666	26.2
Fertilizers (CH010)	5,510	7,439	7,525	9,507	16,485	6,978	73.4
Decreases:							
Motor vehicles (TE009)	142,861	146,308	159,537	158,895	142,541	-16,354	-10.3
Certain motor-vehicle parts (TE010)	46,493	50,998	53,307	55,619	49,190	-6,429	-11.6
Computers, peripherals, and parts (EL017)	89,264	93,950	102,468	106,789	102,338	-4,451	-4.2
Apparel (TX005)	72,404	76,503	79,299	81,366	79,031	-2,334	-2.9
Consumer electronics (EL003)	41,938	48,577	54,831	57,581	55,257	-2,325	-4.0
Precious jewelry and related articles (MS006)	7,492	8,359	9,553	9,463	7,322	-2,141	-22.6
Lumber (FP002)	8,808	9,005	8,335	6,508	4,404	-2,104	-32.3
All other	785,043	880,377	967,672	1,026,193	1,062,954	36,761	3.6
TOTAL	1,460,160	1,662,380	1,845,053	1,942,863	2,090,483	147,620	7.6

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

U.S. imports of chemicals and related products rose by \$29.2 billion (15 percent) in 2008. Imports of medicinal chemicals accounted for the largest absolute increase in this sector, growing by \$8.2 billion (11 percent). This growth is attributable to increased U.S. demand for less expensive and often imported generic pharmaceuticals, resulting from the economic slowdown, ongoing patient enrollment in the Medicare Part D prescription drug plan, and the expiration of U.S. firms' patent exclusivity for numerous drugs.¹⁸ Fertilizer imports accounted for the second-largest absolute increase in this sector, growing by \$7.0 billion (73 percent). Higher world prices contributed to the rise in the value of fertilizer imports, as the volume increased at a slower pace.¹⁹

Significant Shifts in U.S. Bilateral/Multilateral Trade

The five principal U.S. trading partners—the EU, Canada, China, Mexico, and Japan—which together accounted for more than 70 percent of the U.S. trade deficit, maintained their relative positions from 2007 to 2008 (table US.3). However, while the U.S. deficits decreased with the EU (11 percent), Japan (11 percent), and Mexico (7 percent), the deficits with Canada and China—the individual countries with which the United States maintains the largest deficits—increased by 13 and 3 percent, respectively.

The U.S. trade deficit with the EU declined as the growth in U.S. exports of energy-related products (primarily distillate fuels) and chemicals and related products outpaced the growth in U.S. imports. The U.S. trade deficit with Japan declined as U.S. exports increased due to higher prices for U.S. agricultural products, petroleum products, and coal. In addition, U.S. imports from Japan decreased primarily because imports of motor vehicles fell as a result of lower demand caused by the downturn in the U.S. economy. The U.S. trade deficit with Mexico declined as the growth in U.S. exports of petroleum products (primarily distillate fuels) and agricultural products (primarily corn, wheat, and soybeans) outpaced the growth in U.S. imports of crude petroleum.

The U.S. deficit with Canada increased primarily because the value of U.S. imports of crude petroleum increased due to rising prices. Increased imports of steel mill products from China (primarily iron or nonalloy steel casing of a kind used in drilling for oil or natural gas) contributed to that growing bilateral deficit; high energy prices in 2008 increased U.S. demand related to drilling equipment. Increased imports of television receivers and video monitors from China also contributed to the deficit trend, as firms continued to shift production facilities to China in order to reduce costs.²⁰

¹⁸ IMS Health, "IMS Health Reports U.S. Prescription Sales Grew 1.3 Percent in 2008 to \$291 Billion," March 19, 2009; Center for Medicare Advocacy, Inc., "Medicare Part D Prescription Drug Coverage," undated (accessed April 16, 2009).

¹⁹ USDA, ERS, "U.S. Fertilizer Use and Price," November 20, 2008.

²⁰ For more detail, please refer to the country-specific chapters in part II of this report.

TABLE US.3 All merchandise sectors: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
Canada	163,168	183,235	198,226	213,119	222,424	9,306	4.4
China	32,606	38,857	51,624	61,013	67,166	6,153	10.1
Mexico	93,018	101,667	114,562	119,381	131,507	12,126	10.2
Japan	50,493	51,499	55,596	58,096	61,435	3,339	5.7
Germany	27,223	29,227	37,850	44,294	50,150	5,856	13.2
United Kingdom	31,734	34,065	41,335	45,436	49,061	3,626	8.0
Korea	24,994	26,210	30,794	33,012	33,074	63	0.2
France	19,626	20,658	22,590	25,784	26,748	964	3.7
Saudi Arabia	4,678	5,559	7,262	9,847	11,846	1,999	20.3
Venezuela	4,482	6,035	8,476	9,762	11,829	2,067	21.2
All other	275,161	306,980	361,171	426,614	504,579	77,965	18.3
Total	727,183	803,992	929,486	1,046,358	1,169,821	123,464	11.8
EU-27	156,337	168,289	197,281	226,252	251,196	24,945	11.0
OPEC	22,643	31,855	42,469	49,952	63,365	13,413	26.9
Latin America	149,534	167,686	196,723	218,553	258,616	40,063	18.3
CBERA	11,048	13,521	16,323	18,850	23,497	4,646	24.6
Asia	192,485	204,120	237,021	266,513	284,302	17,789	6.7
Sub-Saharan Africa	8,236	9,919	11,709	13,860	18,008	4,147	29.9
Central and Eastern Europe	3,942	4,529	5,732	7,598	9,528	1,930	25.4
U.S. imports of merchandise for consumption:							
Canada	255,660	287,534	303,034	312,506	334,840	22,333	7.1
China	196,160	242,638	287,052	323,085	337,504	14,419	4.5
Mexico	154,959	169,216	197,056	210,159	216,328	6,170	2.9
Japan	129,535	137,831	148,071	144,940	139,112	-5,828	-4.0
Germany	75,622	84,345	87,756	94,424	95,828	1,404	1.5
United Kingdom	45,920	50,758	53,502	56,875	58,419	1,544	2.7
Korea	45,064	43,155	44,714	45,389	46,687	1,299	2.9
France	31,505	33,499	36,837	41,262	43,372	2,109	5.1
Saudi Arabia	20,434	26,150	31,142	35,284	54,283	18,998	53.8
Venezuela	24,440	32,750	36,283	37,582	50,281	12,699	33.8
All other	480,864	554,504	619,606	641,453	713,828	72,375	11.3
Total	1,460,160	1,662,380	1,845,053	1,942,959	2,090,483	147,523	7.6
EU-27	281,115	308,628	330,898	352,248	363,667	11,418	3.2
OPEC	100,697	136,438	161,216	176,154	240,846	64,692	36.7
Latin America	253,154	290,720	329,153	340,985	374,538	33,553	9.8
CBERA	13,190	17,166	18,093	18,457	19,486	1,029	5.6
Asia	526,404	593,811	668,735	704,468	711,690	7,221	1.0
Sub-Saharan Africa	35,769	49,925	58,762	66,889	86,082	19,193	28.7
Central and Eastern Europe	9,716	10,303	11,071	11,467	11,888	421	3.7

See footnote(s) at end of table.

TABLE US.3 All merchandise sectors: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—Continued

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
Canada	-92,492	-104,299	-104,808	-99,387	-112,415	-13,028	-13.1
China	-163,553	-203,781	-235,428	-262,072	-270,338	-8,266	-3.2
Mexico	-61,941	-67,549	-82,493	-90,778	-84,821	5,957	6.6
Japan	-79,042	-86,333	-92,475	-86,844	-77,677	9,167	10.6
Germany	-48,399	-55,118	-49,907	-50,129	-45,677	4,452	8.9
United Kingdom	-14,186	-16,693	-12,166	-11,439	-9,357	2,082	18.2
Korea	-20,070	-16,944	-13,920	-12,377	-13,613	-1,236	-10.0
France	-11,879	-12,841	-14,247	-15,478	-16,624	-1,146	-7.4
Saudi Arabia	-15,755	-20,591	-23,880	-25,438	-42,437	-16,999	-66.8
Venezuela	-19,957	-26,716	-27,807	-27,820	-38,452	-10,632	-38.2
All other	-205,703	-247,523	-258,436	-214,839	-209,249	5,590	2.6
Total	-732,977	-858,388	-915,567	-896,602	-920,661	-24,060	-2.7
EU-27	-124,778	-140,339	-133,617	-125,997	-112,470	13,527	10.7
OPEC	-78,054	-104,583	-118,746	-126,202	-177,481	-51,279	-40.6
Latin America	-103,620	-123,034	-132,430	-122,432	-115,922	6,510	5.3
CBERA	-2,143	-3,645	-1,770	394	4,011	3,618	919.1
Asia	-333,920	-389,691	-431,714	-437,955	-427,388	10,567	2.4
Sub-Saharan Africa	-27,533	-40,005	-47,053	-53,028	-68,074	-15,046	-28.4
Central and Eastern Europe	-5,774	-5,774	-5,339	-3,869	-2,359	1,510	39.0

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

U.S. Imports from Trade Preference Program Beneficiaries²¹

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To assist developing, industrializing, and transitional economies, the United States offers duty-free market access through several trade preference programs (TPPs):²² the African Growth and Opportunity Act (AGOA),²³ the Andean Trade Preference Act (ATPA),²⁴ the Caribbean Basin Initiative (CBI),²⁵ and the Generalized System of Preferences (GSP).²⁶ U.S. imports under these four programs rose slightly as a share of all U.S. imports, from approximately 4 percent in 2004 to 5 percent in 2008 (tables US.1 and US.4). Although most TPP beneficiaries are not major U.S. trade partners, their TPP and non-TPP shipments together accounted for 19 percent of all U.S. imports in 2008, 3 percentage points higher than in 2004.²⁷

Certain TPP beneficiaries are significant producers of crude petroleum; hence, U.S. imports from TPP beneficiaries of energy-related products regardless of import program claimed accounted for the largest value and percentage growth during the 2004–08 period (table US.5). Import values rose as the price of crude petroleum reached record levels in 2008 largely due to production cutbacks and disruptions in several major petroleum-exporting countries and rising worldwide consumption.²⁸ Likewise, record-high commodity

²¹ Import trends in this portion of the report are presented over a longer five-year period, from 2004 to 2008, to gain greater insight into the shifts in U.S. imports from a large group of trade partners designated as beneficiaries of U.S. trade preference programs (TPPs) (for more information see app. A.). In this section, shifts in imports entering under specific TPP provisions are compared with those entering outside the TPP provisions. In both cases, the leading shifts over the five-year period are identified in terms of the relevant merchandise sectors (and products within), along with the predominant TPP beneficiary sources.

²² Product eligibility can differ significantly among TPPs. Further, some trade partners may be designated beneficiaries of the GSP program in addition to a regional TPP. For more information about these TPPs, see USTR, “Preference Programs,” http://www.ustr.gov/Trade_Development/Preference_Programs.

²³ AGOA, initiated by Congress and the Clinton Administration in May 2000 and a cornerstone of sub-Saharan African trade and investment policies of the Bush administration, is intended to promote free markets by expanding U.S.-African trade and investment, stimulating economic growth, and facilitating sub-Saharan Africa’s integration into the global economy.

²⁴ ATPA was expanded under the Trade Act of 2002 and is now called the Andean Trade Promotion and Drug Eradication Act (ATPDEA). As of December 31, 2008, it provided duty-free access to the U.S. markets for approximately 5,600 products from 4 Andean countries.

²⁵ The CBI, launched in 1983 through the Caribbean Basin Economic Recovery Act (CBERA) and substantially expanded in 2000 through the U.S.-Caribbean Basin Trade Partnership Act (CBTPA) is intended to facilitate the economic development and export diversification of the Caribbean Basin economies. During 2008, the CBI provided 19 beneficiary countries with duty-free access to the U.S. market for most goods. There are also certain reduced-duty provisions under the CBERA, e.g., for handbags, wallets, luggage, and other flat goods.

²⁶ The GSP program is designed to promote economic growth in the developing world and provides preferential duty-free entry for about 4,900 products from 132 designated beneficiary countries and territories. The GSP program is currently authorized through December 31, 2009.

²⁷ Major U.S. trade partners Brazil, India, and Russia are industrializing or transitional economies eligible for benefits under the GSP program. Bilateral shifts between the United States and these three trade partners are analyzed in more detail in the respective country-specific chapters in part II of this report.

²⁸ See the Energy-related Products chapter of this report.

TABLE US.4 Trade preference program beneficiaries: U.S. imports for consumption, by program, 2004–08^a

Program	2004	2005	2006	2007	2008	Change, 2008 from 2004		
						Absolute	Percent	
	<i>Million dollars</i>							
Trade preference programs:								
African Growth and Opportunity Act ^b	21,986	32,743	36,133	42,270	56,374	34,387	156.4	
Andean Trade Preference Act ^c	8,359	11,464	13,484	12,307	17,243	8,883	106.3	
Caribbean Basin Initiative ^d	10,810	12,195	9,915	5,495	4,724	-6,086	-56.3	
Generalized System of Preferences ^e	22,274	26,747	32,598	30,820	31,633	9,358	42.0	
Total	63,430	83,149	92,131	90,892	109,973	46,543	73.4	
Other:								
Industry-specific agreements ^f	261	298	449	629	704	443	169.8	
Free trade agreements ^g	21	246	4,447	8,977	10,139	10,118	48,892.1	
Other programs ^h	1,055	1,354	1,668	1,666	1,635	581	55.1	
No program claimed ⁱ	165,540	199,812	224,261	232,658	284,697	119,157	72.0	
Total	166,877	201,711	230,826	243,930	297,176	130,299	78.1	
Grand total	230,306	284,859	322,957	334,822	407,149	176,842	76.8	

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

Note: Calculations based on unrounded data. Trade partners are included as beneficiaries if they were eligible for any of the TPPs during the 2004–08 period.

^a Import values are based on customs value.

^b Excludes imports under the Generalized System of Preferences (GSP) program.

^c Includes imports under the Andean Trade Promotion and Drug Eradication Act; excludes imports under the GSP program.

^d Caribbean Basin Trade Partnership Act and Caribbean Basin Economic Recovery Act; excludes imports under the GSP program. Partners of the Dominican Republic-Central America Free Trade Agreement with the United States (DR-CAFTA) are no longer eligible for CBI benefits after the agreement enters into force. As of the end of 2008, DR-CAFTA had entered into force for a number of countries, including, El Salvador on March 1, 2006; Honduras and Nicaragua on April 1, 2006; Guatemala on July 1, 2006; and the Dominican Republic on March 1, 2007. DR-CAFTA did not enter into force for Costa Rica until January 1, 2009.

^e Includes least developed beneficiary countries.

^f Agreement on Trade in Civil Aircraft, Uruguay Round Concessions on Intermediate Chemicals for Dyes, and Agreement on Trade in Pharmaceutical Products.

^g DR-CAFTA and the U.S.-Jordan Free Trade Agreement. None of the other signatories of FTAs with the United States were eligible for any of the TPPs during the 2004–08 period. When a country eligible for a TPP enters into an FTA with the United States, it is no longer eligible for TPPs.

^h CBI trade for Puerto Rico's recorded separately; and West Bank, Gaza, and qualifying industrial zones in Egypt and Jordan..

ⁱ Imports that enter the United States under tariff rate lines with a normal trade relations rate of "free," equal to the MFN rate, or at a reduced duty rate. This category also includes nonreported or unknown import sources.

TABLE US.5 Trade preference program (TPP) beneficiaries: U.S. imports for consumption, by sector, 2004–08^a

Sector	2004	2005	2006	2007	2008	Change, 2008 from 2004	
						Absolute	Percent
<i>Million dollars</i>							
Imports entering under TPP provisions:							
Agricultural products	4,424	5,017	5,641	5,029	5,276	852	19.3
Forest products	1,073	1,035	1,046	992	699	-373	-34.8
Chemicals and related products	3,423	4,705	5,393	5,266	6,584	3,161	92.3
Energy-related products	30,523	46,818	54,792	59,096	78,247	47,723	156.3
Textiles and apparel	9,767	9,859	6,383	3,998	3,464	-6,302	-64.5
Footwear	68	95	111	19	5	-63	-92.0
Minerals and metals	4,692	5,282	6,401	6,210	6,427	1,735	37.0
Machinery	1,472	1,787	2,224	2,062	1,982	511	34.7
Transportation equipment	2,585	2,522	2,966	2,838	3,847	1,261	48.8
Electronic products	1,164	1,266	1,467	1,279	1,104	-61	-5.2
Miscellaneous manufactures	4,239	4,764	5,708	4,104	2,337	-1,902	-44.9
Total	63,430	83,149	92,131	90,892	109,973	46,543	73.4
All other imports from TPP beneficiaries:							
Agricultural products	13,475	14,976	17,354	18,821	21,210	7,735	57.4
Forest products	3,020	3,251	3,409	3,165	3,047	27	0.9
Chemicals and related products	11,655	15,207	16,008	19,271	27,398	15,744	135.1
Energy-related products	51,834	74,592	87,355	94,207	131,372	79,538	153.4
Textiles and apparel	28,598	30,019	35,217	36,914	36,079	7,481	26.2
Footwear	2,207	2,167	1,994	1,801	1,614	-593	-26.9
Minerals and metals	24,227	25,366	32,106	29,797	33,711	9,483	39.1
Machinery	2,197	2,705	3,066	3,965	3,932	1,736	79.0
Transportation equipment	5,636	5,987	6,181	6,461	7,646	2,010	35.7
Electronic products	15,974	18,524	18,655	19,099	19,756	3,782	23.7
Miscellaneous manufactures	3,842	3,961	3,980	5,427	5,692	1,850	48.1
Special provisions	4,212	4,958	5,500	5,002	5,718	1,506	35.8
Total	166,877	201,711	230,826	243,930	297,176	130,299	78.1
Grand total	230,306	284,859	322,957	334,822	407,149	176,842	76.8

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

Note: Calculations based on unrounded data. Countries are included as beneficiaries if they were eligible for any of the TPPs during the 2004–08 period.

^aImport values are based on customs value.

prices amplified the value of U.S. imports from TPP beneficiaries that are major producers of agricultural products, forest products, chemicals and plastics, minerals and metals, and other raw materials.²⁹

U.S. Imports Under Trade Preference Programs

Twenty-seven percent of all TPP beneficiary merchandise was imported into the United States under TPP provisions in 2008, slightly less than the average annual percentage during the 2004–07 period (table US.4). Among the four programs, imports under AGOA provisions grew most rapidly. The value of AGOA imports grew by 156 percent during the 2004–08 period, and expanded from 35 percent to 51 percent of all TPP-provision imports. The value of ATPA imports rose by 106 percent over the same period and expanded from 13 percent to 16 percent of all TPP imports.

Only imports under CBI provisions fell in terms of value (by 56 percent) and share (from 17 percent to 4 percent of all TPP imports) from 2004 to 2008. CBI imports declined largely because parties to the Dominican Republic-Central American Free Trade Agreement with the United States (DR-CAFTA) lost their CBI beneficiary status upon the DR-CAFTA's entry into force during 2006 and 2007. The value of imports under the GSP program fluctuated, rising by 42 percent over the five-year period but contracting in terms of share, from 35 to 29 percent of all imports under TPP provisions.

Among merchandise sector imports entering the United States under TPP provisions, energy-related products posted the largest increase, rising by 156 percent during the 2004–08 period, and accounted for an increasing share of TPP imports, rising from 48 percent to 71 percent (table US.5). During 2004–08, the products posting the greatest import increases under TPP provisions were crude petroleum, primarily from Nigeria and Angola under AGOA provisions, followed by petroleum products from Nigeria under AGOA, Peru under ATPA, and Angola under GSP provisions.³⁰ Other merchandise sectors (and leading products) that registered significant increases in TPP imports during the five-year period were chemicals and related products (fatty substances),³¹ minerals and metals (ferroalloys),³² and transportation equipment (passenger motor vehicles).³³

The textiles and apparel sector (especially apparel) posted the largest decline in TPP imports, falling by 65 percent during the 2004–08 period. Honduras, the Dominican Republic, and El Salvador accounted for the largest declines due DR-CAFTA entering into force.³⁴

²⁹ See the U.S. Trade by Industry/Commodity Groups and Sectors section of this chapter.

³⁰ For more information about primary energy production (crude petroleum, natural gas, and coal) and petroleum products refining in selected TPP beneficiaries, see USDOE, EIA, *Country Energy Profiles and Country Analysis Briefs* at <http://tonto.eia.doe.gov/country/index.cfm#countrylist> and <http://www.eia.doe.gov/emeu/cabs/newint.html>, respectively.

³¹ See the Miscellaneous Chemicals and Specialties section in the Chemicals and Related Products chapter of this report.

³² See the Ferroalloys section in the Minerals and Metals chapter of this report.

³³ See the Transportation Equipment chapter of this report.

³⁴ DR-CAFTA offers permanent enhancements to textile and apparel eligibility provisions covering retroactive duty elimination, rules of origin, foreign content, and cumulation. For more information, see USITC, *The Impact of the Caribbean Basin Economic Recovery Act*, September 2007, I-14, I-15.

Miscellaneous manufactures (principally precious jewelry)³⁵ posted the second-largest decrease in imports under TPP provisions over the five-year period.

U.S. Imports Other Than Under Trade Preference Programs

U.S. imports from TPP beneficiaries that did not enter the United States under TPP provisions as a share of all imports from beneficiaries remained steady during the period, rising only slightly from 72 percent in 2004 to 73 percent in 2008 (table US.4). Most of these imports entered the United States without claiming any import program, and the share of imports entering under FTAs rose over the five-year period due to DR-CAFTA entering into force. If the product is covered under a TPP, among the considerations influencing an importer to opt out of TPP provisions in favor of other programs or no programs include modest preference margins (potential duty savings) due to already free or low MFN duty rates, cumulative importation caps (competitive need limitations), and rules-of-origin requirements and other provisions.³⁶

Among imports from TPP beneficiaries entering the U.S. market outside of TPP provisions, energy-related products registered the largest sector-specific increase, rising by 153 percent during the 2004–08 period (table US.5), as not all energy-related products are covered in all TPPs.³⁷ However, they accounted for 31 percent of non-TPP imports in 2004, rising to 44 percent in 2008, a much smaller share than the share that energy-related products accounted for among TPP imports (71 percent in 2008). The leading import increases were primarily from otherwise GSP-eligible beneficiaries, particularly crude petroleum from Venezuela and Brazil, and petroleum products from Russia, Venezuela, and Algeria.³⁸

Other leading merchandise sector (and product) increases were chemicals and related products (fertilizers, major primary olefins, natural rubber, and pharmaceuticals);³⁹ minerals and metals (precious metals, primary iron products, and gemstones);⁴⁰ agricultural products (coffee and tea, shellfish, fresh or frozen fish, animal or vegetable fats and oils, nonbeverage ethanol, and cocoa);⁴¹ and textiles and apparel (particularly with the advent of DR-CAFTA provisions for apparel). By contrast, footwear was the only sector that registered a decline in the value of non-TPP imports from TPP beneficiaries, as U.S. footwear imports increasingly came from non-TPP beneficiary sources China and Vietnam.⁴²

³⁵ Imports under TPP provisions declined in part because major precious-jewelry producers India, Thailand, and Turkey lost their GSP eligibility for certain forms of precious jewelry in 2007 and 2008. Further, consumers cut back on spending for luxury goods at the same time that rising gold prices drove up precious-jewelry prices in 2008. See the Miscellaneous Manufactures chapter of this report.

³⁶ GAO, *International Trade: U.S. Trade Preference Programs Provide Important Benefits*, March 2008, 17–18, 73–78.

³⁷ For example, petroleum is covered in AGOA, ATPA, and for the Least-Developed Beneficiaries of GSP, but it is not covered in CBERA.

³⁸ U.S. importers might not claim GSP benefits for energy-related products for various reasons, including avoidance of exceeding the competitive need limit and low duty savings. For example, the ad valorem equivalent U.S. tariff on crude petroleum was less than one-hundredth of a percent in 2008; therefore, the cost of applying for TPP treatment may outweigh the benefit.

³⁹ See the Chemicals and Related Products chapter of this report.

⁴⁰ See the Precious Metals and Non-numismatic Coins and the Primary Iron Products sections in the Minerals and Metals chapter of this report.

⁴¹ See the Agricultural Products chapter of this report.

⁴² See the Footwear section in the Textiles, Apparel, and Footwear chapter of this report.

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Part II: Bilateral Trade

This part of the report analyzes shifts in trade between the United States and its five leading trading partners (based on total trade)—the EU, Canada, China, Japan, and Mexico. Trade with Brazil, India, and Russia is also examined in light of the rising importance of these countries as trading partners. Countries are listed alphabetically herein.

Brazil

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Change in 2008 from 2007:

U.S. trade deficit: Decreased by \$2.3 billion (69 percent) to \$1.0 billion

U.S. exports: Increased by \$7.3 billion (34 percent) to \$29.0 billion

U.S. imports: Increased by \$5.0 billion (20 percent) to \$30.1 billion

Total U.S. merchandise trade with Brazil, the 12th-largest individual U.S. trading partner, increased by \$12.4 billion (27 percent) to \$59.1 billion in 2008. The U.S. merchandise trade deficit with Brazil decreased by 69 percent to \$1.0 billion. Collectively, U.S. exports of transportation equipment, chemicals and related products, and energy-related products accounted for 65 percent (\$18.8 billion) of U.S. exports to Brazil in 2008 (table BR.1).

The Brazilian government's antipoverty initiatives and adherence to prudent macroeconomic policies reportedly contributed to economic growth of 5 percent in 2008, more than double the average rate of the past two decades.¹ The Brazilian real appreciated by 10 percent against the U.S. dollar between January and August 2008²—boosting Brazil's imports—before depreciating by more than one-third of its value against the dollar by the end of 2008, as investors withdrew money from Brazil's markets in response to the global financial crisis.³ Despite this reduction in purchasing power, Brazil's total imports increased by 44 percent in 2008.⁴ Moreover, the currency depreciation did not appear to inhibit economic growth.

U.S. Exports

In 2008, the industry/commodity groups contributing the most to the \$7.3-billion increase in U.S. exports to Brazil were petroleum products; aircraft engines and gas turbines; aircraft, spacecraft, and related equipment; and coal, coke, and related chemical products (table BR.2). Collectively, these industry/commodity groups represented 29 percent (\$8.3 billion) of total U.S. exports to Brazil in 2008.

U.S. exports of energy-related products to Brazil increased by 118 percent (\$1.3 billion) to \$2.4 billion in 2008. The leading U.S. export to Brazil in this sector was petroleum products, which grew by \$922 million (188 percent) to \$1.4 billion (table BR.2). Much of the increase in the value of U.S. exports was due to crude petroleum price increases during the year; the price rose from an average of \$68 per barrel in 2007 to an average of \$95 per barrel in 2008.⁵

¹ EIU, *Country Commerce: Brazil*, September 2008.

² The U.S. dollar depreciated from R\$1.768 in January 2008 to R\$1.635 in August 2008. Board of Governors of the Federal Reserve System, "Brazil/U.S. Foreign Exchange Rates," updated March 5, 2009.

³ Wheatley, "Brazil Steps in to Shore up Real," October 9, 2008.

⁴ GTIS, Global Trade Atlas Database.

⁵ See the Energy-related Products chapter.

TABLE BR.1 Brazil: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by major industry/commodity sectors, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
Agricultural products	247	203	265	394	646	252	64.0
Forest products	212	241	251	329	409	80	24.4
Chemicals and related products	3,604	3,651	4,399	5,778	7,381	1,603	27.7
Energy-related products	486	705	891	1,093	2,381	1,287	117.8
Textiles and apparel	125	136	169	195	244	49	25.4
Footwear	3	1	2	3	4	1	45.7
Minerals and metals	353	419	517	718	1,227	509	71.0
Machinery	1,020	1,203	1,474	1,820	2,712	892	49.0
Transportation equipment	3,792	3,980	5,637	7,209	9,056	1,847	25.6
Electronic products	2,187	2,535	2,923	3,534	4,213	679	19.2
Miscellaneous manufactures	101	93	129	154	191	37	24.3
Special provisions	333	388	320	458	563	105	23.0
Total	12,462	13,554	16,977	21,684	29,027	7,343	33.9
U.S. imports of merchandise for consumption:							
Agricultural products	1,995	2,246	3,451	3,222	3,204	-18	-0.5
Forest products	2,203	2,305	2,365	2,064	1,928	-136	-6.6
Chemicals and related products	1,149	1,549	1,567	1,976	2,374	398	20.2
Energy-related products	1,664	2,757	3,582	3,950	8,345	4,395	111.3
Textiles and apparel	515	494	455	469	366	-102	-21.8
Footwear	1,081	1,019	896	758	518	-240	-31.7
Minerals and metals	4,666	5,347	5,849	5,249	5,496	247	4.7
Machinery	1,127	1,463	1,484	1,720	1,406	-314	-18.3
Transportation equipment	4,860	4,751	4,460	4,110	4,879	769	18.7
Electronic products	687	1,000	770	479	428	-51	-10.7
Miscellaneous manufactures	561	613	533	520	429	-91	-17.5
Special provisions	591	800	759	501	688	187	37.3
Total	21,098	24,346	26,169	25,018	30,061	5,043	20.2
U.S. merchandise trade balance:							
Agricultural products	-1,749	-2,043	-3,186	-2,827	-2,558	270	9.5
Forest products	-1,991	-2,064	-2,113	-1,736	-1,519	217	12.5
Chemicals and related products	2,455	2,101	2,832	3,802	5,007	1,204	31.7
Energy-related products	-1,177	-2,052	-2,690	-2,857	-5,965	-3,108	-108.8
Textiles and apparel	-391	-358	-286	-274	-122	152	55.4
Footwear	-1,078	-1,018	-894	-755	-514	242	32.0
Minerals and metals	-4,313	-4,928	-5,332	-4,531	-4,268	263	5.8
Machinery	-107	-261	-10	100	1,306	1,206	1,208.8
Transportation equipment	-1,068	-771	1,177	3,099	4,177	1,078	34.8
Electronic products	1,500	1,534	2,154	3,055	3,785	730	23.9
Miscellaneous manufactures	-459	-521	-404	-366	-238	128	35.0
Special provisions	-258	-411	-439	-43	-125	-81	-189.1
Total	-8,636	-10,792	-9,192	-3,334	-1,033	2,300	69.0

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

Note: Calculations based on unrounded data. Sectors are ordered by the level of processing of the products classified therein.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

TABLE BR.2 Brazil: Leading changes in U.S. exports and U.S. imports, 2004–08^a

Sector/commodity	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. EXPORTS:							
Increases:							
Energy-related products:							
Petroleum products (EP005)	186	328	443	491	1,413	922	187.6
Coal, coke, and related chemical products (EP003)	295	373	444	593	951	358	60.4
Transportation equipment:							
Aircraft engines and gas turbines (TE001)	1,012	1,140	1,131	1,563	2,271	709	45.3
Aircraft, spacecraft, and related equipment (TE013)	1,243	1,031	2,323	3,149	3,699	551	17.5
All other	9,726	10,682	12,637	15,889	20,693	4,805	30.2
TOTAL	12,462	13,554	16,977	21,684	29,027	7,343	33.9
U.S. IMPORTS:							
Increases:							
Energy-related products:							
Crude petroleum (EP004)	628	1,265	2,546	2,682	6,522	3,839	143.1
Petroleum products (EP005)	947	1,343	899	988	1,404	416	42.1
Primary iron products (MM021)	914	1,198	1,126	1,124	1,993	869	77.3
Transportation equipment:							
Aircraft, spacecraft, and related equipment (TE013)	2,508	1,806	1,202	1,712	2,278	566	33.1
Motors and engines, except internal combustion, aircraft, or electric (TE015)	7	9	26	62	458	396	637.5
All other	16,094	18,725	20,370	18,450	17,406	-1,044	-5.7
TOTAL	21,098	24,346	26,169	25,018	30,061	5,043	20.2

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

U.S. exports to Brazil of coal, coke, and related chemical products increased by \$358 million (60 percent) to \$951 million in 2008. The United States is a major world supplier of coal, and Brazil typically accounts for about 8 percent of total U.S. coal exports.⁶ Although the quantity of U.S. coal exports to Brazil decreased by 3 percent from 2007 to 2008, the price of coal increased from \$88 per short ton in 2007 to \$156 in 2008, driving the increase in export value.⁷ The price increase during this time was due to rising demand for coal in Asia and concomitant supply reductions from other major exporters like China, Chile, and South Africa.⁸

In 2008, U.S. exports of transportation equipment increased by \$1.8 billion (26 percent) to \$9.1 billion. This gain was driven by a \$709 million (45 percent) increase to \$2.3 billion, in U.S. exports of aircraft engines and gas turbines and an increase in exports of aircraft, spacecraft, and related equipment, which rose by \$551 million (18 percent) to \$3.7 billion (table BR.2).

Total aircraft engine and gas turbine exports to Brazil in 2008 were valued at \$2.3 billion, with much of this growth stemming from a 55 percent increase in shipments of turbojet engines, from \$816 million in 2007 to \$1.3 billion in 2008. Embraer, a Brazil-based company and one of the world's leading suppliers of regional aircraft, uses U.S.-manufactured engines, including turbojet engines, in its aircraft. In 2008, the company's shipments of aircraft increased by 20 percent, from 169 to 204 aircraft.⁹

The increase in U.S. exports of aircraft in 2008 reflects Brazil's purchase of a different mix of large civil aircraft with a higher value than in 2007. In 2007, Brazil imported 15 Boeing 737s with an approximate value of \$1.2 billion, compared with 11 Boeing 737s and 4 Boeing 777s purchased in 2008 that were valued at \$1.6 billion.¹⁰

U.S. Imports

Industry/commodity groups accounting for a significant portion of the \$5.0-billion increase in U.S. imports from Brazil in 2008 included crude petroleum; petroleum products; primary iron products; aircraft, spacecraft and related equipment; and motors and engines.¹¹ Together, these industry/commodity groups accounted for 42 percent (\$12.7 billion) of the total value (\$30.1 billion) of U.S. imports from Brazil for 2008 (table BR.2).

U.S. imports of crude petroleum and petroleum products from Brazil increased by \$4.3 billion (116 percent) in 2008 (table BR.2). Much of this increase is attributable to the fact that Brazilian crude petroleum and petroleum products replaced imports from Nigeria and Venezuela in 2008.¹² Price increases for crude petroleum during 2008 also contributed to the increase in the value of such imports from Brazil.

⁶ USDOE, EIA, "Table 7: U.S. Coal Exports," April 2009.

⁷ Ibid.

⁸ Adverse weather and energy shortages were leading contributors to supply reductions in these countries. EIU, "World Automotive: EIU's Quarterly Copper Outlook," April 15, 2008; Broom, "Coal: Old Favourite Sees Price Rise," June 30, 2008.

⁹ Embraer, "Embraer in Numbers," undated (accessed April 6, 2009).

¹⁰ Boeing Company, "Orders and Deliveries," undated (accessed April 7, 2009); Boeing Company, "Commercial Airplanes, Jet Prices," undated (accessed April 7, 2009)

¹¹ See commodity groups EP004, TE013, EP005, and TE015 in table BR.2 for the full commodity description.

¹² See the Energy-related Products chapter.

U.S. imports from Brazil of primary iron products grew by \$869 million (77 percent) to \$2.0 billion in 2008. This growth reflects higher prices resulting from increased global steel demand and supply shortages of iron ore and primary iron products used as inputs in steel production.¹³ Brazil is the leading exporter of primary iron (primarily pig iron) to the United States, and the increase in prices resulted in higher U.S. imports, by value, of primary iron from Brazil. The volume of U.S. imports from Brazil grew by only 1 percent.

In 2008, U.S. imports of aircraft, spacecraft, and related equipment from Brazil increased by \$566 million (33 percent) to \$2.3 billion; this increase reflected the 20 percent increase in total global shipments of Embraer aircraft in 2008, 80 percent of which were commercial aircraft.¹⁴ Because the demand for commercial aircraft is based on projections of passenger demand, and orders are placed 18 to 24 months in advance of their delivery, most of these aircraft were likely ordered in 2006 when passenger traffic in the United States was expected to increase.¹⁵

U.S. imports of certain motors and engines including associated parts, from Brazil increased by \$396 million (638 percent) to \$458 million in 2008.¹⁶ Brazil is the largest U.S. source for parts in this sector, and parts accounted for 25 percent of U.S. imports from Brazil in this sector in 2008. Greater U.S. demand for wind turbine parts (such as blades) drove most of the increase.¹⁷ In an effort to encourage wind energy as an alternative to more carbon-intensive technologies, the United States extended production tax credits for renewable energy each year between 2005 and 2008.¹⁸ This incentive contributed to the consistent increase in installation of wind power capacity during this period; the United States had the most wind power capacity additions in the world in 2008.¹⁹

¹³ See the Primary Iron Products section of the Minerals and Metals chapter.

¹⁴ Embraer, "Embraer in Numbers," undated (accessed April 6, 2009).

¹⁵ Industry official, telephone interview by Commission staff, April 9, 2009.

¹⁶ Excluding internal combustion, aircraft, or electric engines. See commodity group TE015 in table BR.2.

¹⁷ See the Motors and Engines section of the Transportation Equipment chapter.

¹⁸ Union of Concerned Scientists, "Production Tax Credit for Renewable Energy," November 14, 2008.

¹⁹ Global Wind Energy Council, "North America: United States," undated (accessed April 7, 2009).

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Canada

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Change in 2008 from 2007:

U.S. trade deficit: Increased by \$13.0 billion (13 percent) to \$112.4 billion
U.S. exports: Increased by \$9.3 billion (4 percent) to \$222.4 billion
U.S. imports: Increased by \$22.3 billion (7 percent) to \$334.8 billion

U.S. merchandise trade with Canada, the largest U.S. trading partner, increased by \$31.6 billion (6 percent) to \$557.3 billion in 2008. After declining in 2007, the U.S. trade deficit with Canada increased by \$13.0 billion (13 percent) to \$112.4 billion in 2008, as exports rose by \$9.3 billion and imports rose by \$22.3 billion (table CA.1). The deficit in energy-related products trade was the leading contributor to the total U.S. trade deficit.

In 2008, nearly one-half of U.S.-Canadian bilateral trade occurred within two sectors: energy-related products (23 percent) and transportation equipment (23 percent). Bilateral trade in these categories moved in opposite directions, increasing by 44 percent in energy-related products and declining by 13 percent in transportation equipment. Higher crude petroleum prices, rather than volume, contributed to the growth in the value of energy products trade.¹ On the other hand, total U.S.-Canadian trade in the transportation equipment sector declined significantly, as the economic downturn negatively affected the auto industry. The highly integrated motor vehicle industry in North America contributes to large trade flows of vehicles and components between the United States and Canada.²

U.S. Exports

Total U.S. exports to Canada increased by \$9.3 billion (4 percent) to \$222.4 billion in 2008. Energy-related products exports were the leading contributor to this shift, increasing by \$6.2 billion (59 percent) to \$16.8 billion. Canada is the primary market for U.S. exports of petroleum products, as well as the single largest U.S. supplier. The rise in crude petroleum prices increased the value of exports, while the volume remained relatively flat. Exports of petroleum products to Canada fluctuate depending on refining capacity on each side of the border.

U.S. exports of minerals and metals to Canada increased by \$3.1 billion (13 percent) to \$27.8 billion in 2008, driven by a depreciation of the U.S. dollar and higher commodity prices. In particular, exports of steel mill products increased by 19 percent to \$7.2 billion (table CA.2). Depreciation of the U.S. dollar against the Canadian dollar through October gave U.S. steel exporters a competitive advantage, compensating for slower economic growth and

¹ The price for crude petroleum increased from an average of \$68 per barrel in 2007 to \$95 per barrel in 2008. See the Energy-related Products chapter for more detail.

² Yi, "The Collapse of Global Trade," March 2009, 45-48.

TABLE CA.1 Canada: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by major industry/commodity sectors, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
Agricultural products	10,111	11,151	12,514	14,882	17,241	2,359	15.9	
Forest products	8,536	9,111	9,846	10,236	10,557	320	3.1	
Chemicals and related products	23,495	26,412	28,475	29,033	30,657	1,624	5.6	
Energy-related products	5,754	8,487	8,953	10,563	16,772	6,209	58.8	
Textiles and apparel	3,275	3,471	3,561	3,531	3,645	115	3.2	
Footwear	59	65	73	78	86	8	10.7	
Minerals and metals	16,835	19,110	22,687	24,689	27,816	3,127	12.7	
Machinery	15,550	17,333	19,418	20,182	21,251	1,069	5.3	
Transportation equipment	53,694	59,821	64,407	69,291	63,809	-5,482	-7.9	
Electronic products	17,608	18,941	18,378	18,183	18,474	291	1.6	
Miscellaneous manufactures	3,446	3,918	4,425	5,067	5,449	382	7.5	
Special provisions	4,805	5,414	5,490	7,385	6,668	-717	-9.7	
Total	163,168	183,235	198,226	213,119	222,424	9,306	4.4	
U.S. imports of merchandise for consumption:								
Agricultural products	14,130	14,963	16,128	17,919	20,691	2,772	15.5	
Forest products	27,584	28,224	26,717	23,435	20,496	-2,939	-12.5	
Chemicals and related products	21,996	25,535	28,036	29,939	33,124	3,185	10.6	
Energy-related products	49,278	66,116	73,748	79,138	111,953	32,815	41.5	
Textiles and apparel	3,834	3,633	3,395	3,080	2,484	-595	-19.3	
Footwear	77	94	79	76	77	1	1.9	
Minerals and metals	22,636	25,590	32,155	34,562	36,695	2,134	6.2	
Machinery	10,986	11,866	13,124	13,740	13,697	-42	-0.3	
Transportation equipment	74,189	78,374	76,768	77,758	63,462	-14,296	-18.4	
Electronic products	10,982	12,480	11,958	12,141	11,830	-312	-2.6	
Miscellaneous manufactures	5,889	5,903	6,013	5,825	5,264	-560	-9.6	
Special provisions	14,079	14,757	14,911	14,892	15,065	173	1.2	
Total	255,660	287,534	303,034	312,505	334,840	22,335	7.1	
U.S. merchandise trade balance:								
Agricultural products	-4,019	-3,811	-3,614	-3,037	-3,450	-413	-13.6	
Forest products	-19,047	-19,113	-16,871	-13,199	-9,939	3,260	24.7	
Chemicals and related products	1,499	878	439	-906	-2,467	-1,561	-172.3	
Energy-related products	-43,524	-57,629	-64,796	-68,575	-95,182	-26,607	-38.8	
Textiles and apparel	-559	-162	166	451	1,161	710	157.3	
Footwear	-18	-29	-6	2	9	7	329.3	
Minerals and metals	-5,801	-6,480	-9,468	-9,873	-8,879	993	10.1	
Machinery	4,563	5,467	6,293	6,442	7,554	1,112	17.3	
Transportation equipment	-20,496	-18,553	-12,361	-8,468	347	8,814	^(b)	
Electronic products	6,626	6,461	6,419	6,041	6,644	603	10.0	
Miscellaneous manufactures	-2,443	-1,985	-1,588	-758	184	942	^(b)	
Special provisions	-9,274	-9,343	-9,421	-7,507	-8,397	-890	-11.9	
Total	-92,492	-104,299	-104,808	-99,386	-112,415	-13,029	-13.1	

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

Note: Calculations based on unrounded data. Sectors are ordered by the level of processing of the products classified therein.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bNot meaningful for purposes of comparison

TABLE CA.2 Canada: Leading changes in U.S. exports and U.S. imports, 2004–08^a

Sector/commodity	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. EXPORTS:							
Increases:							
Energy-related products:							
Petroleum products (EP005)	1,725	2,605	3,272	4,105	6,968	2,863	69.7
Natural gas and components (EP006)	2,176	3,171	2,532	3,308	4,840	1,532	46.3
Crude petroleum (EP004)	237	606	850	993	2,296	1,303	131.1
Minerals and metals:							
Steel mill products (MM025)	3,887	5,009	5,600	6,085	7,245	1,160	19.1
Precious metals and non-numismatic coins (MM020)	1,131	802	1,563	2,016	3,009	993	49.3
Decreases:							
Transportation equipment:							
Certain motor-vehicle parts (TE010)	18,011	18,417	18,263	18,261	15,268	-2,993	-16.4
Motor vehicles (TE009)	18,104	20,639	22,936	25,135	22,320	-2,815	-11.2
Internal combustion piston engines, other than for aircraft (TE002)	6,899	7,595	8,084	8,284	7,318	-965	-11.7
All other	110,997	124,391	135,126	144,931	153,160	8,229	5.7
TOTAL	163,168	183,235	198,226	213,119	222,424	9,306	4.4
U.S. IMPORTS:							
Increases:							
Energy-related products:							
Crude petroleum (EP004)	18,888	24,120	32,889	37,929	62,485	24,556	64.7
Natural gas and components (EP006)	21,535	29,357	27,039	25,410	30,205	4,794	18.9
Petroleum products (EP005)	6,747	8,977	10,131	11,856	14,420	2,565	21.6
Electrical energy (EP001)	1,261	2,479	2,518	2,713	3,641	927	34.2
Fertilizers (CH010)	1,753	2,470	2,422	2,947	5,529	2,582	87.6
Minerals and metals:							
Steel mill products (MM025)	3,700	4,334	4,702	5,275	6,950	1,674	31.7
Precious metals and non-numismatic coins (MM020)	2,080	1,960	2,660	2,922	4,220	1,298	44.4
Decreases:							
Transportation equipment:							
Motor vehicles (TE009)	46,744	48,581	48,623	47,606	37,071	-10,535	-22.1
Certain motor-vehicle parts (TE010)	12,378	13,172	12,597	12,526	9,897	-2,629	-21.0
Internal combustion piston engines, other than for aircraft (TE002)	4,314	4,683	4,129	4,403	3,512	-890	-20.2
Aircraft, spacecraft, and related equipment (TE013) ..	5,347	6,006	5,082	6,421	5,751	-671	-10.4
Lumber (FP002)	6,997	6,944	6,308	5,028	3,331	-1,696	-33.7
All other	123,916	134,452	143,932	147,469	147,829	360	0.2
TOTAL	255,660	287,534	303,034	312,505	334,840	22,335	7.1

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

and weakening domestic demand from the construction and automotive sectors.³ Although the value of U.S. gold scrap exports to Canada increased by 43 percent to \$1.8 billion in 2008, the volume of gold scrap exports to Canada actually declined, by 34 percent to 154 metric tons, as exports of gold scrap were shifted to Western Europe.⁴ Higher export unit values, due to a 25 percent increase in the average price of gold, offset the quantity decline.⁵

U.S. transportation equipment exports to Canada declined by \$5.5 billion (8 percent) to \$63.8 billion in 2008, as North American automotive production declined in response to the collapse in demand. U.S. exports of motor-vehicle parts declined by 16 percent to \$15.3 billion, as Canadian light-vehicle production fell by 19 percent to 2.1 million units.⁶

U.S. Imports

Total U.S. imports from Canada increased by \$22.3 billion (7 percent) to \$334.8 billion in 2008, primarily as a result of higher energy prices. U.S. imports of energy-related products alone increased by \$32.8 billion (42 percent) to \$112.0 billion in 2008. Imports from Canada of petroleum products and natural gas decreased in terms of volume in 2008, while the volume of imports of crude petroleum increased only modestly.

U.S. imports of chemicals and related products increased by \$3.2 billion (11 percent) to \$33.1 billion in 2008. Higher prices of crude petroleum and natural gas, which are feedstocks for the production of chemicals, largely contributed to the higher unit values of these products. In this category, fertilizer imports increased by \$2.6 billion (88 percent) to \$5.5 billion, mainly due to rising prices rather than volume. Fertilizer prices rose because of tight supply and demand fundamentals.⁷ Global demand for fertilizer is driven by demand for agricultural commodities, which surged in 2008.

U.S. imports of transportation equipment declined by \$14.3 billion (18 percent) to \$63.5 billion in 2008. This decline primarily reflected the impact of the economic crisis on the automotive industry, including the reduced availability of consumer financing for vehicle purchases. U.S. imports of motor vehicles from Canada declined by \$10.5 billion (22 percent) to \$37.1 billion, as U.S. sales of domestic and imported light vehicles fell by 18 percent in 2008 to 13.2 million units.⁸ U.S. imports of motor-vehicle parts also posted a decline, falling by \$2.6 billion to \$9.9 billion. This 21 percent decline was largely commensurate with the drop in U.S. light-vehicle production, which fell by 19 percent in 2008, from 11 million units to 9 million units.⁹

³ *American Metal Market*, "A Weak Dollar Translates into a Strong Increase in Steel Exports," July 2008.

⁴ Precious-metal refinery contracts are negotiated annually between traders and refiners. Due to its high unit value, gold waste and scrap can be sent anywhere in the world.

⁵ See table MM.4 in the Precious Metals and Non-numismatic Coins section of the Minerals and Metals chapter.

⁶ *Automotive News*, "North America Car and Truck Production," January 12, 2009, 33.

⁷ Potash Corporation, "2008 Summary Annual Report," February 20, 2009, 13.

⁸ *Automotive News*, "North America Car and Truck Production," January 12, 2009, 33.

⁹ *Ibid.*

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China

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Change in 2008 from 2007:

U.S. trade deficit: Increased by \$8.3 billion (3 percent) to \$270.3 billion

U.S. exports: Increased by \$6.2 billion (10 percent) to \$67.2 billion

U.S. imports: Increased by \$14.4 billion (5 percent) to \$337.5 billion

U.S. merchandise trade with China, the second-largest U.S. trading partner, increased by \$20.6 billion (5 percent) to \$404.7 billion in 2008. Although U.S. export growth (10 percent) continued to outpace import growth (5 percent), the trade deficit with China widened by 3 percent to \$270.3 billion. For the second consecutive year, China was the single-largest source of U.S. imports and the third-largest market for U.S. exports behind Canada and Mexico.

Agricultural products accounted for more than one-half (\$3.8 billion) of the total growth in U.S. exports to China in 2008. Rising international prices for agricultural commodities contributed to the increase in U.S. exports. Meanwhile, strong economic growth in China, together with a corresponding increase in demand for electricity, provided a market for U.S. exports of grain-oriented electrical steel and electric generators.

On the import side, commodity groups contributing most to the \$14.4-billion increase of U.S. imports were oil country tubular goods; coke; organic specialty chemicals; and television receivers and video monitors. The underlying factors behind these increases vary by commodity and are sector specific.

Manufacturing, particularly by foreign-invested enterprises engaged in processing trade,¹ has been the driving force behind China's export-oriented economy.² In recent years, China has become increasingly integrated into global production chains by supplying low-wage labor for the final assembly of products.³ However, trade statistics record f.a.s. value and do not capture domestic value added, thus data on Chinese exports likely capture a significant amount of content produced outside of China. This fact is of particular significance in the electronic products sector, which accounted for more than one-third of all U.S. imports from China in 2008, but where foreign content was particularly high.⁴

¹ Processing trade refers to the business activity of importing all or part of the raw and auxiliary materials, parts and components, accessories, and packaging materials from abroad in bond, and re-exporting the finished products after processing or assembly by enterprises within China. It includes processing with supplied materials and processing with imported materials. Hong Kong Trade Development Council, "Processing Trade," April 2008.

² WTO, Trade Policy Review Body, "Trade Policy Review," April 16, 2008, xiii.

³ Dean, Fung, and Wang, "How Vertically Specialized is Chinese Trade?" September 2008, 1.

⁴ Koopman, Wang, and Shang, "How Much of Chinese Exports is Really Made in China?" March 2008, 1.

U.S. Exports

U.S. exports to China increased by \$6.2 billion (10 percent) to \$67.2 billion in 2008 (table CHN.1). Certain agricultural products, steel mill products, and electric generators registered the largest increases.

Overall, exports of agricultural products increased by \$3.8 billion (43 percent), accounting for more than one-half of the total growth in U.S. exports to China in 2008. Within this sector, exports of oilseeds, primarily soybeans, rose by \$3.1 billion (76 percent) to \$7.3 billion (table CHN.2). Rising international prices and a perceived need to enhance food security stocks drove demand for soybeans in China.⁵ Continued urbanization and population and income growth have also increased China's import demand for soybeans for the past several years.⁶

Strong economic growth in China has led to corresponding increases in demand for electricity in the construction and industrial sectors, as well as an increase in demand for products used in the generation and transmission of electric power.⁷ In 2008, U.S. exports of steel mill products to China rose by \$491 million (92 percent) to \$1.0 billion. Exports of grain-oriented electrical steel, used in the manufacture of power transformers for electrical transmission and distribution, increased by \$231 million (705 percent), accounting for nearly one-half of the growth in U.S. exports of steel mill products. U.S. exports of electric motors, generators, and related equipment increased by \$296 million (76 percent) in 2008 due to the growth in Chinese demand for electricity. Exports of small and large electric generators, primarily used for reserve and off-grid power applications, accounted for \$191 million (65 percent) of the increase in this product category.

U.S. Imports

U.S. imports from China increased by \$14.4 billion (5 percent) to \$337.5 billion in 2008. Television receivers and video monitors; steel mill products; organic specialty chemicals; and coal, coke, and related chemical products registered the largest increases (table CHN.2).

U.S. imports of television receivers and video monitors from China increased by \$2.4 billion (26 percent) to \$11.8 billion in 2008. Imports of flat-panel television receivers alone increased by \$1.0 billion (32 percent). The rise in imports reflects the continuing shift of foreign firms' production facilities to China for cost-saving reasons, along with strong U.S. demand for consumer electronics. Imports of other television apparatus not incorporating a video display (primarily digital converter boxes) increased by \$822 million as U.S. consumers prepared for the transition from analog to digital TV in 2009.

U.S. imports of iron or nonalloy steel casing of a kind used in drilling for oil or natural gas accounted for 85 percent of the \$2.0 billion increase in steel mill product imports from

⁵ USDA, FAS, *Oilseeds: World Markets and Trade*, November, 2008. The price of soybeans rose from \$326.77 per metric ton in 2007 to \$486.52 per metric ton in 2008.

⁶ Cao, Cheng, and Tuan, *China's Soybean Imports*, October 2004, 3–5.

⁷ Total electricity generation in China increased from around 3.9 trillion kilowatt hours in 2007 to approximately 4.6 trillion kilowatt hours in 2008.

TABLE CHN.1 China: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by major industry/commodity sectors, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
Agricultural products	5,879	5,648	7,264	8,981	12,811	3,830	42.7
Forest products	1,651	1,995	2,572	3,272	3,518	246	7.5
Chemicals and related products	5,061	5,831	6,863	8,975	9,885	910	10.1
Energy-related products	289	221	307	407	584	176	43.3
Textiles and apparel	501	629	731	844	940	96	11.3
Footwear	31	41	57	38	35	-2	-6.0
Minerals and metals	3,197	5,215	7,736	9,043	9,701	659	7.3
Machinery	4,699	4,244	5,275	6,098	6,640	542	8.9
Transportation equipment	3,893	6,508	9,015	11,065	9,647	-1,418	-12.8
Electronic products	6,903	7,952	11,113	11,433	12,375	942	8.2
Miscellaneous manufactures	156	185	207	307	367	60	19.6
Special provisions	346	389	483	551	663	111	20.2
Total	32,606	38,857	51,624	61,013	67,166	6,153	10.1
U.S. imports of merchandise for consumption:							
Agricultural products	2,925	3,365	4,303	4,945	5,588	644	13.0
Forest products	4,398	5,463	6,630	7,317	7,371	54	0.7
Chemicals and related products	9,287	12,240	14,389	16,889	20,918	4,028	23.9
Energy-related products	1,063	1,023	1,139	641	2,025	1,384	215.9
Textiles and apparel	18,902	26,937	31,284	36,162	36,368	207	0.6
Footwear	11,348	12,654	13,795	14,090	14,444	355	2.5
Minerals and metals	13,890	17,553	23,462	25,749	28,975	3,226	12.5
Machinery	17,391	21,056	25,585	28,415	29,954	1,539	5.4
Transportation equipment	4,865	6,476	8,640	10,155	10,806	651	6.4
Electronic products	69,252	86,858	103,289	116,467	117,986	1,519	1.3
Miscellaneous manufactures	40,490	46,122	51,068	58,306	58,917	611	1.0
Special provisions	2,348	2,891	3,467	3,950	4,151	201	5.1
Total	196,160	242,638	287,052	323,085	337,504	14,419	4.5
U.S. merchandise trade balance:							
Agricultural products	2,954	2,283	2,961	4,036	7,223	3,187	79.0
Forest products	-2,747	-3,468	-4,058	-4,045	-3,853	192	4.7
Chemicals and related products	-4,225	-6,409	-7,526	-7,914	-11,033	-3,119	-39.4
Energy-related products	-774	-802	-832	-234	-1,441	-1,207	-516.4
Textiles and apparel	-18,401	-26,308	-30,553	-35,317	-35,429	-111	-0.3
Footwear	-11,317	-12,613	-13,738	-14,052	-14,409	-357	-2.5
Minerals and metals	-10,692	-12,339	-15,726	-16,707	-19,274	-2,567	-15.4
Machinery	-12,692	-16,812	-20,310	-22,318	-23,314	-996	-4.5
Transportation equipment	-972	32	375	910	-1,159	-2,069	^(b)
Electronic products	-62,350	-78,906	-92,176	-105,034	-105,611	-577	-0.5
Miscellaneous manufactures	-40,334	-45,938	-50,861	-57,999	-58,550	-551	-1.0
Special provisions	-2,002	-2,502	-2,984	-3,399	-3,489	-89	-2.6
Total	-163,553	-203,781	-235,428	-262,072	-270,338	-8,266	-3.2

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

Note: Calculations based on unrounded data. Sectors are ordered by the level of processing of the products classified therein.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bNot meaningful for purposes of comparison.

TABLE CHN.2 China: Leading changes in U.S. exports and U.S. imports, 2004–08^a

Sector/commodity	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. EXPORTS:								
Increases:								
Oilseeds (AG032)	2,333	2,255	2,536	4,121	7,261	3,140	76.2	
Steel mill products (MM025)	228	402	321	532	1,023	491	92.4	
Electronic products:								
Semiconductors and integrated circuits (EL015)	2,303	2,676	4,633	4,880	5,305	425	8.7	
Measuring, testing, and controlling instruments (EL025)	996	1,109	1,349	1,533	1,885	352	23.0	
Electric motors, generators, and related equipment (MT023)	204	239	298	388	684	296	76.2	
Decreases:								
Transportation equipment:								
Aircraft, spacecraft, and related equipment (TE013)	1,948	4,338	6,047	7,159	5,079	-2,080	-29.1	
Certain motor-vehicle parts (TE010)	438	392	526	733	530	-204	-27.8	
Semiconductor manufacturing equipment and robotics (MT019)	1,270	688	1,159	1,608	1,098	-510	-31.7	
Polypropylene resins in primary forms (CH026)	181	222	280	398	265	-133	-33.5	
All other	22,706	26,535	34,476	39,661	44,037	4,375	11.0	
TOTAL	32,606	38,857	51,624	61,013	67,166	6,153	10.1	
U.S. IMPORTS:								
Increases:								
Television receivers and video monitors (EL003A)	2,438	5,130	7,836	9,423	11,833	2,410	25.6	
Steel mill products (MM025)	1,104	1,687	3,605	3,968	5,995	2,027	51.1	
Organic specialty chemicals (CH005)	502	728	946	1,231	2,513	1,282	104.1	
Toys and games (MS013)	12,549	13,910	15,082	20,051	21,272	1,221	6.1	
Coal, coke, and related chemical products (EP003)	657	379	415	250	1,250	1,000	400.1	
Decreases:								
Miscellaneous manufactures:								
Furniture (MS009)	9,773	11,726	13,481	14,305	13,600	-704	-4.9	
Works of art and miscellaneous manufactured goods (MS017)	3,458	3,680	3,829	4,020	3,786	-234	-5.8	
Machinery:								
Printing and related machinery (MT012)	1,350	1,743	1,886	807	442	-364	-45.2	
Air-conditioning equipment and parts (MT002)	1,978	2,442	3,048	3,450	3,171	-279	-8.1	
Consumer electronics (EL003)	14,020	18,764	22,696	22,561	22,209	-352	-1.6	
All other	148,330	182,450	214,229	243,020	251,432	8,412	3.5	
TOTAL	196,160	242,638	287,052	323,085	337,504	14,419	4.5	

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

China. High energy prices contributed to an increase in drilling activities in the United States in 2008, which in turn drove U.S. demand for these oil country tubular goods.

U.S. imports of organic specialty chemicals increased by \$1.3 billion (104 percent) in 2008, with imports of other nonaromatic organo-inorganic compounds accounting for \$900 million of the increase. Within this category, glyphosate, an active ingredient in herbicides, registered the largest increase in imports. China accounts for roughly two-thirds of the global production capacity for key components of glyphosate, which is widely used in herbicides for crops.

The value of U.S. imports of coal and other carbonaceous materials from China increased by about 400 percent in 2008, although the quantity of such imports decreased by nearly 5 percent. The increase in the value of these imports is primarily due to the rapid rise in the price of Chinese coke, which rose from \$190 per ton in 2007 to more than \$475 per ton by mid-2008.⁸ China accounts for 80–85 percent of the total quantity of U.S. coke imports.

⁸ USDOE, EIA, *Quarterly Coal Report*, various issues.

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Change in 2008 from 2007:

U.S. trade deficit: Decreased by \$13.5 billion (11 percent) to \$112.5 billion
U.S. exports: Increased by \$24.9 billion (11 percent) to \$251.2 billion
U.S. imports: Increased by \$11.5 billion (3 percent) to \$363.7 billion

The U.S. merchandise trade deficit with the EU decreased for the third consecutive year, declining by 11 percent to \$112.5 billion in 2008, while total bilateral trade between the United States and the EU increased by 6 percent. The decrease in the deficit is partly attributable to slowing economic growth in the United States during 2008, as well as a depreciation of the U.S. dollar vis-à-vis the euro during much of the year.¹

U.S. exports to the EU accounted for 21 percent of total U.S. merchandise exports in 2008, and imports from the EU accounted for 17 percent of total U.S. merchandise imports. The EU was the third-largest regional market for U.S. exports and imports in 2008, after Asia and Latin America. Nearly one-quarter of all U.S.-EU trade reportedly consisted of intrafirm transactions.²

Germany, the United Kingdom, the Netherlands, France, and Belgium together accounted for 75 percent of U.S. exports to the EU in 2008, and Germany, the United Kingdom, France, Italy, and Ireland accounted for 73 percent of all U.S. imports. These countries and the percentage of trade for which they accounted remained virtually unchanged in 2008 as compared to 2007.

Throughout 2008, U.S.-EU merchandise trade was negatively affected by three factors: (1) the exceptionally sharp rise in energy and food prices, which reduced real incomes and production in these economies; (2) international financial and credit turmoil that effectively raised the cost of financing for firms and households; and (3) the decline in U.S. and EU housing prices,³ which led to sharp decreases in construction activity and consequently, GDP.⁴

¹ The euro/U.S. dollar exchange rate averaged 1 euro = \$1.37 in 2007 and 1 euro = \$1.47 in 2008. Board of Governors of the Federal Reserve System, "Foreign Exchange Rates (Annual)," January 2, 2009.

² European Commission, "Bilateral Trade Relations," October 2008.

³ For more information on recent developments in the housing market in the United States, see the Forest Products chapter.

⁴ OECD, *OECD Economic Surveys*, January 2009, 26.

U.S. Exports

U.S. exports to the EU rose by 11 percent to \$251.2 billion in 2008, slower than the 17 percent and 14 percent increases registered in 2006 and 2007, respectively, largely due to the worldwide financial and credit crises during 2008. Increases in U.S. exports of energy-related products, chemicals and related products, and transportation equipment accounted for most of the increase in total U.S. exports to the EU. Together, these industry/commodity groups accounted for 72 percent (\$18.0 billion) of the total increase in exports in 2008 (table EU.1).

The value of U.S. exports of energy-related products to the EU increased by 110 percent to \$15.7 billion in 2008 (table EU.2), even as U.S. exports of leading petroleum products such as distillate and residual fuel oils (used in the production of diesel fuel and home and commercial heating oils) declined in terms of quantity. The value of U.S. exports increased as world prices for crude petroleum (the feedstock for the production of refined petroleum products) increased from an average of \$68 per barrel during 2007 to an average of \$95 per barrel during 2008; during summer 2008, when these products were exported most heavily, the world price for crude was over \$130 per barrel.

U.S. exports of chemicals and related products to the EU rose by 13 percent to \$56.0 billion in 2008, driven largely by exports of medicinal chemicals, which grew by 16 percent to \$27.1 billion, and by exports of miscellaneous chemicals and specialties, which more than doubled to \$4.0 billion. Exports of medicinal chemicals to the EU are largely driven by growing overall demand for pharmaceuticals and by related-party transfers. Most of the export growth was in blood fractions⁵ and prepackaged psychotherapeutic agents such as tranquilizers and antidepressants, likely from U.S. companies to affiliated companies in the EU. U.S. exports of medicinal chemicals to the EU continued to grow in 2008 despite fierce price competition in the global pharmaceutical market between branded and generic drugs and despite increased cost-containment measures enforced by both private insurance and government payers in the EU.⁶

U.S. exports of miscellaneous chemicals and specialties were led by exports of fatty substances of animal or vegetable origin and mixtures thereof, including biodiesel. Biodiesel products largely accounted for the increase in exports to the EU in this category. The EU is a ready market for U.S. biodiesel exports because relatively larger quantities of biodiesel are consumed in Europe as a result of EU environmental mandates.⁷

⁵ Blood fractions are components of blood, such as red blood cells, white blood cells, platelets, and plasma. By administering blood fractions to patients, rather than whole blood, the supply of donated blood can be stretched to serve more patients and wastage can be reduced.

⁶ IMS Health, "IMS Health Reports Annual Global Generics Prescription Sales Growth," December 11, 2008.

⁷ European Biodiesel Board, "About Biodiesel," undated (accessed April 27, 2009).

TABLE EU.1 EU-27: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by major industry/commodity sectors, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
Agricultural products	7,997	8,160	8,704	10,210	11,527	1,318	12.9	
Forest products	4,385	4,745	4,947	5,539	5,698	159	2.9	
Chemicals and related products	35,398	37,550	43,015	49,656	55,958	6,303	12.7	
Energy-related products	3,128	4,119	6,896	7,449	15,653	8,204	110.1	
Textiles and apparel	1,582	1,749	1,899	2,064	2,121	57	2.8	
Footwear	66	65	60	65	68	3	4.3	
Minerals and metals	8,101	11,040	16,389	20,757	22,965	2,208	10.6	
Machinery	13,209	14,607	16,439	17,594	18,829	1,235	7.0	
Transportation equipment	35,812	37,320	45,091	55,438	58,945	3,506	6.3	
Electronic products	37,797	39,009	41,767	43,632	43,636	4	^(b)	
Miscellaneous manufactures	3,891	4,461	5,684	6,639	7,862	1,222	18.4	
Special provisions	4,971	5,466	6,389	7,208	7,934	726	10.1	
Total	156,337	168,289	197,281	226,252	251,196	24,945	11.0	
U.S. imports of merchandise for consumption:								
Agricultural products	13,913	14,871	16,220	17,558	17,569	11	0.1	
Forest products	6,276	6,668	6,797	6,140	5,671	-470	-7.6	
Chemicals and related products	63,165	68,160	74,042	78,521	84,791	6,271	8.0	
Energy-related products	16,028	22,623	26,057	28,011	33,956	5,945	21.2	
Textiles and apparel	6,291	6,095	5,988	6,287	5,791	-497	-7.9	
Footwear	1,904	1,738	1,700	1,776	1,586	-190	-10.7	
Minerals and metals	22,094	24,533	27,836	29,375	29,376	1	^(b)	
Machinery	29,316	33,464	36,544	39,950	41,610	1,660	4.2	
Transportation equipment	62,448	66,934	69,998	73,105	70,038	-3,067	-4.2	
Electronic products	34,145	36,184	36,405	38,114	40,399	2,286	6.0	
Miscellaneous manufactures	12,250	12,473	13,602	15,931	14,520	-1,411	-8.9	
Special provisions	13,285	14,885	15,709	17,420	18,360	940	5.4	
Total	281,115	308,628	330,898	352,189	363,667	11,478	3.3	
U.S. merchandise trade balance:								
Agricultural products	-5,916	-6,712	-7,516	-7,348	-6,042	1,306	17.8	
Forest products	-1,892	-1,923	-1,850	-602	27	629	^(c)	
Chemicals and related products	-27,767	-30,610	-31,027	-28,865	-28,833	32	0.1	
Energy-related products	-12,899	-18,504	-19,161	-20,563	-18,303	2,259	11.0	
Textiles and apparel	-4,710	-4,347	-4,089	-4,223	-3,670	554	13.1	
Footwear	-1,838	-1,673	-1,640	-1,711	-1,518	193	11.3	
Minerals and metals	-13,993	-13,493	-11,446	-8,618	-6,410	2,207	25.6	
Machinery	-16,107	-18,857	-20,105	-22,357	-22,782	-425	-1.9	
Transportation equipment	-26,636	-29,614	-24,908	-17,667	-11,093	6,574	37.2	
Electronic products	3,652	2,825	5,362	5,519	3,237	-2,282	-41.3	
Miscellaneous manufactures	-8,359	-8,012	-7,918	-9,292	-6,658	2,634	28.3	
Special provisions	-8,313	-9,420	-9,320	-10,212	-10,426	-214	-2.1	
Total	-124,778	-140,339	-133,617	-125,937	-112,470	13,467	10.7	

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

Note: Calculations based on unrounded data. Sectors are ordered by the level of processing of the products classified therein.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than 0.05 percent.

^cNot meaningful for purposes of comparison.

TABLE EU.2 EU-27: Leading changes in U.S. exports and U.S. imports, 2004–08^a

Sector/commodity	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. EXPORTS:								
Increases:								
Energy-related products:								
Petroleum products (EP005)	1,785	1,935	4,270	4,142	10,850	6,708	162.0	
Coal, coke, and related chemical products (EP003)	817	1,339	1,711	2,168	3,836	1,668	77.0	
Chemicals and related products:								
Medicinal chemicals (CH019)	17,045	17,924	19,753	23,277	27,085	3,808	16.4	
Miscellaneous chemicals and specialties (CH023)	939	961	1,182	1,927	3,950	2,023	105.0	
Motor vehicles (TE009)	3,929	3,334	7,594	10,322	12,271	1,948	18.9	
Decreases:								
Aircraft, spacecraft, and related equipment (TE013)	15,029	13,594	15,916	20,798	19,868	-930	-4.5	
Electronic products:								
Computers, peripherals, and parts (EL017)	8,578	8,485	8,493	7,335	6,704	-631	-8.6	
Telecommunications equipment (EL002)	3,563	4,066	3,918	5,121	4,593	-528	-10.3	
Semiconductor manufacturing equipment and robotics (MT019)	1,781	1,867	2,028	2,105	1,691	-414	-19.7	
Certain organic chemicals (CH006)	2,102	2,015	3,239	3,281	2,963	-318	-9.7	
All other	100,768	112,768	129,177	145,776	157,385	11,609	8.0	
TOTAL	156,337	168,289	197,281	226,252	251,196	24,945	11.0	
U.S. IMPORTS:								
Increases:								
Medicinal chemicals (CH019)	40,893	42,901	48,030	51,787	57,442	5,655	10.9	
Petroleum products (EP005)	11,757	17,157	21,354	22,244	27,568	5,324	23.9	
Electronic products:								
Medical goods (EL022)	9,763	10,250	10,662	11,499	12,915	1,415	12.3	
Telecommunications equipment (EL002)	2,551	3,338	2,370	2,560	3,226	666	26.0	
Motors and engines, except internal combustion, aircraft, or electric (TE015)	590	749	826	1,073	1,563	490	45.7	
Decreases:								
Transportation equipment:								
Motor vehicles (TE009)	32,737	33,637	32,883	33,701	30,250	-3,451	-10.2	
Certain motor-vehicle parts (TE010)	5,252	5,722	5,753	5,779	5,182	-597	-10.3	
Works of art and miscellaneous manufactured goods (MS017)	4,741	4,759	5,697	7,304	6,190	-1,114	-15.3	
Organic specialty chemicals (CH005)	3,963	4,121	4,218	4,144	3,611	-533	-12.9	
Semiconductor manufacturing equipment (MT019A)	1,202	1,348	1,757	2,863	2,406	-457	-16.0	
All other	167,665	184,648	197,348	209,235	213,313	4,078	1.9	
TOTAL	281,115	308,628	330,898	352,189	363,667	11,478	3.3	

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

U.S. exports to the EU of transportation equipment rose by 6 percent to \$58.9 billion in 2008, led by increases in motor vehicle exports. The largest increase in motor vehicle exports was to Germany; such exports rose by \$2.0 billion, or 35 percent. Germany was the second-leading U.S. export market in the world for motor vehicles behind Canada. Vehicles built by BMW and Mercedes Benz in their U.S. plants accounted for a significant share of U.S. motor vehicle exports to Germany.

U.S. Imports

In 2008, U.S. imports from the EU rose by \$11.5 billion (3 percent) to \$363.7 billion, despite the sluggish U.S. economic conditions that prevailed particularly during the latter part of the year (table EU.1). The 3 percent increase in 2008 was slower than the 7 percent and 6 percent import growth rates registered in 2006 and 2007, respectively. Increases in imports of chemicals and related products and petroleum products accounted for virtually all of the growth in imports for the year, while imports of most other product sectors, including transportation equipment, registered declines. Chemicals and related products and transportation equipment accounted for over 40 percent of U.S. imports from the EU in 2008.

U.S. imports of chemicals and related products from the EU rose by \$6.3 billion (8 percent) to \$84.8 billion in 2008. In particular, U.S. imports of medicinal chemicals increased by \$5.7 billion (11 percent) to \$57.4 billion in 2008. Ireland, the United Kingdom, and Germany are the top three suppliers of medicinal chemicals to the United States. Combined, these three nations accounted for one-half of U.S. medicinal chemical imports in 2008. Increased U.S. demand, along with greater availability of generic pharmaceuticals as patents on many popular medicines expired, reportedly contributed to the increase in imports from the EU.⁸

U.S. imports of energy-related products from the EU increased by \$5.9 billion (21 percent) to \$34.0 billion in 2008. Although the quantity of U.S. imports of distillate and residual fuel oils from the EU declined by nearly 9 percent in 2008, the value of U.S. imports increased due to the rise in the price of crude petroleum, the principal feedstock.

⁸ IMS Health, "IMS Health Reports U.S. Prescription Sales Grew 3.8 Percent in 2007," March 10, 2008.

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India

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Change in 2008 from 2007:

U.S. trade deficit: Increased by \$1.0 billion (13 percent) to \$8.5 billion

U.S. exports: Increased by \$1.0 billion (6 percent) to \$17.3 billion

U.S. imports: Increased by \$2.0 billion (8 percent) to \$25.9 billion

U.S. bilateral trade with India increased by more than \$3.0 billion (8 percent) to a record \$43.2 billion in 2008. As a result of the slowing world economy, the growth in bilateral trade was less than the growth rate in the previous three years. The U.S. trade deficit increased by almost \$1.0 billion (13 percent), as U.S. exports grew by \$1.0 billion (6 percent) and U.S. imports grew by \$2.0 billion (8 percent) (table IN.1).

Despite the global economic downturn, India's GDP grew by more than 7 percent in 2008, which contributed to the rise in U.S. exports to India.¹ Chemicals and related equipment, minerals and metals, and energy-related products accounted for the majority of the increase in U.S. exports to India in 2008. These export increases were partially offset by a sharp decline in exports of transportation equipment.

The slowing U.S. economy likely restricted the growth of U.S. imports from India during the second half of 2008. The majority of the increase in U.S. imports from India occurred in chemicals and related products and minerals and metals. Import growth in these sectors was partly offset by a decline in imports of miscellaneous manufactures.

U.S. Exports

U.S. exports continued to benefit from economic growth in India, but the global economic downturn restricted the growth rate to levels below those of previous years. In 2008, U.S. exports to India increased by 6 percent, compared with an average annual growth rate of 47 percent during the 2004–07 period. In 2008, the largest absolute increase in exports was in chemicals and related products, particularly fertilizers. Exports of minerals and metals and energy-related products also increased significantly. The growth in exports in these sectors was partly offset by a significant decline in exports of transportation equipment (table IN.2).

The chemicals and related products sector accounted for the largest share of growth in U.S. exports to India, increasing by \$2.6 billion (110 percent) to \$4.9 billion in 2008. Two product categories—fertilizers and inorganic acids—accounted for the majority of this increase. Fertilizer exports rose by \$2.0 billion (259 percent) as a result of the wider use in India of modern agricultural techniques. India is one of the world's largest fertilizer

¹ IMF, "Global Economic Slump Challenges Policies," January 28, 2009.

TABLE IN.1 India: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by major industry/commodity sectors, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Agricultural products	251	296	363	465	481	16	3.4
Forest products	179	225	239	378	460	83	21.9
Chemicals and related products	1,094	1,470	1,849	2,354	4,941	2,586	109.9
Energy-related products	316	381	414	429	933	503	117.2
Textiles and apparel	68	78	101	101	114	13	12.7
Footwear	4	8	7	4	6	2	52.1
Minerals and metals	388	719	902	1,981	2,868	887	44.8
Machinery	542	715	784	1,113	1,325	211	19.0
Transportation equipment	671	1,027	2,114	6,881	3,582	-3,299	-47.9
Electronic products	1,576	1,709	1,859	2,139	2,057	-82	-3.8
Miscellaneous manufactures	90	167	191	191	228	37	19.6
Special provisions	118	171	200	273	346	73	26.9
Total	5,295	6,965	9,025	16,309	17,340	1,031	6.3
U.S. imports of merchandise for consumption:							
Agricultural products	1,217	1,226	1,261	1,320	1,629	308	23.4
Forest products	84	94	109	134	145	11	8.2
Chemicals and related products	1,334	1,732	2,230	2,952	4,148	1,196	40.5
Energy-related products	248	579	287	767	349	-419	-54.6
Textiles and apparel	4,106	5,194	5,568	5,611	5,583	-28	-0.5
Footwear	125	139	155	164	188	25	15.1
Minerals and metals	4,748	5,091	5,816	6,424	7,534	1,110	17.3
Machinery	552	858	1,255	1,485	1,588	103	7.0
Transportation equipment	400	588	748	883	1,080	197	22.4
Electronic products	529	674	896	865	1,166	301	34.8
Miscellaneous manufactures	1,958	2,310	3,021	2,915	2,121	-794	-27.2
Special provisions	203	223	327	337	334	-3	-0.8
Total	15,503	18,710	21,674	23,857	25,866	2,009	8.4
U.S. merchandise trade balance:							
Agricultural products	-966	-930	-898	-855	-1,148	-293	-34.2
Forest products	95	131	131	244	316	72	29.4
Chemicals and related products	-240	-263	-381	-598	792	1,390	(^b)
Energy-related products	69	-199	127	-338	584	922	(^b)
Textiles and apparel	-4,039	-5,117	-5,467	-5,510	-5,470	41	0.7
Footwear	-122	-131	-148	-160	-182	-23	-14.2
Minerals and metals	-4,360	-4,372	-4,915	-4,443	-4,666	-223	-5.0
Machinery	-10	-143	-471	-371	-264	108	29.0
Transportation equipment	272	439	1,366	5,998	2,501	-3,496	-58.3
Electronic products	1,047	1,035	963	1,274	891	-383	-30.0
Miscellaneous manufactures	-1,868	-2,144	-2,830	-2,724	-1,893	831	30.5
Special provisions	-85	-52	-127	-64	12	76	(^b)
Total	-10,208	-11,745	-12,649	-7,548	-8,526	-978	-13.0

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

Note: Calculations based on unrounded data. Sectors are ordered by the level of processing of the products classified therein.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bNot meaningful for purposes of comparison.

TABLE IN.2 India: Leading changes in U.S. exports and U.S. imports, 2004–08^a

Sector/commodity	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. EXPORTS:							
Increases:							
Chemicals and related products:							
Fertilizers (CH010)	114	415	587	778	2,791	2,012	258.5
Inorganic acids (CH008)	1	1	1	1	230	229	25,944.4
Minerals and metals:							
Natural and synthetic gemstones (MM019)	37	63	241	510	1,239	728	142.7
Unrefined and refined gold (MM020A)	(^b)	34	(^b)	373	497	124	33.1
Coal, coke, and related chemical products (EP003) ...	228	254	320	284	731	447	157.8
Decreases:							
Transportation equipment:							
Aircraft, spacecraft, and related equipment (TE013)	286	595	1,510	5,955	2,555	-3,400	-57.1
Aircraft engines and gas turbines (TE001)	158	128	225	329	215	-113	-34.5
Computers, peripherals, and parts (EL017)	358	357	401	402	309	-94	-23.3
All other	4,114	5,119	5,740	7,677	8,774	1,098	14.3
TOTAL	5,295	6,965	9,025	16,309	17,340	1,031	6.3
U.S. IMPORTS:							
Increases:							
Medicinal chemicals (CH019)	456	575	814	1,352	2,018	666	49.3
Minerals and metals:							
Pipes and tubes of carbon and alloy steels (MM025L)	91	198	117	575	974	399	69.4
Natural and synthetic gemstones (MM019)	2,991	3,203	3,385	3,824	4,022	198	5.2
Decreases:							
Precious jewelry and related articles (MS006)	1,500	1,769	2,421	2,334	1,524	-810	-34.7
Petroleum products (EP005)	231	559	277	749	345	-405	-54.0
Textiles and apparel: Apparel (TX005)	2,360	3,152	3,320	3,296	3,204	-92	-2.8
All other	7,875	9,254	11,340	11,727	13,780	2,052	17.5
TOTAL	15,503	18,710	21,674	23,857	25,866	2,009	8.4

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

consumers and relies on imports of phosphate fertilizers due to limited domestic production.² The United States supplies significant quantities of phosphate fertilizers in the form of granular diammonium phosphate and monoammonium phosphate, both of which are in high demand in India. The increase in the value of U.S. fertilizer exports to India also occurred due to higher prices. From 2007 to 2008, the U.S. domestic price of diammonium phosphate, which makes up the majority of U.S. fertilizer exports to India, increased from \$442 per ton to \$850 per ton.³

U.S. exports of minerals and metals to India increased by \$887 million (45 percent) to \$2.9 billion in 2008. Exports in one product category—natural and synthetic gemstones—increased by \$728 million (143 percent) and contributed significantly to the growth in the sector. The increase in the value of U.S. exports of gemstones to India was principally due to a 45 percent increase in the export price of industrial diamonds.⁴ The quantity of U.S. gemstone exports also increased slightly as India, a global hub for jewelry production that depends on imported raw materials, continued to expand production in early 2008 prior to the decline in demand following the economic downturn.⁵

U.S. exports of energy-related products to India increased by \$503 million (117 percent) to \$933 million in 2008. Exports of coal, coke, and related chemical products increased by \$447 million and contributed significantly to export growth in the energy-related products sector. U.S. exports of coal to India, which accounted for less than 1 percent of total U.S. coal exports, increased from 600,000 short tons in 2007 to about 1.5 million short tons in 2008, primarily because China reduced its level of coal exports to India. The value of U.S. coal exports also increased substantially during 2008 as the price of U.S. coal exports increased from \$88 per short ton in 2007 to \$156 per short ton in 2008.

At the same time, U.S. exports in the transportation equipment sector to India declined significantly, falling by \$3.3 billion (48 percent) to \$3.6 billion in 2008. Most of the decrease in this sector occurred in aircraft, spacecraft, and related equipment, as U.S.-based Boeing Company delivered only 15 new aircraft to Indian airlines in 2008, compared with 36 in 2007.⁶

U.S. Imports

U.S. imports from India increased by \$2.0 billion (8 percent) to \$25.9 billion in 2008. This growth was slower than in previous years due to weak U.S. demand caused by the economic downturn. The largest absolute increases in U.S. imports from India were in chemicals and related products and minerals and metals. However, strong growth in these sectors was somewhat offset by a large decline in imports of miscellaneous manufactures.

U.S. imports of chemicals and related products increased by \$1.2 billion (41 percent) to \$4.1 billion in 2008. Medicinal chemical imports from India increased by \$666 million

² Economy Watch, *Indian Fertilizer Industry*, undated (accessed March 7, 2009).

³ USDA, ERS, "Table 7: Average U.S. Farm Prices of Selected Fertilizers," undated (accessed March 17, 2009).

⁴ Compiled from official statistics of the U.S. Department of Commerce.

⁵ Ahmad, "Outlook for Indian Gems and Jewellery Sector: 2009," Associated Chambers of Commerce and Industry of India, April 2009, 6.

⁶ Boeing Company, "Orders and Deliveries," undated (accessed March 23, 2009); Boeing Company, "Jet Prices," undated (accessed March 24, 2009).

(49 percent) to \$2.0 billion in 2008, contributing significantly to the import growth in this sector. Greater U.S. demand for less-expensive generic pharmaceuticals, which are increasingly produced in developing countries, such as China and India, led to the increase in medicinal chemical imports. In 2008, use of generic pharmaceuticals in the United States increased as patents on pharmaceuticals worth approximately \$20 billion in annual sales expired during this year.⁷ Indian manufacturers have been expanding output based on expired patents in order to serve the growing U.S. generic market.⁸

U.S. imports of minerals and metals increased by \$1.1 billion (17 percent) to \$7.5 billion. Imports in one product category—steel mill products—increased by \$707 million (68 percent) and contributed significantly to the import growth in this sector. The growth of U.S. steel mill product imports was accounted for primarily by pipes and tubes of carbon and alloy steel, which increased by \$399 million (69 percent) to approximately \$1.0 billion in 2008. In 2007, several of India’s top line-pipe producers won a number of multiyear contracts to supply natural-gas line-pipe projects in the southern region of the United States. These contracts were spurred by a rise in U.S. demand for interstate pipe infrastructure owing to the rise in energy prices that occurred throughout 2007.

U.S. imports of miscellaneous manufactures declined by \$794 million (27 percent) to \$2.1 billion. Imports in one product category—precious jewelry and related articles—declined by \$810 million (35 percent) to \$1.5 billion. The poor economic climate in the United States caused jewelry retailers and importers to adjust their product mix and reduce inventory throughout 2008. Weak demand forced importers and retailers to order lower-value jewelry, such as silver and gold necklaces, and reduce their imports of higher-value gold jewelry. As a result, there was a \$51-million increase in silver jewelry imports, a \$95-million increase in gold necklace imports, and a \$957-million decline in imports of higher-value gold jewelry.⁹

⁷ CSM Services, “Indian Pharmaceutical Industry Ranks 4th Globally,” March 25, 2008.

⁸ India has the largest number of U.S. Food and Drug Administration-approved manufacturing plants outside of the United States; this number has increased significantly over the past two years. Directories Today, “Industry Overview: Drugs and Pharmaceuticals,” undated (accessed March 26, 2009).

⁹ Zale Co., “Zale Reports Second Quarter Fiscal 2009 Results,” February 25, 2009.

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Japan

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Change in 2008 from 2007:

U.S. trade deficit: Decreased by \$9.2 billion (11 percent) to \$77.7 billion

U.S. exports: Increased by \$3.3 billion (6 percent) to \$61.4 billion

U.S. imports: Decreased by \$5.8 billion (4 percent) to \$139.1 billion

U.S. merchandise trade with Japan decreased by \$2.5 billion (1 percent) to \$200.5 billion in 2008. The U.S. trade deficit with Japan decreased by \$9.2 billion to \$77.7 billion as a result of a \$3.3-billion increase in U.S. exports to Japan and a \$5.8-billion decrease in U.S. imports from Japan (table JA.1). Japan was the fifth-largest market for U.S. merchandise exports (after the EU, Canada, Mexico, and China) and the fourth-largest source of U.S. imports (after China, Canada, and Mexico).

Although the U.S. and Japanese economies were both contracting by the end of 2008, U.S. exports to Japan grew. The contraction was offset by the appreciation of the Japanese yen relative to the U.S. dollar.¹ In addition, the U.S. merchandise trade deficit with Japan decreased due to the higher prices of U.S. commodity exports in the agriculture, chemicals, and energy-related markets. In 2008, approximately 44 percent of all U.S. exports to Japan occurred within these market sectors.

U.S. Exports

U.S. exports to Japan rose by \$3.3 billion (6 percent) to \$61.4 billion in 2008, with export growth found principally in the agricultural products, chemicals and related products, and energy-related products sectors. U.S. exports in five categories—cereals; petroleum products; swine and pork; fertilizers; and coal, coke, and related chemical products—registered the most significant increases (table JA.2). Although these categories represented only 15 percent of total U.S. exports to Japan, they represented an increase of \$3.5 billion.

U.S. exports of agricultural products to Japan increased by \$3.0 billion (25 percent) to \$14.7 billion, of which exports of cereals (primarily wheat and corn) rose by \$2.1 billion (56 percent).² The increase in the value of cereal exports is largely attributable to rising

¹ From 2007 to 2008, the U.S. dollar depreciated relative to the Japanese yen by approximately 12 percent in nominal terms. Board of Governors of the Federal Reserve System, “Foreign Exchange Rates (Annual),” January 2, 2009.

² See the Agricultural Products chapter for more detail.

TABLE JA.1 Japan: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by major industry/commodity sectors, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Agricultural products	10,087	9,840	10,342	11,750	14,715	2,966	25.2
Forest products	1,963	1,907	1,964	1,859	2,019	160	8.6
Chemicals and related products	7,153	7,797	8,383	8,847	9,911	1,064	12.0
Energy-related products	1,744	1,394	1,348	1,556	2,286	730	46.9
Textiles and apparel	592	649	629	544	548	4	0.8
Footwear	27	27	28	33	53	19	58.5
Minerals and metals	1,955	2,385	3,221	4,094	3,995	-98	-2.4
Machinery	4,575	4,526	5,151	4,877	4,251	-626	-12.8
Transportation equipment	8,120	8,630	9,611	10,556	10,655	99	0.9
Electronic products	11,236	10,967	11,538	10,794	9,791	-1,003	-9.3
Miscellaneous manufactures	1,501	1,728	2,034	1,915	1,862	-53	-2.8
Special provisions	1,540	1,650	1,346	1,271	1,348	78	6.1
Total	50,493	51,499	55,596	58,096	61,435	3,339	5.7
U.S. imports of merchandise for consumption:							
Agricultural products	503	540	573	601	685	84	14.0
Forest products	683	692	649	648	642	-6	-0.9
Chemicals and related products	10,684	11,100	10,739	11,065	11,315	251	2.3
Energy-related products	225	534	970	1,191	601	-590	-49.6
Textiles and apparel	964	730	737	784	765	-19	-2.4
Footwear	2	3	2	2	3	1	27.0
Minerals and metals	4,724	5,013	5,871	5,780	5,996	216	3.7
Machinery	16,810	18,333	19,455	17,146	17,094	-52	-0.3
Transportation equipment	57,126	62,745	71,493	69,851	65,691	-4,161	-6.0
Electronic products	32,023	31,512	30,838	31,542	30,734	-808	-2.6
Miscellaneous manufactures	1,906	2,474	2,026	1,969	1,835	-134	-6.8
Special provisions	3,886	4,155	4,718	4,349	3,752	-597	-13.7
Total	129,535	137,831	148,071	144,928	139,112	-5,816	-4.0
U.S. merchandise trade balance:							
Agricultural products	9,583	9,301	9,769	11,149	14,030	2,882	25.8
Forest products	1,280	1,214	1,315	1,212	1,377	166	13.7
Chemicals and related products	-3,531	-3,304	-2,356	-2,218	-1,404	814	36.7
Energy-related products	1,519	859	378	365	1,685	1,320	361.1
Textiles and apparel	-371	-81	-108	-240	-217	23	9.7
Footwear	25	24	26	31	50	19	60.5
Minerals and metals	-2,770	-2,628	-2,650	-1,687	-2,001	-314	-18.6
Machinery	-12,234	-13,807	-14,304	-12,269	-12,843	-574	-4.7
Transportation equipment	-49,006	-54,115	-61,882	-59,296	-55,036	4,260	7.2
Electronic products	-20,787	-20,545	-19,300	-20,748	-20,943	-195	-0.9
Miscellaneous manufactures	-404	-746	8	-54	27	81	^(b)
Special provisions	-2,346	-2,505	-3,372	-3,079	-2,404	675	21.9
Total	-79,042	-86,333	-92,475	-86,832	-77,677	9,155	10.5

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

Note: Calculations based on unrounded data. Sectors are ordered by the level of processing of the products classified therein.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bNot meaningful for purposes of comparison.

TABLE JA.2 Japan: Leading changes in U.S. exports and U.S. imports, 2004–08^a

Sector/commodity	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. EXPORTS:								
Increases:								
Agricultural products:								
Cereals (AG030)	2,697	2,428	2,895	3,768	5,890	2,122	56.3	
Swine and pork (AG003)	953	1,067	1,015	1,127	1,511	383	34.0	
Energy-related products:								
Petroleum products (EP005)	473	536	512	564	957	393	69.6	
Coal, coke, and related chemical products (EP003) .	416	232	71	57	366	309	541.8	
Fertilizers (CH010)	124	123	142	147	461	314	213.3	
Decreases:								
Semiconductor manufacturing equipment and robotics (MT019)	2,080	1,964	2,302	2,388	1,600	-788	-33.0	
Electronic products:								
Computers, peripherals, and parts (EL017)	2,040	1,871	1,890	1,595	1,081	-514	-32.3	
Semiconductors and integrated circuits (EL015)	1,607	1,281	1,279	1,014	797	-217	-21.4	
Measuring, testing, and controlling instruments (EL025)	1,508	1,405	1,685	1,457	1,349	-108	-7.4	
Aircraft, spacecraft, and related equipment (TE013) ..	4,750	5,182	5,721	6,528	6,247	-281	-4.3	
All other	33,845	35,409	38,082	39,451	41,177	1,726	4.4	
TOTAL	50,493	51,499	55,596	58,096	61,435	3,339	5.7	
U.S. IMPORTS:								
Increases:								
Electronic products:								
Computers, peripherals, and parts (EL017)	6,799	6,536	6,681	7,399	7,878	479	6.5	
Optical goods, including ophthalmic goods (EL020) .	1,366	1,279	1,296	1,264	1,503	239	18.9	
Machinery:								
Electric motors, generators, and related equipment (MT023)	1,113	1,279	1,341	1,425	1,844	420	29.4	
Metal cutting machine tools (MT015)	1,266	1,652	1,926	1,813	2,127	314	17.3	
Steel mill products (MM025)	1,015	1,392	1,886	1,727	2,128	401	23.2	
Decreases:								
Transportation equipment:								
Motor vehicles (TE009)	33,171	35,947	44,609	44,965	42,407	-2,557	-5.7	
Certain motor-vehicle parts (TE010)	8,625	9,003	8,612	8,257	7,339	-918	-11.1	
Petroleum products (EP005)	84	357	808	1,029	320	-708	-68.9	
Consumer electronics (EL003)	7,510	6,909	5,677	5,404	4,823	-581	-10.7	
Semiconductor manufacturing equipment and robotics (MT019)	2,060	2,229	2,701	3,646	3,162	-484	-13.3	
All other	66,526	71,248	72,535	68,000	65,579	-2,420	-3.6	
TOTAL	129,535	137,831	148,071	144,928	139,112	-5,816	-4.0	

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

global prices due to global production falling short of consumption, other exporting nations' imposition of export restrictions on cereals,³ and increased overall demand for corn to produce ethanol.⁴ U.S. exports of swine and pork to Japan rose by \$383 million (34 percent) to \$1.5 billion. The value of Japan's imports of pork from all sources in 2008 increased due to food price inflation and the desire to find an inexpensive alternative to costlier beef imports.⁵ In addition, the U.S. dollar's depreciation relative to the Japanese yen increased the competitiveness of U.S. pork relative to other suppliers.⁶

U.S. exports of energy-related products to Japan increased by \$730 million (47 percent) to \$2.3 billion in 2008. Within that commodity group, U.S. exports of petroleum products to Japan rose by \$393 million (70 percent) to \$957 million. The increase in the value of U.S. exports principally reflects the higher price per barrel for crude petroleum, the feedstock for producing petroleum products. The price per barrel increased from an average of \$68 in 2007 to \$95 in 2008. In addition, U.S. coal, coke, and related chemical products exports rose sharply, by \$309 million (542 percent) to \$366 million. This increase was due to both price and quantity increases. The average price of U.S. coal exports increased from \$88 per short ton in 2007 to \$156 per short ton in 2008. The quantity of U.S. coal exports to Japan increased by approximately 200 percent from 2007 to 2008, primarily in response to a decline in Chinese exports of coal to Japan.⁷

U.S. exports of fertilizers to Japan rose by \$314 million (213 percent) to \$461 million in 2008. This increase was also due primarily to price. In 2008, U.S. fertilizer prices rose significantly due to higher raw material costs and energy prices, as well as increased demand for fertilizer caused by record harvests and record crop prices.⁸

U.S. Imports

Total U.S. merchandise imports from Japan decreased in 2008, and the decrease occurred in most product sectors (table JA.1). The most significant decrease was in the transportation equipment sector. Imports of motor vehicles decreased by \$2.6 billion (6 percent) to \$42.4 billion, and imports of certain motor-vehicle parts decreased by \$918 million (11 percent) to \$7.3 billion (table JA.2). The drop in imports of motor vehicles and parts was due to the appreciation of the yen relative to the U.S. dollar and the downturn in the U.S. economy, which led to the collapse of demand for new cars.⁹

While U.S. imports from Japan decreased overall, imports in certain market sectors increased. U.S. imports of computers, peripherals, and parts from Japan rose by \$479 million (7 percent) to \$7.9 billion; the steady increase is the result of an overall steady growth in U.S. demand for these items. U.S. imports of electric motors, generators, and related equipment from Japan rose by \$420 million (29 percent) to \$1.8 billion. Imports of wind

³ China, a major supplier of corn to Japan, imposed a number of export controls on the commodity throughout 2008. From 2007 to 2008, exports of corn from China to Japan decreased by 710,000 tons.

⁴ USDA, OCE, Written testimony submitted to U.S. Congress Joint Economic Committee, May 1, 2008.

⁵ Obara, *Japan: Livestock and Products; Livestock Annual 2008*, October 1, 2008, 6.

⁶ USDA, FAS, *Livestock, Dairy, and Poultry Outlook*, March 18, 2009, 9.

⁷ See the Energy-related Products chapter for more detail.

⁸ From June 2007 to June 2008, crude petroleum prices increased by more than 98 percent, and natural gas prices increased by more than 65 percent. Huang, "Factors Contributing to the Recent Increase in U.S. Fertilizer Prices, 2002–08." February 2009, 8.

⁹ Domy, "Output Falls 2.5 Million Units," January 12, 2009, 33.

turbines accounted for a large portion of the increase, as U.S. demand for renewable energy and renewable energy-generation equipment increased. New installed U.S. wind energy capacity rose by an estimated 43 percent in 2008.¹⁰ Mitsubishi, a Japanese firm, is one of the world's largest wind turbine producers.

¹⁰ See the section on Certain Motors and Engines in the Transportation Equipment chapter.

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Mexico

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Change in 2008 from 2007:

U.S. trade deficit: Decreased by \$6.0 billion (7 percent) to \$84.8 billion
U.S. exports: Increased by \$12.1 billion (10 percent) to \$131.5 billion
U.S. imports: Increased by \$6.2 billion (3 percent) to \$216.3 billion

The U.S. trade deficit with Mexico, the third-largest trading partner of the United States, declined in 2008 by \$6.0 billion (7 percent) to \$84.8 billion, as export growth outpaced import growth (table MX.1). The increase in U.S. exports to Mexico was driven in part by the value of global commodity prices. The U.S. merchandise trade deficit with Mexico declined due to an expanding Mexican economy and continued phase-in of the North American Free Trade Agreement (NAFTA) that benefitted U.S. exports. The reduction in the U.S. trade deficit with Mexico in 2008 was only the second since 1994 when NAFTA was implemented and the first since 1997. A large proportion of U.S.-Mexican bilateral trade is accounted for by intracompany trade and conducted in U.S. dollars. The Mexican economy has become increasingly intertwined with that of the United States since the implementation of NAFTA and is therefore strongly linked to the U.S. business cycle.

A decrease in U.S. imports of transportation equipment and electronic products, the two largest sectors that accounted for 47 percent of total U.S. imports in 2008, led to the improvement in the trade deficit with Mexico. The decrease in U.S. demand for products in these sectors was largely due to the financial turmoil in the United States during 2008.

U.S. Exports

In 2008, Mexico was the second-largest U.S. export market. U.S. exports to Mexico rose by \$12.1 billion (10 percent) to \$131.5 billion, driven in part by a 1 percent expansion of the Mexican economy in 2008.¹ Leading U.S. export growth sectors were energy-related products, agricultural products, and minerals and metals.

U.S. exports of energy-related products to Mexico consisted largely of petroleum products, the bulk of which were distillate fuel oils and unleaded gasoline. U.S. exports of these products to Mexico increased by \$3.9 billion (69 percent) to \$9.7 billion in 2008.² The increase in value of U.S. petroleum products exported to Mexico was largely the result of global price increases for crude petroleum (the feedstock for petroleum products), which

¹ U.S. Department of State, U.S. Consulate, Monterrey, "Mexican Economists Expect Dismal Economy through 2010," February 23, 2009.

² USDOE, EIA, "Mexico," February 17, 2009.

TABLE MX.1 Mexico: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by major industry/commodity sectors, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
Agricultural products	8,994	9,678	11,066	12,876	16,112	3,237	25.1	
Forest products	3,451	3,860	4,258	4,312	4,837	525	12.2	
Chemicals and related products	15,797	18,122	20,573	21,385	22,882	1,497	7.0	
Energy-related products	3,379	5,508	5,925	7,015	11,329	4,314	61.5	
Textiles and apparel	4,730	4,705	4,551	3,947	3,718	-230	-5.8	
Footwear	60	46	47	44	79	35	80.7	
Minerals and metals	7,958	9,258	11,635	11,896	13,492	1,596	13.4	
Machinery	9,754	11,132	12,121	11,627	12,732	1,106	9.5	
Transportation equipment	16,368	17,370	19,936	21,143	21,365	223	1.1	
Electronic products	17,403	16,649	18,357	18,394	18,246	-148	-0.8	
Miscellaneous manufactures	1,344	1,358	1,665	2,031	1,650	-380	-18.7	
Special provisions	3,781	3,981	4,428	4,711	5,064	353	7.5	
Total	93,018	101,667	114,562	119,381	131,507	12,126	10.2	
U.S. imports of merchandise for consumption:								
Agricultural products	8,189	9,323	10,498	11,360	12,059	699	6.2	
Forest products	1,274	1,420	1,559	1,584	1,457	-127	-8.0	
Chemicals and related products	4,790	5,429	6,347	6,360	6,820	460	7.2	
Energy-related products	18,966	25,029	32,116	33,549	42,626	9,077	27.1	
Textiles and apparel	8,826	8,305	7,497	6,712	5,957	-755	-11.3	
Footwear	242	247	274	248	255	7	3.0	
Minerals and metals	9,623	11,366	13,266	13,877	14,715	838	6.0	
Machinery	13,562	15,500	18,305	20,045	20,074	29	0.1	
Transportation equipment	40,496	42,032	49,028	50,954	47,996	-2,958	-5.8	
Electronic products	38,991	40,221	47,107	53,999	53,228	-771	-1.4	
Miscellaneous manufactures	3,506	3,845	3,953	3,800	3,483	-317	-8.3	
Special provisions	6,493	6,499	7,105	7,671	7,658	-12	-0.2	
Total	154,959	169,216	197,056	210,159	216,328	6,170	2.9	
U.S. merchandise trade balance:								
Agricultural products	805	355	568	1,516	4,053	2,538	167.4	
Forest products	2,177	2,440	2,698	2,728	3,380	652	23.9	
Chemicals and related products	11,007	12,694	14,226	15,025	16,062	1,036	6.9	
Energy-related products	-15,587	-19,522	-26,191	-26,534	-31,297	-4,763	-18.0	
Textiles and apparel	-4,097	-3,600	-2,946	-2,765	-2,239	526	19.0	
Footwear	-183	-201	-227	-204	-176	28	13.6	
Minerals and metals	-1,665	-2,108	-1,631	-1,981	-1,223	758	38.3	
Machinery	-3,808	-4,368	-6,185	-8,418	-7,342	1,077	12.8	
Transportation equipment	-24,128	-24,661	-29,091	-29,811	-26,631	3,181	10.7	
Electronic products	-21,588	-23,572	-28,750	-35,605	-34,981	624	1.8	
Miscellaneous manufactures	-2,162	-2,488	-2,288	-1,769	-1,832	-63	-3.6	
Special provisions	-2,713	-2,518	-2,677	-2,959	-2,594	365	12.3	
Total	-61,941	-67,549	-82,493	-90,778	-84,821	5,957	6.6	

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

Note: Calculations based on unrounded data. Sectors are ordered by the level of processing of the products classified therein.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

rose from an average of \$68 per barrel in 2007 to an average of \$95 per barrel in 2008.³ However, the quantity of U.S. exports of petroleum products to Mexico also increased by approximately 20 percent to 128 million barrels in 2008. Mexico accounted for an average of 20 percent of total U.S. exports of petroleum products during 2007 and 2008.

In 2008, U.S. exports of agricultural products to Mexico rose by \$3.2 billion (25 percent) to \$16.1 billion, largely due to the final stage of NAFTA duty elimination for farm products in January 2008.⁴ Mexico was the second-largest market for U.S. agricultural products in 2008. U.S. exports to Mexico of yellow corn, the leading U.S. agricultural export product to Mexico, rose by \$794 million (56 percent) to \$2.3 billion. Yellow corn is used primarily in animal feed. Another major U.S. agricultural product export to Mexico was winter wheat, which increased from \$397 million (25 percent) to \$1.0 billion in 2008. A growing population and emerging middle class have generated increased demand for U.S. wheat products in Mexico.⁵

U.S. exports of minerals and metals to Mexico increased by \$1.6 billion (13 percent) to \$13.5 billion in 2008. Leading export products included steel mill products for use in the automotive, major household appliances, food processing, chemical, and petroleum and natural gas industries.⁶ The increase in U.S. exports of these products was largely the result of a commercial and residential building boom in Mexico that continued through the first half of 2008.⁷

U.S. Imports

In 2008, the leading U.S. imports by value from Mexico were energy-related products, chemicals and related products, agricultural products, and minerals and metals. Mexico depends on the U.S. market for approximately 80 percent of its total exports, and certain industrial sectors of the two nations are closely integrated.

U.S. imports of energy-related products from Mexico increased by \$9.1 billion (27 percent) to \$42.6 billion in 2008. The rise in the value of these imports from Mexico was due in large part to global price increases for crude petroleum, rather than increased import quantities. In 2008, the United States imported 433 million barrels of crude petroleum from Mexico, of which 97 percent went to the Gulf Coast of the United States for refining. The United States also imported about 41.8 million barrels of refined petroleum products from Mexico in 2008, the bulk of which consisted of residual fuel oil, naphtha, and unfinished oils.⁸

U.S. imports of chemicals and related products from Mexico rose by \$460 million (7 percent) to \$6.8 billion in 2008, despite the continued depreciation of the U.S. dollar vis-à-vis the Mexican peso during the first half of 2008. Major worldwide increases in the prices of natural gas and naphtha (produced from crude petroleum), used as a primary component

³ See the Energy-related Products chapter of this report for more detailed information.

⁴ On January 1, 2008, Mexico eliminated the remaining tariffs and tariff-rate quotas on corn, dry beans, nonfat dry milk, and sweeteners. Grupo Financiero BanaMex, "Review of the Economic Situation of Mexico," February 2008.

⁵ Latzke, "Mexico's Population Offers Opportunity for U.S. Wheat Exports," May 15, 2008, 1.

⁶ *Purchasing*, "U.S. Steel Exports Increased in January," March 29, 2008.

⁷ Robinson, "A Soft Dollar Serves Up the World Market for U.S. Mills," June 2008.

⁸ According to official statistics of the U.S. Department of Energy, Mexico was the seventh-largest crude petroleum producer in the world in 2008.

of nitrogen-based fertilizers, accounted for the majority of the increase in value of chemical products imported from Mexico. In 2008, strong U.S. demand for anhydrous ammonia fertilizers, used by farmers to maximize production of corn, cotton, rice, and other crops, led to an increase of \$211 million (290 percent) in U.S. imports of fertilizers from Mexico, to \$284 million.⁹

U.S. imports of agricultural products from Mexico, which largely consisted of tropical fruit, vegetables, other fresh fruit, pasta, cereals, and other bakery goods, increased by \$699 million (6 percent) to \$12.1 billion in 2008. The increase in value of U.S. agricultural imports continued to reflect price advantages and preferential access for Mexican products under NAFTA.¹⁰

U.S. imports of minerals and metals from Mexico increased by \$838 million (6 percent) to \$14.7 billion. Imports of steel mill products for use in the automotive, major household appliance, food processing, and chemical industries grew by the largest amount, increasing by \$832 million (34 percent) to \$3.3 billion (table MX.2). The U.S. energy development and production markets were strong in 2008, which increased demand for carbon and alloy steel pipe and tube products. Imports of these products increased by 18 percent in 2008, following comparable increases in the three previous years and bucking the trend of reduced imports for most iron and steel mill products.¹¹

⁹ Brandon, "High Natural Gas Costs Bring Increased Fertilizer Imports," March 10, 2008.

¹⁰ USDA, FAS, "Factsheet: North American Free Trade Agreement (NAFTA)," January 2008, 1.

¹¹ Haflich, "Mexico Steel: No Bull in the China Shop," February 6, 2008.

TABLE MX.2 Mexico: Leading changes in U.S. exports and U.S. imports, 2004–08^a

Sector/commodity	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. EXPORTS:							
Increases:							
Petroleum products (EP005)	2,799	4,781	5,024	5,725	9,672	3,947	68.9
Agricultural products:							
Cereals (AG030)	1,695	1,553	2,038	2,711	4,078	1,367	50.5
Oilseeds (AG032)	853	917	1,000	1,256	1,874	618	49.2
Steel mill products (MM025)	1,338	1,690	1,998	2,189	3,022	833	38.1
All other	86,333	92,725	104,503	107,500	112,861	5,361	5.0
TOTAL	93,018	101,667	114,562	119,381	131,507	12,126	10.2
U.S. IMPORTS:							
Increases:							
Energy-related products:							
Crude petroleum (EP004)	17,186	22,364	29,195	29,848	37,629	7,782	26.1
Petroleum products (EP005)	1,698	2,500	2,697	3,243	4,677	1,435	44.2
Telecommunications equipment (EL002)	5,913	5,645	7,123	8,961	10,535	1,574	17.6
Steel mill products (MM025)	2,410	2,600	2,437	2,426	3,257	832	34.3
Decreases:							
Transportation equipment:							
Certain motor-vehicle parts (TE010)	14,005	15,219	16,791	18,215	16,213	-2,001	-11.0
Motor vehicles (TE009)	19,116	18,521	23,548	23,300	22,205	-1,095	-4.7
Consumer electronics (EL003)	10,034	12,213	16,549	20,826	19,717	-1,108	-5.3
Apparel (TX005)	6,944	6,322	5,530	4,708	4,214	-494	-10.5
All other	77,653	83,831	93,185	98,633	97,880	-754	-0.8
TOTAL	154,959	169,216	197,056	210,159	216,328	6,170	2.9

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

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Russia

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Change in 2008 from 2007:

U.S. trade deficit: Increased by \$5.3 billion (43 percent) to \$17.8 billion

U.S. exports: Increased by \$2.3 billion (34 percent) to \$8.9 billion

U.S. imports: Increased by \$7.6 billion (40 percent) to \$26.7 billion

U.S. merchandise trade with Russia, the 22nd-largest individual trading partner, increased by \$9.8 billion (38 percent) to \$35.7 billion in 2008. The U.S. merchandise trade deficit with Russia rose by 43 percent to \$17.8 billion, the highest level of the 2004–08 period (table RU.1). Transportation equipment, agricultural products, and machinery contributed to the \$2.3-billion (34 percent) increase in U.S. exports to Russia in 2008. However, higher prices for imported crude petroleum, due to higher world energy prices, accounted for most of the \$7.6-billion increase in the value of U.S. imports from Russia in 2008, which outpaced the growth in exports.

Russia's GDP grew by 6 percent in 2008, despite a downturn in the second half of the year that was due to a decline in crude petroleum prices, the global financial crisis, corporate governance concerns, and military conflict with Georgia.¹ Russia's total imports from all countries grew by 35 percent in 2008, as a result of strong economic growth in the first half of the year.² In early October 2008, the government implemented a stimulus plan worth \$220 billion to support the financial sector, consumers, and industry.³

Historically, Russia's export performance has depended heavily on commodity prices, especially the price for crude petroleum.⁴ Despite volatile swings in 2008 and a pronounced dip in the last quarter, average commodity prices achieved new heights that year. As a result, U.S. imports from Russia increased in value disproportionately to their minor volume changes, and the bilateral trade deficit widened. Although the ruble appreciated slightly in the first two quarters of the year, by the end of 2008 it had depreciated 12 percent against the dollar.⁵

¹ CIA, "Russia," undated (accessed March 26, 2009).

² GTIS, World Trade Atlas Database.

³ CIA, "Russia," undated (accessed March 26, 2009).

⁴ U.S. Department of State, Bureau of European and Eurasian Affairs, "Background Note: Russia," July 2008.

⁵ IMF, International Financial Statistics Database.

TABLE RU.1 Russia: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by major industry/commodity sectors, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
Agricultural products	830	991	883	1,367	1,865	498	36.4
Forest products	20	34	30	50	77	26	52.7
Chemicals and related products	231	295	408	577	762	185	32.0
Energy-related products	26	81	48	84	116	33	39.2
Textiles and apparel	63	74	69	62	101	39	63.4
Footwear	2	3	3	4	2	-3	-59.7
Minerals and metals	90	91	136	162	338	176	109.0
Machinery	443	629	767	1,481	1,831	350	23.6
Transportation equipment	556	939	1,207	1,997	2,892	895	44.8
Electronic products	404	416	574	706	735	29	4.1
Miscellaneous manufactures	76	90	74	141	190	49	34.8
Special provisions	13	14	15	51	28	-23	-44.5
Total	2,755	3,657	4,215	6,681	8,936	2,255	33.8
U.S. imports of merchandise for consumption:							
Agricultural products	317	416	507	585	456	-129	-22.1
Forest products	217	223	177	165	142	-22	-13.6
Chemicals and related products	810	1,026	1,254	1,360	2,686	1,327	97.6
Energy-related products	4,935	8,471	10,195	11,234	17,313	6,079	54.1
Textiles and apparel	335	95	59	12	9	-3	-27.8
Footwear	2	3	3	2	1	(^b)	-28.3
Minerals and metals	4,679	4,687	6,915	5,207	5,344	137	2.6
Machinery	22	21	28	43	43	(^b)	-0.3
Transportation equipment	69	132	140	161	123	-38	-23.8
Electronic products	50	63	64	67	85	18	26.7
Miscellaneous manufactures	164	99	122	201	367	166	83.0
Special provisions	37	117	179	107	152	45	41.5
Total	11,637	15,353	19,642	19,143	26,721	7,578	39.6
U.S. merchandise trade balance:							
Agricultural products	513	576	376	782	1,409	627	80.2
Forest products	-196	-189	-147	-115	-66	49	42.6
Chemicals and related products	-578	-731	-845	-783	-1,925	-1,142	-145.9
Energy-related products	-4,910	-8,390	-10,147	-11,150	-17,197	-6,047	-54.2
Textiles and apparel	-273	-20	10	50	92	42	85.4
Footwear	-1	(^b)	(^b)	3	1	-2	-79.5
Minerals and metals	-4,589	-4,596	-6,779	-5,045	-5,007	39	0.8
Machinery	421	608	739	1,438	1,788	350	24.3
Transportation equipment	487	806	1,068	1,836	2,770	934	50.9
Electronic products	354	353	510	639	650	11	1.8
Miscellaneous manufactures	-87	-9	-47	-59	-176	-117	-197.8
Special provisions	-24	-102	-164	-57	-124	-67	-118.8
Total	-8,882	-11,695	-15,427	-12,462	-17,785	-5,323	-42.7

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

Note: Calculations based on unrounded data. Sectors are ordered by the level of processing of the products classified therein.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

U.S. Exports

In 2008, transportation equipment, agricultural products, and machinery accounted for nearly three-quarters of U.S. exports to Russia. These three sectors also experienced the largest shifts in 2008, accounting for the majority of the overall increase in U.S. exports to Russia.

U.S. exports of transportation equipment increased by \$895 million (45 percent) to \$2.9 billion, of which \$452 million of the increase was attributable to motor vehicles (table RU.2). The Russian passenger vehicle market has grown rapidly and is forecast to be the largest market in Europe by 2012. Foreign automakers have increased their market share in Russia, and currently account for 40 percent of passenger vehicle sales.⁶ U.S. automakers General Motors and Ford are the leading foreign automakers in terms of sales in the Russian market.⁷ U.S. exports of motor-vehicle parts increased by \$107 million (300 percent) to \$143 million in 2008. Many parts are imported for the major European and U.S. automakers with assembly plants in Russia; largely because local production is of lower quality.⁸ Auto body parts accounted for the majority of the increase in U.S. sector exports, likely related to a stipulation in Russian law requiring the localization of painting and welding as a condition for motor vehicle assembly.⁹

U.S. exports of agricultural products to Russia climbed by \$498 million (36 percent) to \$1.9 billion in 2008. In particular, swine and pork exports increased by \$208 million (114 percent) to \$389 million.¹⁰ Strong economic growth in Russia during the first half of 2008 lifted incomes, resulting in increased meat consumption. The domestic industry has not been able to supply sufficient pork to satisfy demand. On a quantity basis, Russian pork imports from all sources increased by roughly 13 percent in 2008, and the United States accounted for the majority of these products. The volume of imports of pork and pork products from the United States nearly doubled in 2008. Although Russia's leading suppliers of agricultural imports are the EU and Brazil, U.S. producers benefitted from a depreciation of the dollar, relative to the euro and the real, against the ruble during the first three quarters of the year.

U.S. exports of farm and garden equipment, a component of the machinery products sector, rose by 63 percent to \$761 million. The United States was the second-largest supplier of agricultural machinery to Russia in 2008.¹¹ Russia's agricultural machinery market expanded by 68 percent in the first six months of 2008, the largest increase in the last 10 years. During this period, overall Russian imports of agricultural machinery totaled \$2.0 billion, a 55 percent increase over 2007. Market drivers were higher food prices and a government initiative to help local agricultural companies and farmers replace tractors and combines.¹² Tractors accounted for approximately half (47 percent) of U.S. exports to Russia in the agricultural machinery sector.

⁶ McClellan, "BRIC Nations Battered," November 2008, 36.

⁷ Ibid.

⁸ US&FCS and U.S. Department of State, *Doing Business in Russia*, 2008.

⁹ *Kommersant* (Russia), "New Procedure for Auto Parts Imports," November 3, 2006, 3.

¹⁰ See the Swine and Pork section of the Agricultural Products chapter for more detail.

¹¹ US&FCS and U.S. Department of State, *Doing Business in Russia*, 2008.

¹² Ibid.

TABLE RU.2 Russia: Leading changes in U.S. exports and U.S. import, 2004–08^a

Sector/commodity	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. EXPORTS:							
Increases:							
Transportation equipment:							
Motor vehicles (TE009)	133	253	367	712	1,164	452	63.6
Construction and mining equipment (TE004)	287	448	464	560	757	196	35.0
Farm and garden machinery and equipment (MT009)	82	174	207	468	761	293	62.6
Swine and pork (AG003)	37	59	145	182	389	208	114.1
Decreases:							
Computers, peripherals, and parts (EL017)	155	138	168	160	108	-52	-32.5
Machinery:							
Semiconductor manufacturing equipment and robotics (MT019)	9	11	19	64	24	-40	-62.3
Electric motors, generators, and related equipment (MT023)	8	34	32	219	191	-28	-12.7
Miscellaneous machinery (MT030)	52	66	111	197	170	-26	-13.4
All other	1,993	2,474	2,702	4,120	5,372	1,252	30.4
TOTAL	2,755	3,657	4,215	6,681	8,936	2,255	33.8
U.S. IMPORTS:							
Increases:							
Energy-related products:							
Petroleum products (EP005)	2,929	5,741	7,392	8,238	12,838	4,600	55.8
Crude petroleum (EP004)	818	1,500	1,271	1,524	2,974	1,450	95.2
Fertilizers (CH010)	330	350	444	716	1,913	1,197	167.1
Minerals and metals:							
Precious metals and non-numismatic coins (MM020)	476	565	699	832	1,263	431	51.8
Steel mill products (MM025)	1,195	860	1,763	661	976	315	47.7
Decreases:							
Minerals and metals:							
Unwrought aluminum (MM037)	1,633	1,586	1,691	1,200	800	-400	-33.4
Certain base metals and chemical elements (MM041)	472	515	951	1,098	818	-279	-25.5
Copper and related articles (MM036)	142	389	742	357	199	-158	-44.3
All other	3,641	3,848	4,689	4,517	4,940	423	9.4
TOTAL	11,637	15,353	19,642	19,143	26,721	7,578	39.6

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

U.S. Imports

In 2008, increases in U.S. imports of energy-related products and chemicals and related products were largely responsible for the significant growth in U.S. imports from Russia. Imports from both of these sectors increased by more than 50 percent and more than \$1.0 billion.

U.S. imports of energy-related products exhibited the largest sectoral gain in 2008, rising \$6.1 billion (table RU.2). Petroleum products and crude petroleum accounted for nearly 60 percent of U.S. imports from Russia by value in 2008. Imports of petroleum products increased by \$4.6 billion (56 percent) to \$12.8 billion, and crude petroleum imports rose by \$1.5 billion (95 percent) to \$3.0 billion. However, the bulk of these increases reflect a steep rise in the price of crude petroleum during 2008.¹³ By volume, Russia accounted for less than 0.05 percent of total U.S. imports of crude petroleum and the quantity of U.S. imports of crude petroleum from Russia increased by less than 2 percent, from 41 million barrels in 2007 to 42 million barrels in 2008. The quantity of U.S. imports of refined petroleum products from Russia increased by 16 percent, from 110 million barrels in 2007 to 128 million barrels in 2008, largely in response to the shutting down of several U.S. refineries for routine and weather-related maintenance.¹⁴

U.S. imports of chemicals and related products from Russia, primarily fertilizer, rose 98 percent in 2008, to \$2.7 billion. U.S. imports of fertilizers increased by \$1.2 billion (167 percent) to \$1.9 billion, mainly due to the price for anhydrous ammonia, which increased significantly in 2008.¹⁵ Natural gas is a feedstock of ammonia, and as the price of all fossil fuels increased in 2008, so did the price of anhydrous ammonia, a key component of fertilizers. Russia was the second-largest supplier of anhydrous ammonia to the United States in 2008, accounting for 19 percent of U.S. anhydrous ammonia imports that year. U.S. imports of anhydrous ammonia from Russia amounted to \$760 million in 2008, an increase of 60 percent over 2007; however, the volume of imports dropped from 1.6 million metric tons in 2007 to 1.4 million metric tons in 2008.

¹³ The price per barrel for crude petroleum increased from \$68 per barrel during 2007 to \$95 per barrel in 2008; during several months in 2008, the world price for crude rose above \$130 per barrel. See the Energy-related Products chapter for more detail.

¹⁴ See the Petroleum Products section of Energy-related Products chapter for more detail.

¹⁵ See the Fertilizers section of Chemicals and Related Products chapter for more detail.

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Part III: Commodities

This part of the report examines shifts in trade for each of the 10 merchandise sectors. In addition to the sectors, 20 industries, subsets of the sectors, are examined in greater detail. These industries were selected because a shift in imports, exports, or the balance of trade from 2007 to 2008, both on an absolute and percentage basis, exceeded both \$1.0 billion and 50 percent.

Agricultural Products¹

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Change in 2008 from 2007:

U.S. trade surplus: Increased by \$16.9 billion (214 percent) to \$24.8 billion
U.S. exports: Increased by \$25.0 billion (26 percent) to \$121.1 billion
U.S. imports: Increased by \$8.1 billion (9 percent) to \$96.2 billion

The increase in U.S. agricultural exports was approximately three times greater than the increase in imports, resulting in a 214 percent increase in the U.S. trade surplus in agricultural products, to \$24.8 billion in 2008 (table AG.1). The increase in U.S. agricultural exports in 2008 was led by cereals, oilseeds, animal feeds, swine and pork, and animal or vegetable fats and oils (table AG.2).² As in 2007, cereals registered the largest absolute increase among U.S. agricultural exports in 2008. Higher prices in 2008, compared to 2007 resulted in an increased value of cereal exports, as well as other agricultural commodity exports. Moreover, U.S. agricultural exports were helped in the first half of the year by the depreciation of the U.S. dollar against other major currencies.³ The U.S. dollar's depreciation was a major driver of U.S. agricultural trade growth and helped offset the impact of higher transportation costs and the slowing of world economic growth.⁴

The increase in U.S. agricultural imports in 2008 was led by imports of animal or vegetable fats and oils; cereals; coffee and tea; and cocoa, chocolate, and confectionery. Animal or vegetable fats and oils and cereals registered the largest absolute increase. Higher prices of many agricultural products resulted in the increased value of U.S. imports.

U.S. Exports

U.S. exports of agricultural products rose by \$25.0 billion (26 percent) to \$121.1 billion in 2008. The four leading markets for U.S. agricultural exports in 2008 were Canada, Mexico, China, and Japan, which together accounted for 50 percent of the total (table AG.1). Exports to Canada, Mexico, China, and Japan increased by \$2.4 billion (16 percent), \$3.2 billion (25 percent), \$3.8 billion (43 percent), and \$3.0 billion (25 percent), respectively.

The largest absolute trade shift among agricultural product exports in 2008 was the \$7.8-billion (37 percent) increase in U.S. exports of cereals (table AG.2). About 87 percent of the \$28.6 billion in U.S. cereal exports consisted of corn and wheat. In 2008, U.S. corn exports increased by \$3.7 billion (38 percent), and wheat exports, by \$3.0 billion (36 percent).

¹ Agricultural products include, but are not limited to, cereals, dairy, fruit, vegetables, processed foods, meat, livestock, seeds, beverages, fish, wool, cotton, and hides.

² Trade statistics for all industry/commodity groups in this sector are presented in app. B, table B.1.

³ USDA, ERS, *Outlook for U.S. Agricultural Trade*, December 1, 2008, 2.

⁴ *Ibid.*, August 28, 2008, 2.

TABLE AG.1 Agricultural products: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Canada	10,111	11,151	12,514	14,882	17,241	2,359	15.9
Mexico	8,994	9,678	11,066	12,876	16,112	3,237	25.1
China	5,879	5,648	7,264	8,981	12,811	3,830	42.7
Japan	10,087	9,840	10,342	11,750	14,715	2,966	25.2
Korea	2,863	2,646	3,279	3,904	5,859	1,956	50.1
Italy	697	777	736	918	1,027	110	11.9
France	520	573	632	686	764	78	11.4
Indonesia	920	950	1,100	1,531	2,222	692	45.2
Netherlands	1,220	1,260	1,789	1,680	1,973	293	17.4
Thailand	719	687	717	919	1,082	163	17.7
All other	24,898	25,487	27,485	37,916	47,269	9,354	24.7
Total	66,908	68,698	76,924	96,041	121,077	25,036	26.1
EU-27	7,997	8,160	8,704	10,210	11,527	1,318	12.9
OPEC	2,389	2,581	2,847	4,334	6,592	2,258	52.1
Latin America	14,249	15,157	17,502	21,446	28,188	6,743	31.4
CBERA	1,139	1,193	1,324	1,624	2,225	601	37.0
Asia	26,035	25,594	29,015	35,321	46,987	11,667	33.0
Sub-Saharan Africa	1,408	1,508	1,349	1,967	2,655	688	35.0
Central and Eastern Europe	362	402	317	328	453	125	38.1
U.S. imports of merchandise for consumption:							
Canada	14,130	14,963	16,128	17,919	20,691	2,772	15.5
Mexico	8,189	9,323	10,498	11,360	12,059	699	6.2
China	2,925	3,365	4,303	4,945	5,588	644	13.0
Japan	503	540	573	601	685	84	14.0
Korea	296	330	343	363	391	29	7.9
Italy	2,640	2,927	3,173	3,464	3,645	181	5.2
France	2,723	2,935	3,277	3,723	3,713	-10	-0.3
Indonesia	1,264	1,467	1,580	1,656	2,175	520	31.4
Netherlands	2,079	2,044	2,293	2,472	2,370	-103	-4.2
Thailand	2,116	2,291	2,742	2,830	3,258	428	15.1
All other	30,148	32,865	36,546	38,803	41,662	2,859	7.4
Total	67,012	73,050	81,456	88,136	96,238	8,102	9.2
EU-27	13,913	14,871	16,220	17,558	17,569	11	0.1
OPEC	1,307	1,413	1,475	1,516	1,591	74	4.9
Latin America	20,092	22,876	26,589	28,109	29,943	1,834	6.5
CBERA	548	614	752	782	949	167	21.4
Asia	11,369	12,421	14,418	15,931	19,115	3,184	20.0
Sub-Saharan Africa	1,149	1,334	1,285	1,157	1,375	218	18.9
Central and Eastern Europe	494	479	468	509	564	55	10.8

See footnote(s) at end of table.

TABLE AG.1 Agricultural products: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
Canada	-4,019	-3,811	-3,614	-3,037	-3,450	-413	-13.6
Mexico	805	355	568	1,516	4,053	2,538	167.4
China	2,954	2,283	2,961	4,036	7,223	3,187	79.0
Japan	9,583	9,301	9,769	11,149	14,030	2,882	25.8
Korea	2,567	2,316	2,936	3,541	5,468	1,927	54.4
Italy	-1,942	-2,150	-2,437	-2,546	-2,617	-71	-2.8
France	-2,203	-2,361	-2,646	-3,037	-2,949	88	2.9
Indonesia	-343	-517	-479	-125	47	172	^(b)
Netherlands	-859	-785	-504	-792	-397	395	49.9
Thailand	-1,397	-1,604	-2,025	-1,911	-2,176	-265	-13.9
All other	-5,250	-7,378	-9,061	-887	5,607	6,494	^(b)
Total	-104	-4,352	-4,532	7,906	24,839	16,933	214.2
EU-27	-5,916	-6,712	-7,516	-7,348	-6,042	1,306	17.8
OPEC	1,082	1,168	1,373	2,818	5,001	2,183	77.5
Latin America	-5,843	-7,718	-9,087	-6,663	-1,754	4,909	73.7
CBERA	591	579	572	842	1,275	434	51.5
Asia	14,666	13,173	14,597	19,390	27,872	8,483	43.7
Sub-Saharan Africa	259	175	63	810	1,280	470	58.0
Central and Eastern Europe	-132	-77	-151	-181	-111	70	38.6

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bNot meaningful for purposes of comparison.

TABLE AG.2 Agricultural products: Leading changes in U.S. exports and imports, 2004–08^a

Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. EXPORTS:							
Increases:							
Cereals (AG030)	12,683	11,096	13,341	20,860	28,625	7,765	37.2
Oilseeds (AG032)	6,911	6,527	7,172	10,346	15,853	5,507	53.2
Animal feeds (AG013)	4,160	4,535	5,065	6,144	8,467	2,323	37.8
Swine and pork (AG003)	1,866	2,246	2,422	2,709	4,277	1,568	57.9
Animal or vegetable fats and oils (AG033)	1,965	1,808	2,010	2,981	4,475	1,494	50.1
Decreases:							
Milled grains, malts, and starches (AG031)	610	668	858	1,179	840	-339	-28.8
Hides, skins, and leather (AG046)	2,730	2,580	2,755	2,932	2,607	-325	-11.1
Cigarettes (AG045)	1,294	1,200	1,214	1,012	705	-308	-30.4
Sugar and other sweeteners (AG012)	435	538	754	1,074	931	-144	-13.4
Fresh or frozen fish (AG006)	2,357	2,602	2,672	2,706	2,576	-129	-4.8
All other	31,896	34,898	38,662	44,099	51,720	7,622	17.3
TOTAL	66,908	68,698	76,924	96,041	121,077	25,036	26.1
U.S. IMPORTS:							
Increases:							
Animal or vegetable fats and oils (AG033)	2,193	2,294	2,753	3,358	5,261	1,902	56.6
Cereals (AG030)	699	657	963	1,425	2,496	1,071	75.2
Coffee and tea (AG028)	2,560	3,309	3,694	4,173	4,855	683	16.4
Cocoa, chocolate, and confectionery (AG037)	3,627	3,927	3,846	3,882	4,534	652	16.8
Oilseeds (AG032)	335	335	387	572	1,002	430	75.2
Decreases:							
Cattle and beef (AG002)	3,909	4,410	4,443	4,844	4,524	-319	-6.6
Swine and pork (AG003)	1,335	1,314	1,205	1,224	1,021	-203	-16.6
Nonalcoholic beverages, excluding fruit and vegetable juices (AG039)	1,158	1,329	1,769	2,012	1,875	-137	-6.8
Hides, skins, and leather (AG046)	886	896	841	810	688	-122	-15.1
Certain miscellaneous animals and meats (AG001)	1,972	2,128	2,234	2,399	2,279	-120	-5.0
All other	48,338	52,449	59,323	63,437	67,703	4,266	6.7
TOTAL	67,012	73,050	81,456	88,136	96,238	8,102	9.2

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

Oilseeds, chiefly soybeans, registered the second-largest absolute shift in U.S. exports in 2008, increasing by \$5.5 billion (53 percent). Global prices for food commodities, particularly grains and oilseeds, rose rapidly through summer 2008 because of a variety of factors, including insufficient food production to meet demand in developing countries, higher energy costs, and strong demand for biofuels.⁵ Despite the fact that commodity prices began to fall somewhat in the latter part of 2008, the average export unit values for wheat, corn, and soybeans were 45–49 percent greater than in 2007.⁶ While high prices increased the value of U.S. exports in 2008, the quantity of U.S. wheat and corn exports fell by approximately 9 percent and 5 percent, respectively.⁷ By contrast, the volume of U.S. soybeans exports grew by approximately 14 percent, largely because of growing Chinese demand for animal proteins and vegetable oils, as well as China’s decision to expand its food security stocks.⁸

The third-largest absolute shift in U.S. agricultural exports in 2008 was in animal feed, of which seed grains are a major component. Animal feed exports increased by \$2.3 billion (38 percent) to \$8.5 billion in 2008.

The fourth-largest absolute export shift was in swine and pork exports, which increased by \$1.6 billion (58 percent) to \$4.3 billion. Pork accounted for over 99 percent of the total value of these exports, and the volume of pork exports rose by 61 percent.⁹ The rise in pork exports was caused by increased demand, particularly in Japan, China, and Russia, due in part to rising incomes, decreased production in important foreign markets, the depreciation of the U.S. dollar relative to other currencies, and increased U.S. production.¹⁰

U.S. Imports

U.S. agricultural imports rose by \$8.1 billion (9 percent) to \$96.2 billion in 2008. As in each of the previous five years, Canada, at \$20.7 billion, was the largest supplier of agricultural products to the United States, with Mexico second at \$12.1 billion. In 2008, U.S. imports from Canada and Mexico also registered the largest absolute increases at \$2.8 billion (16 percent) and \$699 million (6 percent), respectively. China was the third-largest U.S. supplier and accounted for the third-largest absolute increase in agricultural product imports to the United States. Imports from China rose by \$644 million (13 percent) to \$5.6 billion in 2008. Canada, Mexico, and China together accounted for 40 percent of total U.S. agricultural imports in 2008.

The two largest U.S. import shifts in 2008 were in animal or vegetable fats and oils and cereals, which rose by \$1.9 billion (57 percent) and \$1.1 billion (75 percent), respectively. As with exports, the increase in import values was largely due to higher prices. However, the volume of U.S. imports of animal or vegetable fats and oils and cereals also increased, by approximately 20 percent and 15 percent, respectively.¹¹ This increase was due to a variety

⁵ Trostle, “Fluctuating Food Commodity Prices,” November 2008.

⁶ Compiled from official statistics of the U.S. Department of Commerce.

⁷ For further detail, see the Cereals (Food and Feed Grains) section of this chapter.

⁸ Sanchez, Jiang, and Wu, *China, People’s Republic of: Agricultural Situation, Grain and Oilseeds*, July 31, 2008, 9; USDA, FAS, *Oilseeds: World Market and Trade*, November 2008. For further detail, see the Oilseeds section of this chapter.

⁹ Compiled from official statistics of the U.S. Department of Commerce.

¹⁰ For further detail, see the Swine and Pork section of this chapter.

¹¹ Compiled from official statistics of the U.S. Department of Commerce.

of reasons, including rising U.S. demand for healthier oils, such as canola oil, which is imported from Canada,¹² and the growing use of oils, particularly canola and palm, as a biodiesel feedstock.¹³ Within the cereal category the large increase in the volume of barley imports (65 percent) was due to a need to fill domestic production shortfalls.¹⁴

¹² Menzie, “Global Oilseed Complex Outlook,” October 15, 2008, 26.

¹³ Industry official, telephone interview by Commission staff, March 25, 2009.

¹⁴ Industry official, e-mail message to Commission staff, March 31, 2009.

Cereals (Food and Feed Grains)¹⁵

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Change in 2008 from 2007:

U.S. trade surplus: Increased by \$6.7 billion (34 percent) to \$26.1 billion

U.S. exports: Increased by \$7.8 billion (37 percent) to \$28.6 billion

U.S. imports: Increased by \$1.1 billion (75 percent) to \$2.5 billion

High prices, especially the record high prices in the first half of the year, were the key reason for the growth in the value of U.S. cereal trade during 2008. The U.S. trade surplus in cereals rose by 34 percent, with the increase in the absolute value of exports (\$7.8 billion) rising by significantly more than the increase in the absolute value of imports (\$1.1 billion) (table AG.3). Wheat and corn continued to be the dominant U.S. cereal exports, together accounting for about 87 percent of total 2008 cereal exports by value in 2008.¹⁶ U.S. wheat exports rose by \$3.0 billion (36 percent) to \$11.3 billion, and U.S. corn exports increased by \$3.7 billion (38 percent) to \$13.5 billion. The 75 percent increase in the value of U.S. cereal imports was primarily due to high prices.

U.S. Exports

Among the major markets for cereals, U.S. exports to Japan increased by \$2.1 billion (56 percent) to \$5.9 billion in 2008; to Mexico by \$1.4 billion (51 percent) to \$4.1 billion; and to Korea by \$1.6 billion (130 percent) to \$2.8 billion (table AG.3). Record high wheat and corn prices caused the value of U.S. cereal exports to increase by 37 percent in 2008, even though the quantity of wheat and corn exported declined by 9 percent and 5 percent, respectively.

The value of U.S. wheat and corn exports rose by \$3.0 billion (36 percent) to \$11.3 billion and \$3.7 billion (38 percent) to \$13.5 billion, respectively, in 2008. Wheat and corn prices rose in the first part of the year largely because of greater food demand, increased energy costs, and a depreciated U.S. dollar against other major currencies.¹⁷ Additionally, corn prices also increased because of worldwide growth in demand for biofuels.¹⁸

In the latter part of 2008, wheat and corn prices declined, in part because of the slowing world economy. Additionally, wheat prices fell because of increased production in the Northern Hemisphere and the availability of a large quantity of low-quality wheat available from suppliers such as Russia, Ukraine, and the EU.¹⁹ Corn prices fell in the latter part of 2008 in part because of expectations of a better harvest, as well as concerns about current

¹⁵ Grains include rice, wheat, barley, corn, sorghum, oats, and rye. Milled grain products, such as wheat flour, are not included.

¹⁶ Compiled from official statistics of the U.S. Department of Commerce.

¹⁷ Trostle, "Fluctuating Food Commodity Prices," November 2008.

¹⁸ Ibid.

¹⁹ EIU, "World Food: EIU's Quarterly Grains Outlook," December 5, 2008.

TABLE AG.3 Cereals (AG030): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
Japan	2,697	2,428	2,895	3,768	5,890	2,122	56.3	
Mexico	1,695	1,553	2,038	2,711	4,078	1,367	50.5	
Korea	793	426	943	1,202	2,765	1,563	130.0	
Canada	349	345	355	576	753	177	30.8	
Egypt	768	553	685	1,346	1,240	-106	-7.9	
Taiwan	812	749	747	1,123	1,158	34	3.1	
Colombia	308	355	456	728	966	238	32.7	
Nigeria	390	513	457	653	927	274	41.9	
Venezuela	169	184	177	321	881	561	175.0	
Iraq	51	312	435	516	799	284	55.0	
All other	4,651	3,677	4,150	7,917	9,167	1,251	15.8	
Total	12,683	11,096	13,341	20,860	28,625	7,765	37.2	
EU-27	401	340	257	1,083	927	-155	-14.4	
OPEC	986	1,293	1,462	2,432	3,786	1,354	55.7	
Latin America	3,671	3,500	4,335	6,261	9,396	3,135	50.1	
CBERA	322	331	371	473	753	280	59.2	
Asia	5,320	4,185	5,322	7,174	11,471	4,297	59.9	
Sub-Saharan Africa	776	921	776	1,167	1,550	383	32.8	
Central and Eastern Europe	69	3	2	13	25	12	93.6	
U.S. imports of merchandise for consumption:								
Japan	(b)	(b)	1	1	(b)	(b)	-20.5	
Mexico	11	7	14	41	41	(b)	0.9	
Korea	(b)	(b)	(b)	1	1	(b)	-39.0	
Canada	399	389	622	996	1,872	876	88.0	
Egypt	(b)	(b)	10	9	2	-7	-75.6	
Taiwan	(b)	(b)	(b)	(b)	(b)	(b)	46.7	
Colombia	(b)	0	(b)	(b)	(b)	(b)	203.5	
Nigeria	0	0	0	0	0	0	0.0	
Venezuela	(b)	(b)	(b)	0	0	0	0.0	
Iraq	0	0	0	0	0	0	0.0	
All other	289	260	316	378	580	202	53.4	
Total	699	657	963	1,425	2,496	1,071	75.2	
EU-27	45	48	14	14	51	37	271.0	
OPEC	1	2	2	1	3	1	102.3	
Latin America	23	9	23	47	49	1	3.1	
CBERA	(b)	(b)	(b)	(b)	(b)	(b)	-58.0	
Asia	231	209	291	356	518	162	45.4	
Sub-Saharan Africa	(b)	(b)	(b)	(b)	(b)	(b)	-79.9	
Central and Eastern Europe	(b)	1	(b)	(b)	(b)	(b)	41.4	

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See footnote(s) at end of table.

TABLE AG.3 Cereals (AG030): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—Continued

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
Japan	2,697	2,428	2,894	3,767	5,890	2,122	56.3
Mexico	1,684	1,546	2,025	2,670	4,037	1,367	51.2
Korea	793	426	943	1,201	2,764	1,563	130.1
Canada	-49	-44	-266	-419	-1,118	-699	-166.5
Egypt	768	553	675	1,338	1,238	-100	-7.4
Taiwan	812	749	747	1,123	1,157	34	3.1
Colombia	308	355	456	728	966	238	32.7
Nigeria	390	513	457	653	927	274	41.9
Venezuela	169	184	177	321	881	561	175.0
Iraq	51	312	435	516	799	284	55.0
All other	4,362	3,416	3,833	7,539	8,587	1,049	13.9
Total	11,984	10,439	12,378	19,435	26,129	6,694	34.4
EU-27	356	293	243	1,069	876	-192	-18.0
OPEC	986	1,291	1,460	2,431	3,783	1,352	55.6
Latin America	3,648	3,490	4,312	6,213	9,347	3,134	50.4
CBERA	322	331	371	473	753	280	59.3
Asia	5,089	3,977	5,031	6,818	10,953	4,135	60.6
Sub-Saharan Africa	776	921	776	1,167	1,550	383	32.8
Central and Eastern Europe	68	2	2	12	24	12	94.8

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

and future demand for corn.²⁰ Despite these price declines in late 2008, export values grew year over year, as the average 2008 export unit value for wheat (\$376 per metric ton) exceeded the 2007 average by 48 percent, and the average export unit value for corn (\$251 per metric ton) exceeded the 2007 average by 45 percent.²¹

Although the value of wheat exports rose in 2008, the quantity exported fell by 2.8 million metric tons (mmt) (approximately 9 percent) to 30 mmt. U.S. wheat exports to Egypt and Morocco collectively fell by 1.8 mmt, as the United States lost market share to lower-cost suppliers.²² In Egypt, the United States lost market share primarily to Russia, and in Morocco, principally to European countries.²³ Additionally, the United States lost market share in Morocco because, for most of the year, U.S. preferential access (through tariff-rate quotas) was negated by the Moroccan government's suspension of its wheat import duties.²⁴ Morocco suspended these duties for most of the year in an attempt to keep local prices low at a time when world wheat prices were rising.²⁵ The largest increase in U.S. wheat exports was to Iran increasing from 0 mt to approximately 1.7 mmt.²⁶ For the first time in many years, Iran chose to purchase U.S. wheat because it experienced a serious drought in 2008.²⁷

As with wheat, the quantity of U.S. corn exports decreased in 2008, down by 2.9 mmt (approximately 5 percent) to 54 mmt. The quantity of corn exports declined to large markets such as Egypt (1.3 mmt) and Taiwan (0.9 mmt).²⁸ The United States continued to lose market share in Egypt because of competition from Russia and other suppliers of lower-priced and lower-quality corn.²⁹ U.S. corn exports to Taiwan declined because of reduced corn feed demand, increased local corn production, and the loss of market share to lower-cost competitors.³⁰ Offsetting these losses, U.S. corn exports worldwide in 2008 were helped by declining competition from China and Argentina,³¹ and the comparative attractiveness of U.S. corn in a number of markets.³²

Exports to the three biggest markets for U.S. corn by volume (Japan, Mexico, and Korea) remained constant or grew, with exports to Korea accounting for the largest quantity increase (3.4 mmt or 74 percent). The United States gained market share in Korea primarily because of the reduced competition from China.³³ Additionally in 2008, because of limited worldwide

²⁰ Trostle, "Fluctuating Food Commodity Prices," November 2008.

²¹ Compiled from official statistics of the U.S. Department of Commerce.

²² Ibid.

²³ Guven and Ibrahim, *Egypt: Grain and Feed; Annual 2009*, March 10, 2009, 5; Abdelali, *Morocco: Grain and Feed; Annual 2009*, March 3, 2009, 3.

²⁴ Abdelali, *Morocco: Grain and Feed; Morocco Eliminates Non-durum Wheat Import Duty 2008*, August 26, 2008, 2; Abdelali, *Morocco: Grain and Feed; Annual 2009*, March 3, 2009, 3, 7, 9, and 10.

²⁵ Abdelali, *Morocco: Grain and Feed; Annual 2009*, March 3, 2009, 3.

²⁶ Compiled from official statistics of the U.S. Department of Commerce.

²⁷ USDA, FAS, *World Agricultural Production*, July 2008, 1; EIU, *Country Report: Iran*, September 14, 2008; and Paul, "Wheat May Cause Iran-U.S. Thaw," August 21, 2008.

²⁸ Compiled from official statistics of the U.S. Department of Commerce.

²⁹ Guven and Ibrahim, *Egypt: Grain and Feed; Annual 2009*, March 10, 2009, 4–5.

³⁰ Perng, *Taiwan: Grain and Feed; Annual 2008*, August 14, 2008, 4.

³¹ Choi and Francom, *Korea, Republic of: Grain and Feed; Annual 2008*, May 2, 2008, 9; Wilder and Pirvano, *Argentina: Grain and Feed; Lock-Up 2008*, July 13, 2008, 3. China established export controls to keep corn in the country, and Argentina reinstated an export tax on corn in July 2008, as well as put in place new requirements for exporters that made it more complicated to export.

³² USDA, ERS, *Outlook for U.S. Agricultural Trade*, May 29, 2008, 3; Wilder and Pirvano, *Argentina: Grain and Feed; Lock-Up 2008*, July 31, 2008, 3.

³³ Francom and Choi, *Korea, Republic of: Grain and Feed*, April 4, 2008, 2; Choi and Francom, *Korea, Republic of: Grain and Feed; Annual 2008*, May 2, 2008, 9; and Choi and Francom, *Korea, Republic of: Grain and Feed; Semi-Annual 2008*, November 3, 2008, 11.

corn supplies, Korea imported genetically modified corn from the United States for the first time.³⁴

U.S. Imports

Similar to cereal exports, U.S. cereal imports increased by \$1.1 billion (75 percent) to \$2.5 billion in 2008, largely due to high prices rather than a large volume increase. In 2008, cereal imports by volume increased by approximately 15 percent. U.S. imports of the major grains showed slower growth in terms of volume (i.e., wheat by 6 percent and oats by 14 percent) or declined (i.e., rice by 7 percent).³⁵ The largest cereal imports in 2008 were wheat, rice, and oats, which together accounted for 85 percent of the total value³⁶ and 80 percent of the total volume of U.S. cereal imports.³⁷

Primarily because of the rise in prices in 2008, imports from Canada increased by \$876 million (88 percent) to \$1.9 billion. Based on quantity, cereal imports from Canada rose by only approximately 17 percent. By value, Canada supplied 75 percent of all U.S. grain imports in 2008³⁸ and was the near-exclusive supplier of U.S. imports of wheat, oats, and barley.³⁹ Among grain imports from Canada, the quantity of barley (primarily malting barley) imported increased substantially, by 66 percent.⁴⁰ U.S. barley production shortfalls likely accounted for the increased imports from Canada in 2008.⁴¹

Rice imports increased by \$160 million (42 percent) to \$545 million in 2008. However, the volume of rice imports decreased by approximately 51,000 metric tons (7 percent) to 632,000 metric tons. Rice prices were pushed higher by global shortages, which were caused in part by rice export bans and other restrictive measures such as export taxes imposed by countries such as India, Vietnam, and Egypt, in an attempt to reduce domestic rice prices. The United States, imported rice primarily from Thailand, which accounted for 61 percent of the value and 69 percent of the volume of total imports.⁴² In 2008, the value of rice imports from Thailand grew by 54 percent and the volume, by 15 percent. The bulk of U.S. rice imports was aromatic varieties, such as jasmine from Thailand and basmati from India.⁴³ In 2008, rice imports from Thailand grew because the primary U.S. consumers of aromatic rices are disinclined to switch to other rice varieties as prices rise, due to taste preferences. Unlike other countries, Thailand did not place restrictions or bans on its rice exports.⁴⁴ Rice import volumes from India declined by 21 percent because of rice export

³⁴ Choi and Francom, *Korea, Republic of: Grain and Feed; Annual 2008*, May 2, 2008, 9.

³⁵ Compiled from official statistics of the U.S. Department of Commerce.

³⁶ Wheat represents approximately 43 percent, rice approximately 22 percent, and oats approximately 20 percent. Compiled from official statistics of the U.S. Department of Commerce.

³⁷ Wheat represents approximately 38 percent, rice approximately 10 percent, and oats approximately 33 percent. Compiled from official statistics of the U.S. Department of Commerce.

³⁸ By value, Canadian wheat accounted for approximately 55 percent (\$1.0 billion), oats accounted for 27 percent (\$503 million), and barley, 11 percent (\$210 million) of total imports. Compiled from official statistics of the U.S. Department of Commerce.

³⁹ By both quantity and value, at least 95 percent of imports of each of these three cereals was supplied by Canada. Compiled from official statistics of the U.S. Department of Commerce.

⁴⁰ Compiled from official statistics of the U.S. Department of Commerce.

⁴¹ Industry official, e-mail message to Commission staff, March 31, 2009.

⁴² Compiled from official statistics of the U.S. Department of Commerce.

⁴³ USDA, ERS, "U.S. Rice Industry," April 30, 2008.

⁴⁴ *Ibid.*; Prasertsri, *Thailand: Grain and Feed; Annual 2008*, March 20, 2008, 5; and Prasertsri, *Thailand: Grain and Feed; Annual 2009*, March 16, 2009, 5.

restrictions, which included bans and export taxes depending on the type of rice.⁴⁵ By value, however, rice imports from India still grew by 65 percent, and India was the second-largest supplier of rice, accounting for 23 percent of the value of imports and 13 percent of the volume.⁴⁶

⁴⁵ USDA, ERS, "U.S. Rice Industry," April 30, 2008; Govindan, *India: Grain and Feed; Update 2009*, January 14, 2009, 1; and Govindan, *India: Agricultural Situation Weekly Highlights*, September 26, 2008, 2.

⁴⁶ Compiled from official statistics of the U.S. Department of Commerce.

Change in 2008 from 2007:

U.S. trade surplus: Increased by \$5.1 billion (52 percent) to \$14.9 billion

U.S. exports: Increased by \$5.5 billion (53 percent) to \$15.9 billion

U.S. imports: Increased by \$430 million (75 percent) to \$1.0 billion

High global oilseed prices, especially through summer 2008, and continued strong import demand from China led to the \$5.1-billion (52 percent) rise in the U.S. trade surplus in oilseeds in 2008 (table AG.4). The value of U.S. oilseed exports increased by \$5.5 billion (53 percent), while the quantity exported increased by only about 13 percent. Similarly, the value of U.S. oilseed imports increased by \$430 million (75 percent), while the quantity imported increased more slowly (21 percent).⁴⁸

Agricultural commodity prices in general, including soybean prices, rose in the first half of 2008, in part because of greater global food demand, especially China's demand for soybeans; increased energy costs; and a declining U.S. dollar relative to other major currencies.⁴⁹ Growing demand for biofuels worldwide also contributed to higher prices for biofuel feedstocks, such as soybeans and rapeseed.⁵⁰ In the latter part of 2008, prices declined (although they were still high compared with 2007) because of lower fuel prices,⁵¹ the global economic slowdown, and good weather that raised expectations of a larger harvest.⁵²

U.S. Exports

Soybeans were the largest component of the oilseeds group and accounted for approximately \$15.5 billion (98 percent) of the value of U.S. oilseed exports. The value of U.S. soybean exports increased by approximately 55 percent in 2008, substantially greater than the approximately 14 percent increase in volume. The value of exports increased because global soybean prices continued to rise steadily from May 2007 through July 2008, reaching record levels and resulting in an average 2008 unit value (\$487 per metric ton) that was 49 percent above the average 2007 unit value (\$327 per metric ton).⁵³

⁴⁷ Oilseeds include soybeans, rapeseed (including canola), sunflower, and flaxseed. Meals and oils obtained from the processing of oilseeds are not included in this group.

⁴⁸ Compiled from official statistics of the U.S. Department of Commerce.

⁴⁹ Trostle, "Fluctuating Food Commodity Prices," November 2008.

⁵⁰ Ibid.

⁵¹ The lower fuel prices reduced the value of soybean oil for biodiesel production and thus lowered the premium that food processors would pay. Ash, Dohlman, and Wittenberger, *Oil Crops Outlook*, December 12, 2008, 2.

⁵² Trostle, "Fluctuating Food Commodity Prices," November 2008.

⁵³ Compiled from official statistics of the U.S. Department of Commerce.

TABLE AG.4 Oilseeds (AG032): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
China	2,333	2,255	2,536	4,121	7,261	3,140	76.2	
Mexico	853	917	1,000	1,256	1,874	618	49.2	
Japan	1,010	788	870	1,116	1,383	267	23.9	
Canada	208	134	109	142	262	120	84.7	
Taiwan	303	430	474	715	953	239	33.4	
Germany	394	211	35	342	764	422	123.2	
Indonesia	264	302	289	402	625	222	55.2	
Egypt	42	93	94	166	385	219	131.9	
Netherlands	74	120	491	338	321	-17	-5.1	
Spain	215	91	67	117	303	186	158.9	
All other	1,218	1,185	1,209	1,630	1,723	93	5.7	
Total	6,911	6,527	7,172	10,346	15,853	5,507	53.2	
EU-27	937	662	789	1,115	1,701	586	52.6	
OPEC	35	22	41	44	46	2	3.7	
Latin America	994	1,094	1,176	1,507	2,189	682	45.3	
CBERA	30	18	8	14	16	3	20.8	
Asia	4,399	4,175	4,504	6,810	10,618	3,808	55.9	
Sub-Saharan Africa	(^b)	4	2	(^b)	5	5	4,250.4	
Central and Eastern Europe	5	5	6	10	27	17	163.6	
U.S. imports of merchandise for consumption:								
China	20	31	25	29	68	38	130.9	
Mexico	9	9	7	6	9	4	70.4	
Japan	(^b)	(^b)	(^b)	(^b)	1	(^b)	126.6	
Canada	202	200	266	427	750	323	75.6	
Taiwan	1	(^b)	(^b)	(^b)	(^b)	(^b)	-24.5	
Germany	(^b)	(^b)	(^b)	(^b)	(^b)	(^b)	-85.9	
Indonesia	(^b)	(^b)	(^b)	0	0	0	0.0	
Egypt	(^b)	(^b)	0	(^b)	(^b)	(^b)	280.8	
Netherlands	2	1	2	2	2	(^b)	-18.8	
Spain	0	0	(^b)	1	5	3	227.8	
All other	100	93	85	105	167	62	58.5	
Total	335	335	387	572	1,002	430	75.2	
EU-27	4	5	4	6	9	3	48.9	
OPEC	13	12	13	10	15	5	53.3	
Latin America	47	44	37	34	50	16	47.0	
CBERA	(^b)	0	0	0	0	0	0.0	
Asia	61	64	64	75	150	75	99.5	
Sub-Saharan Africa	17	17	9	23	34	12	52.8	
Central and Eastern Europe	1	2	(^b)	1	1	(^b)	20.7	

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See footnote(s) at end of table.

TABLE AG.4 Oilseeds (AG032): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—Continued

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
China	2,313	2,224	2,511	4,092	7,194	3,102	75.8	
Mexico	843	908	993	1,251	1,864	614	49.1	
Japan	1,010	788	869	1,116	1,382	266	23.9	
Canada	6	-66	-158	-285	-488	-203	-71.1	
Taiwan	302	430	473	715	953	239	33.4	
Germany	394	211	35	342	764	422	123.2	
Indonesia	264	302	289	402	625	222	55.2	
Egypt	42	93	94	166	385	219	131.9	
Netherlands	72	119	488	335	319	-17	-5.0	
Spain	215	91	67	115	298	182	158.1	
All other	1,118	1,092	1,123	1,525	1,556	31	2.0	
Total	6,576	6,192	6,786	9,774	14,851	5,077	51.9	
EU-27	933	657	785	1,108	1,692	583	52.6	
OPEC	22	10	28	35	31	-4	-10.2	
Latin America	947	1,050	1,138	1,473	2,139	666	45.2	
CBERA	30	18	8	14	16	3	20.8	
Asia	4,338	4,110	4,440	6,734	10,468	3,733	55.4	
Sub-Saharan Africa	-17	-13	-8	-22	-29	-7	-30.0	
Central and Eastern Europe	5	3	6	9	26	17	178.9	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

U.S. soybean export competitiveness was helped by the appreciation of the Brazilian real against the U.S. dollar, which enhanced the price competitiveness of U.S. soybeans in markets such as China.⁵⁴ Additionally, U.S. export competitiveness was aided by a 21-day general strike in Argentina in March 2008 that seriously disrupted Argentina's soybean harvest and exports.⁵⁵

In 2008, China was the primary destination for U.S. oilseeds, followed by Mexico and Japan. China accounted for 46 percent of the total value of U.S. oilseed exports (table AG.4). The value of U.S. oilseed exports to China increased by \$3.1 billion (76 percent) to \$7.3 billion, primarily because of high soybean prices, as the volume of exports grew at a relatively slower rate of 40 percent.⁵⁶ As soybean prices declined in the latter part of 2008, Chinese demand continued to grow,⁵⁷ driven by the demand for animal proteins and vegetable oils.⁵⁸ In addition, China's 2008 record soybean imports in 2008 were fueled by China's desire to expand its food security stocks.⁵⁹ In 2008, more than 99 percent (by value) of U.S. oilseed exports to China was soybeans.

U.S. Imports

High agricultural commodity prices in general increased the value of U.S. oilseed imports by \$430 million (75 percent) to \$1.0 billion in 2008; the quantity of U.S. oilseed imports increased by approximately 21 percent. By far, the largest oilseed import was canola (rapeseed), accounting for 49 percent of the total value, and 60 percent of the total volume. The second-largest oilseed import was soybeans, accounting for 16 percent of the total value, and 19 percent of the total volume.⁶⁰

Canada was the dominant supplier of oilseeds in 2008, accounting for 75 percent of total imports. In 2008, U.S. imports from Canada increased by \$323 million (76 percent) to \$750 million. The value of canola imports from Canada increased by \$258 million (110 percent), the largest increase for U.S. oilseed imports, both in absolute and percentage terms. During the same period, the quantity of imports of canola from Canada increased by approximately 52 percent.⁶¹ Canola oil use has gained popularity with U.S. consumers as a "healthy oil,"⁶² and its profile as such was raised by a new health accreditation by the Food and Drug Administration.⁶³ While U.S. demand for canola oil rose in 2008, U.S. production was flat, so increased consumption was satisfied by imports.⁶⁴

U.S. soybean and sunflower seed imports from Canada showed a substantial increase (approximately 200 percent by volume) in 2007, but then slowed considerably in 2008. Soybean imports increased in volume approximately 7 percent, but because of high oilseed prices generally, the value of soybeans imported from Canada grew by 57 percent in 2008.

⁵⁴ USDA, ERS, *Outlook for U.S. Agricultural Trade*, May 29, 2008, 3.

⁵⁵ Wilder, *Argentina: Oilseeds and Products; Annual 2008*, May 6, 2008, 3.

⁵⁶ Compiled from official statistics of the U.S. Department of Commerce.

⁵⁷ Petry, Wu, and Jiang, *China, People's Republic of: Agricultural Situation*, September 4, 2008, 2.

⁵⁸ Sanchez, Jiang, and Wu, *China, People's Republic of: Agricultural Situation*, July 31, 2008, 9.

⁵⁹ USDA, FAS, *Oilseeds: World Market and Trade*, November 2008.

⁶⁰ Compiled from official statistics of the U.S. Department of Commerce.

⁶¹ Ibid.

⁶² Certain oils, like canola oil and olive oil, are generally viewed as healthier alternatives to other oils, such as those that contain transfat.

⁶³ Dessureault, *Canada: Oilseeds and Products*, May 5, 2008, 5.

⁶⁴ Ash, Dohlman, and Wittenberger, *Oil Crops Outlook*, January 13, 2009, 4.

Meanwhile, sunflower imports from Canada declined significantly by volume (approximately 42 percent) in 2008, although the decline in value (approximately 6 percent) was less steep because of higher prices.⁶⁵ U.S. sunflower seed production increased by 19 percent in 2008 to the highest level in three years.⁶⁶

⁶⁵ Compiled from official statistics of the U.S. Department of Commerce.

⁶⁶ Ash, Dohlman, and Wittenberger, *Oil Crops Outlook*, January 13, 2009, 3.

Animal or Vegetable Fats and Oils⁶⁷

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Change in 2008 from 2007:

U.S. trade deficit: Increased by \$408 million (108 percent) to \$786 million

U.S. exports: Increased by \$1.5 billion (50 percent) to \$4.5 billion

U.S. imports: Increased by \$1.9 billion (57 percent) to \$5.3 billion

U.S. imports of animal or vegetable fats and oils increased by \$1.9 billion in 2008, leading to a doubling of the U.S. trade deficit, to \$786 million. Growing U.S. demand for healthier oils for food consumption, increased demand for feedstocks for biodiesel production, and comparatively higher prices for domestically produced substitutes resulted in U.S. fats and oils import values exceeding \$5.0 billion for the first time. The value of U.S. fats and oils imports increased by 57 percent, while the quantity imported increased by 20 percent. Similarly, the value of U.S. fats and oils exports increased by 50 percent, while the quantity exported increased by 8 percent.⁶⁸

U.S. Exports

U.S. fats and oils exports rose by 50 percent—a record \$1.5 billion increase—to \$4.5 billion in 2008 (table AG.5). Soybean oils represented 30 percent of total U.S. exports of fats and oils, followed by lard and beef fat at 20 percent. Compared with the overall volume increase of 8 percent in 2008, soybean oil unit values rose by 37 percent, and lard and beef fat unit values rose by 31 percent.⁶⁹ Prices rose in 2008 because of increased demand from China, especially for soybeans; increased energy costs; increased demand for biodiesel, of which fats and oils are a feedstock; and a declining U.S. dollar relative to other major currencies.⁷⁰

As in previous years, the top export markets were Mexico and Canada, which together accounted for almost one-third of total exports. The composition and primary end use of those exports, however, varied notably. Roughly 41 percent of U.S. fats and oils exports to Mexico was lard and beef fat, which are mixed with vegetable oil for flavoring in commercial food preparation, specifically french fries.⁷¹ The use of those fats in the U.S. market has declined because they are not considered to be as healthy as vegetable oils.⁷² Approximately 32 percent of U.S. fats and oils exports to Canada was hydrogenated vegetable oil and soybean oil,⁷³ which Canadian manufacturers use in processed food production, largely for export to the United States.⁷⁴

⁶⁷ This industry/commodity group includes vegetable oils such as soybean, olive, canola, palm, peanut, corn, sunflower seed, and sesame and animal fats such as from cattle, swine, and poultry, as well as mixtures or hydrogenated varieties of each or both.

⁶⁸ Compiled from official statistics of the U.S. Department of Commerce.

⁶⁹ Ibid.

⁷⁰ Trostle, “Fluctuating Food Commodity Prices,” November 2008.

⁷¹ Compiled from official statistics of the U.S. Department of Commerce.

⁷² Industry association representative, e-mail message to Commission staff, March 24, 2009.

⁷³ Compiled from official statistics of the U.S. Department of Commerce.

⁷⁴ Industry official, telephone interview by Commission staff, March 24, 2009.

TABLE AG.5 Animal or vegetable fats and oils (AG033): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
Canada	309	317	345	455	596	140	30.8	
Malaysia	2	2	3	2	7	5	305.1	
Mexico	496	421	383	607	863	256	42.2	
Italy	2	7	24	56	35	-21	-38.2	
Philippines	3	3	3	5	6	1	26.9	
Spain	3	3	3	6	59	52	806.0	
Venezuela	46	46	54	100	249	149	149.2	
Indonesia	2	4	4	6	2	-3	-61.7	
Turkey	95	119	123	165	201	36	21.6	
China	34	22	67	166	163	-3	-1.8	
All other	973	864	1,002	1,413	2,295	882	62.5	
Total	1,965	1,808	2,010	2,981	4,475	1,494	50.1	
EU-27	114	125	234	280	375	95	34.0	
OPEC	186	144	129	317	600	283	89.2	
Latin America	787	683	690	1,075	1,715	639	59.5	
CBERA	51	46	47	85	132	48	56.3	
Asia	228	211	296	482	541	60	12.4	
Sub-Saharan Africa	142	123	78	134	298	164	121.8	
Central and Eastern Europe	10	4	3	2	5	3	146.2	
U.S. imports of merchandise for consumption:								
Canada	497	468	594	854	1,643	789	92.4	
Malaysia	263	307	413	677	1,199	521	77.0	
Mexico	32	46	52	67	94	26	39.0	
Italy	501	579	645	603	653	50	8.4	
Philippines	208	190	222	314	470	156	49.7	
Spain	127	152	181	172	228	56	32.7	
Venezuela	(^b)	(^b)	0	0	0	0	0.0	
Indonesia	51	96	96	102	240	138	135.1	
Turkey	28	57	43	42	15	-27	-64.6	
China	10	13	17	29	41	12	40.9	
All other	476	386	490	498	678	180	36.2	
Total	2,193	2,294	2,753	3,358	5,261	1,902	56.6	
EU-27	761	864	968	882	992	110	12.5	
OPEC	(^b)	(^b)	(^b)	3	4	1	41.5	
Latin America	153	133	168	219	296	77	35.1	
CBERA	(^b)	(^b)	1	(^b)	(^b)	(^b)	-8.9	
Asia	666	684	828	1,216	2,106	890	73.2	
Sub-Saharan Africa	2	2	16	2	3	1	47.8	
Central and Eastern Europe	1	2	2	2	2	(^b)	9.3	

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See footnote(s) at end of table.

TABLE AG.5 Animal or vegetable fats and oils (AG033): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
Canada	-188	-151	-248	-398	-1,047	-649	-162.8
Malaysia	-261	-305	-411	-676	-1,192	-516	-76.4
Mexico	464	375	331	539	769	230	42.6
Italy	-500	-573	-621	-546	-618	-72	-13.2
Philippines	-205	-187	-219	-309	-464	-155	-50.0
Spain	-123	-148	-178	-166	-170	-4	-2.5
Venezuela	46	46	54	100	249	149	149.2
Indonesia	-49	-92	-92	-97	-238	-142	-146.6
Turkey	67	62	79	123	186	63	51.3
China	24	8	50	137	122	-15	-10.8
All other	496	478	513	915	1,617	702	76.7
Total	-228	-486	-743	-377	-786	-408	-108.1
EU-27	-647	-739	-733	-602	-617	-15	-2.6
OPEC	186	144	129	314	596	282	89.7
Latin America	634	550	522	856	1,419	563	65.7
CBERA	50	45	47	84	132	48	56.7
Asia	-437	-473	-531	-735	-1,565	-830	-113.0
Sub-Saharan Africa	140	121	62	133	295	163	122.8
Central and Eastern Europe	9	2	1	(^b)	3	3	713.8

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

U.S. Imports

U.S. fats and oils imports rose by 57 percent to \$5.3 billion in 2008 (table AG.5). Canola oils represented 25 percent of this amount, followed by palm oils at 24 percent and olive oils at 19 percent. Compared with the overall volume increase of 20 percent in 2008, canola oil unit values rose by 44 percent, palm oil unit values rose by 49 percent, and olive oil unit values rose by 11 percent.⁷⁵

As in 2007, the top two import sources were Canada and Malaysia, which together accounted for 54 percent of total imports in 2008, however each supplied different oils to different segments of the U.S. market. Canada was the largest supplier of canola oil,⁷⁶ which is a healthier substitute in U.S. household food preparation for other vegetable oils having higher levels of trans fats.⁷⁷ Demand for healthier food oils such as canola has grown steadily in the U.S. market for several years, outpacing increased Canadian canola production.⁷⁸ Some Canadian canola oil was also used as a feedstock in U.S. biodiesel production,⁷⁹ especially as increasing U.S. prices for soybean oil made its use as a biodiesel feedstock less economically feasible.⁸⁰ Malaysia was the largest supplier of palm oil,⁸¹ which U.S. companies imported primarily for use as a biodiesel feedstock, although some palm oil is used in food preparation and in the production of lotions and soaps.⁸²

⁷⁵ Compiled from official statistics of the U.S. Department of Commerce.

⁷⁶ Ibid.

⁷⁷ Industry official, telephone interview by Commission staff, March 25, 2009; Menzie, "Global Oilseed Complex Outlook," October 15, 2008, 59.

⁷⁸ Menzie, "Global Oilseed Complex Outlook," October 15, 2008, 26.

⁷⁹ Industry official, telephone interview by Commission staff, March 25, 2009.

⁸⁰ As soybean prices increased through mid-2008 and remained higher throughout 2008 compared with 2007, soybean use as a biodiesel feedstock dropped from 79 percent of all feedstocks used in 2007 to 65 percent in 2008, with other fats and oils, including canola and palm, increasing from 16 percent in 2007 to 24 percent in 2008. National Biodiesel Board, "Biodiesel Review and Outlook," October 16, 2008, 37–38.

⁸¹ Compiled from official statistics of the U.S. Department of Commerce.

⁸² Industry official, telephone interview by Commission staff, March 25, 2009.

Swine and Pork⁸³

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Change in 2008 from 2007:

U.S. trade surplus: Increased by \$1.8 billion (119 percent) to \$3.3 billion

U.S. exports: Increased by \$1.6 billion (58 percent) to \$4.3 billion

U.S. imports: Decreased \$203 million (17 percent) to \$1.0 billion

After increasing steadily during the 2004–07 period, the U.S. trade surplus in swine and pork more than doubled in 2008, driven by three major factors: increased demand for pork, particularly in Asia and Russia; the depreciation of the U.S. dollar relative to the currencies of other major pork exporters; and an increase in U.S. productivity. U.S. exports of swine and pork increased by more than 50 percent in 2008, despite a slight decline in the average unit value of pork exports. Imports, which had increased slightly in 2007, declined in 2008, due to a decline in the value of imports of both swine and pork from Canada.⁸⁴

U.S. Exports

U.S. pork exports increased in 2008 as a result of rising demand, primarily in Russia and Asia; the declining value of the dollar compared to other currencies, especially the Danish kroner, the euro, and the Brazilian real; and increased U.S. pork production due to improvements in efficiency (table AG.6). Japan was the largest export market for U.S. swine and pork in 2008, and the increase in exports to Japan was the largest absolute increase (\$383 million) to any single country.⁸⁵ However, exports to Hong Kong, China, Russia, and Mexico increased by large percentage.

U.S. exports of pork to China increased significantly in both value and in quantity in 2008. The United States was the largest foreign supplier of pork to China; the second largest was Denmark. Together, China and Hong Kong were the second-largest export market (\$602 million) for U.S. pork in 2008, and registered the largest annual increase (\$391 million). China is the world's largest producer and consumer of pork, and several trends aided U.S. exports to that market in 2008. Rising incomes and the 2008 summer Olympic Games in Beijing increased China's demand for pork in 2008.⁸⁶ Additionally, in 2006 and 2007, a disease first known as "blue-ear disease" and later identified as Porcine Reproductive and Respiratory Syndrome (PRRS) significantly decreased China's swine and pork production. USDA estimated that in those two years, China lost as many as 10 million pigs to PRRS.⁸⁷ Average pork prices in China increased rapidly through 2007. The severe

⁸³ This industry/commodity group includes swine other than purebred breeding animals, as well as pork and pork variety meats.

⁸⁴ Exports of live swine account for less than 1 percent of the value of total exports of swine and pork.

⁸⁵ Japan increased its consumption and imports of pork in 2008, as inflation in food and energy prices led consumers to shift from more expensive beef to pork and poultry. The United States is Japan's largest supplier of pork, and U.S. exports met the majority of increased Japanese demand. Obara, *Japan: Livestock and Products*, October 1, 2008, 6.

⁸⁶ USDA, ERS, *Outlook for U.S. Agricultural Trade*, May 29, 2008, 4.

⁸⁷ Zhang and Trachtenberg, *China, People's Republic of: Livestock and Products*, September 25, 2007, 1.

TABLE AG.6 Swine and pork (AG003): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
Japan	953	1,067	1,015	1,127	1,511	383	34.0	
Canada	207	293	325	372	420	48	12.8	
Mexico	436	382	406	341	547	206	60.4	
Russia	37	59	145	182	389	208	114.1	
Hong Kong	19	20	36	74	344	270	362.6	
Korea	50	146	219	217	265	48	22.1	
China	34	54	45	137	258	121	88.5	
Denmark	(^b)	(^b)	(^b)	(^b)	1	(^b)	71.8	
Australia	3	49	48	65	84	19	30.2	
Taiwan	54	38	35	22	48	26	120.3	
All other	73	136	147	172	410	239	139.0	
Total	1,866	2,246	2,422	2,709	4,277	1,568	57.9	
EU-27	32	70	51	56	136	80	142.0	
OPEC	1	2	2	2	7	5	315.9	
Latin America	467	433	479	421	667	245	58.3	
CBERA	9	16	19	21	25	4	20.2	
Asia	1,114	1,333	1,358	1,596	2,522	926	58.0	
Sub-Saharan Africa	(^b)	(^b)	2	2	4	2	97.8	
Central and Eastern Europe	15	51	27	18	39	21	112.1	
U.S. imports of merchandise for consumption:								
Japan	0	0	0	0	0	0	0.0	
Canada	1,112	1,114	1,022	1,026	824	-202	-19.7	
Mexico	2	4	5	7	7	(^b)	2.7	
Russia	0	0	0	0	0	0	0.0	
Hong Kong	0	0	0	0	0	0	0.0	
Korea	0	0	0	0	0	0	0.0	
China	0	0	(^b)	(^b)	(^b)	(^b)	189.4	
Denmark	184	156	144	159	147	-12	-7.6	
Australia	(^b)	(^b)	0	0	(^b)	(^b)	(^c)	
Taiwan	0	0	0	0	0	0	0.0	
All other	36	40	35	32	43	11	32.8	
Total	1,335	1,314	1,205	1,224	1,021	-203	-16.6	
EU-27	220	196	178	187	182	-5	-2.9	
OPEC	0	0	0	0	0	0	0.0	
Latin America	2	4	6	11	15	4	36.7	
CBERA	0	0	0	0	0	0	0.0	
Asia	0	0	(^b)	(^b)	(^b)	(^b)	189.4	
Sub-Saharan Africa	0	0	0	0	0	0	0.0	
Central and Eastern Europe	0	0	0	0	1	1	(^c)	

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See footnote(s) at end of table.

TABLE AG.6 Swine and pork (AG003): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Japan	953	1,067	1,015	1,127	1,511	383	34.0	
Canada	-906	-821	-697	-654	-404	250	38.2	
Mexico	433	378	401	334	539	206	61.7	
Russia	37	59	145	182	389	208	114.1	
Hong Kong	19	20	36	74	344	270	362.6	
Korea	50	146	219	217	265	48	22.1	
China	34	54	45	137	258	121	88.4	
Denmark	-184	-156	-143	-159	-146	12	7.7	
Australia	3	49	48	65	84	19	30.0	
Taiwan	54	38	35	22	48	26	120.3	
All other	37	96	112	139	367	228	163.5	
Total	531	931	1,216	1,485	3,256	1,771	119.3	
EU-27	-189	-127	-126	-131	-46	85	65.1	
OPEC	1	2	2	2	7	5	315.9	
Latin America	465	429	473	410	651	241	58.9	
CBERA	9	16	19	21	25	4	20.2	
Asia	1,114	1,333	1,358	1,596	2,522	926	58.0	
Sub-Saharan Africa	^(b)	^(b)	2	2	4	2	97.8	
Central and Eastern Europe	15	51	27	18	38	19	105.2	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

^cNot meaningful for purposes of comparison.

ice storm in early 2008 and the earthquake in Sichuan province in May 2008 further disrupted China's production. The decline in China's domestic production and sharp increase in price led the government to increase purchases of frozen pork for its strategic meat reserves and to cut tariffs on frozen pork from 12 percent to 6 percent from June 1 to December 1, 2008. Both of these measures benefitted U.S. exports.⁸⁸

Increased U.S. pork exports in 2008 followed higher domestic swine production in 2007 and 2008. Sow beginning stocks and swine production both increased in 2007 and again in 2008, as did the number of surviving pigs per litter. As a result, U.S. pork production increased by 4 percent in 2007 and by an additional 7 percent in 2008, on a quantity basis. Productivity gains on the part of U.S. swine producers have largely been due to increasing industry concentration and product specialization. Vertical coordination and contracting have also increased effective capacity.⁸⁹ Domestic consumption of pork declined slightly in 2008, after increasing slightly in 2007. With increasing production and declining consumption, exports as a share of U.S. production increased from 14 percent in 2007 to 23 percent in 2008.⁹⁰

In addition, costs to U.S. producers for important feed components, such as corn and soybean meal, increased at a slower rate than costs to competing producers in the EU and Brazil. A poor grains crop in production year 2007/08 led to increased prices in the EU and caused the EU to be a net importer of grains.⁹¹ This, in turn, increased the demand for Brazilian corn exported to the EU, leading to an increase in its price.⁹² The depreciation of the dollar relative to the euro and the real also moderated the impact of the increase in feed prices in the United States. U.S. annual average producer prices for swine increased by 1.6 percent in 2008 but remained 8.9 percent lower than prices in 2004.⁹³

U.S. Imports

U.S. imports of live swine accounted for nearly one-half of the value of imports of swine and pork in 2008. U.S. imports of live swine, virtually all from Canada, increased in number in 2008, but declined in value. Swine over 50 kilograms (kg) declined in both number and value; however, most imports of swine are animals under 50 kg, to be fed to slaughter weight for the production of pork in the United States. In order to increase efficiency, an increasing number of U.S. pork producers have been shifting from "farrow-to-finish" operations to facilities that specialize in only part of the production cycle.⁹⁴ Higher feed costs led many Canadian swine producers to shift to breeding and farrowing operations only, and many of these producers exported swine to the United States.⁹⁵ U.S. imports of swine under 50 kg increased in number, but declined in value, in 2008.

U.S. imports of pork, predominately from Canada and the EU, declined in both 2007 and 2008 from the peak in 2005. U.S. pork imports from Canada and Mexico consist of a wide

⁸⁸ Zhang and Beckman, China, *People's Republic of: Agricultural Situation*, December 22, 2008, 6–7.

⁸⁹ Jones and Shane, *Factors Shaping Expanding U.S. Meat Trade*, February 2009, 6.

⁹⁰ USDA, FAS, Production, Supply and Distribution Online. Production and consumption data are on a quantity basis.

⁹¹ Knight and Achilles, *EU-27: Grain and Feed; Annual 2008*, April 30, 2008, 5.

⁹² USDA, ERS, *Outlook for U.S. Agricultural Trade*, May 29, 2008, 3.

⁹³ USDA and WAOB, *World Agricultural Supply and Demand Estimates*, December 9, 2005, 29; USDA and WAOB, *World Agricultural Supply and Demand Estimates*, April 9, 2009, 31.

⁹⁴ Key and McBride, *The Changing Economics of U.S. Hog Production*, December 2007, 5–6. Swine production may be divided into four phases: breeding and gestation, farrowing (birth through weaning), growing, and finishing. Farrow-to-finish producers engage in all four phases of production.

⁹⁵ Myles, *Canada: Livestock and Products*, May 2, 2008, 4.

variety of products and are facilitated by the proximity of production to population centers and corresponding lower transportation costs. Imports from Denmark and Poland are generally of specialized products.⁹⁶

⁹⁶ Jones and Shane, *Factors Shaping Expanding U.S. Meat Trade*, February 2009, 6.
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Chemicals and Related Products

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Change in 2008 from 2007:

U.S. trade deficit: Increased by \$8.8 billion (35 percent) to \$33.7 billion
U.S. exports: Increased by \$20.4 billion (12 percent) to \$189.8 billion
U.S. imports: Increased by \$29.2 billion (15 percent) to \$223.5 billion

In 2008, the U.S. trade deficit in chemicals and related products increased by \$8.8 billion (35 percent) to \$33.7 billion after declines of 16 percent in 2007 and 3 percent in 2006 (table CH.1). The volume of trade declined during the second half of 2008, as world economic fundamentals changed significantly in response to the cascading progression of the global economic slowdown. The increase in the U.S. trade deficit in chemicals primarily resulted from growth in imports outpacing that of exports. U.S. exports declined significantly in the last four months of 2008, as the downturn escalated and as several petrochemical refineries shut down temporarily because of two major hurricanes in the U.S. Gulf Coast region.

The global chemical industry was also affected by volatile energy prices in 2008. Energy prices declined significantly in the latter part of the year after increasing strongly through July. The impact on the global chemical industry, however, was mixed, given the extreme volatility over the time period for the relative prices of crude petroleum and natural gas, the two major chemical feedstocks and energy inputs. Whereas the price of natural gas, a feedstock for many U.S. producers, ended the year higher than in past years, the price of crude petroleum, the feedstock generally used by the chemical industries in Europe and Asia, declined from a high of about \$130 a barrel to a low of about \$40.¹

U.S. Exports

U.S. exports of chemicals increased by \$20.4 billion (12 percent) to \$189.8 billion in 2008. The monthly data trends for the sector, however, illustrate significant shifts that occurred toward the end of the year. As shown in figure CH.1, monthly shipments increased steadily in value by about 2–4 percent per month through August 2008, reaching \$18.2 billion, before declining by 11–16 percent per month through the rest of the year, falling to a low of \$11.7 billion in December. Exports of most product groupings in this sector declined by approximately 25–60 percent during the last four months of 2008; exports of fertilizers and many petrochemicals registered the largest changes, declining by over 75 percent from their peak. By comparison, monthly exports of medicinal chemicals reached a peak of \$3.8 billion in November before declining to about \$3.5 billion in December.

¹ USDOE, EIA, “World Crude Oil Prices,” undated (accessed March 2, 2009); USDOE, EIA “Natural Gas Prices,” undated (accessed March 23, 2009).

TABLE CH.1 Chemicals and related products: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
Canada	23,495	26,412	28,475	29,033	30,657	1,624	5.6
China	5,061	5,831	6,863	8,975	9,885	910	10.1
Mexico	15,797	18,122	20,573	21,385	22,882	1,497	7.0
Germany	4,922	5,235	6,601	8,941	10,658	1,718	19.2
Ireland	1,591	1,656	1,475	1,721	1,788	66	3.9
United Kingdom	5,413	6,183	7,492	7,746	7,844	97	1.3
Japan	7,153	7,797	8,383	8,847	9,911	1,064	12.0
Belgium	7,295	7,457	8,793	10,061	10,581	519	5.2
France	4,142	4,311	4,418	5,107	5,186	79	1.6
Netherlands	7,294	7,659	8,956	9,345	11,201	1,856	19.9
All other	39,220	42,071	47,819	58,248	69,192	10,944	18.8
Total	121,383	132,734	149,848	169,409	189,784	20,375	12.0
EU-27	35,398	37,550	43,015	49,656	55,958	6,303	12.7
OPEC	2,058	2,461	3,320	4,141	5,236	1,095	26.4
Latin America	26,557	29,910	35,134	39,506	44,974	5,468	13.8
CBERA	899	1,149	1,359	1,559	1,575	17	1.1
Asia	27,513	29,618	32,443	37,591	43,047	5,455	14.5
Sub-Saharan Africa	867	958	1,235	1,387	1,533	146	10.5
Central and Eastern Europe	365	438	493	580	818	239	41.2
U.S. imports of merchandise for consumption:							
Canada	21,996	25,535	28,036	29,939	33,124	3,185	10.6
China	9,287	12,240	14,389	16,889	20,918	4,028	23.9
Mexico	4,790	5,429	6,347	6,360	6,820	460	7.2
Germany	11,064	12,116	13,370	15,251	17,067	1,816	11.9
Ireland	19,488	20,409	20,884	22,082	21,839	-242	-1.1
United Kingdom	9,843	9,772	12,207	13,523	14,904	1,381	10.2
Japan	10,684	11,100	10,739	11,065	11,315	251	2.3
Belgium	2,569	2,376	3,444	3,407	4,614	1,207	35.4
France	7,333	8,171	8,262	8,527	9,755	1,228	14.4
Netherlands	1,867	1,969	2,280	2,305	2,262	-42	-1.8
All other	42,762	53,933	59,452	64,984	80,872	15,888	24.4
Total	141,683	163,050	179,410	194,331	223,492	29,160	15.0
EU-27	63,165	68,160	74,042	78,521	84,791	6,271	8.0
OPEC	8,557	10,841	10,667	12,851	18,403	5,552	43.2
Latin America	11,315	13,950	14,453	15,668	19,472	3,804	24.3
CBERA	1,699	2,356	2,619	2,956	3,837	880	29.8
Asia	30,487	36,805	41,739	46,520	53,187	6,667	14.3
Sub-Saharan Africa	716	875	778	992	1,415	424	42.7
Central and Eastern Europe	1,198	1,228	1,228	1,268	1,207	-61	-4.8

See footnote(s) at end of table.

TABLE CH.1 Chemicals and related products: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

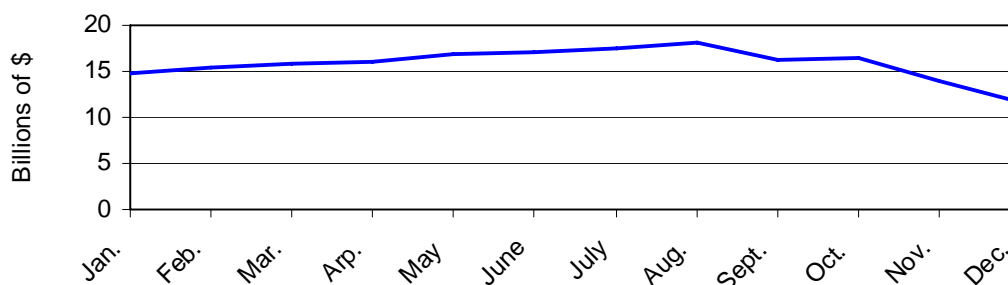
Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
Canada	1,499	878	439	-906	-2,467	-1,561	-172.3
China	-4,225	-6,409	-7,526	-7,914	-11,033	-3,119	-39.4
Mexico	11,007	12,694	14,226	15,025	16,062	1,036	6.9
Germany	-6,142	-6,881	-6,769	-6,310	-6,409	-99	-1.6
Ireland	-17,897	-18,754	-19,409	-20,360	-20,051	309	1.5
United Kingdom	-4,429	-3,588	-4,714	-5,777	-7,060	-1,283	-22.2
Japan	-3,531	-3,304	-2,356	-2,218	-1,404	814	36.7
Belgium	4,726	5,081	5,349	6,654	5,966	-688	-10.3
France	-3,191	-3,860	-3,844	-3,421	-4,570	-1,149	-33.6
Netherlands	5,427	5,689	6,676	7,040	8,938	1,898	27.0
All other	-3,541	-11,862	-11,633	-6,736	-11,680	-4,945	-73.4
Total	-20,299	-30,317	-29,562	-24,923	-33,708	-8,785	-35.3
EU-27	-27,767	-30,610	-31,027	-28,865	-28,833	32	0.1
OPEC	-6,499	-8,379	-7,347	-8,710	-13,168	-4,457	-51.2
Latin America	15,242	15,960	20,681	23,838	25,502	1,664	7.0
CBERA	-800	-1,207	-1,260	-1,397	-2,261	-864	-61.8
Asia	-2,973	-7,187	-9,295	-8,929	-10,140	-1,212	-13.6
Sub-Saharan Africa	151	83	457	396	118	-278	-70.2
Central and Eastern Europe	-832	-790	-735	-688	-388	300	43.6

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

FIGURE CH.1 U.S. monthly chemical sector exports, 2008



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

Industry sources attribute much of the overall export increase in the first two-thirds of 2008 to increased foreign sales by U.S. companies to offset slowing domestic demand, resulting from slowdowns in several major U.S. market segments, including the automotive, housing, and electronics sectors, prompting many companies to idle or shutdown production facilities and/or lay off workers during the second half of the year.² In January 2009, capacity utilization within the industry declined to 69 percent from 79 percent in January 2008.³ Hurricanes Gustav and Ike, which made U.S. landfall in September 2008, exacerbated the impact of the downturn by curtailing U.S. petrochemical production at refineries along the Gulf Coast for several weeks.⁴

Medicinal chemicals accounted for the largest absolute export increase in the sector, growing by about \$5.1 billion (table CH.2),⁵ followed by fertilizers, which gained \$3.7 billion and posted the second-largest percentage increase in the sector (107 percent).⁶ Much of the increase in exports of medicinal chemicals, particularly to Germany, is likely accounted for by related-party transfers of products such as monoclonal antibodies, a relatively new class of therapeutics that is increasingly being used in the EU, as well as increasing demand in emerging markets such as China.⁷ Industry sources attribute the increase in fertilizers exports to higher world product prices resulting from tight supplies after two record harvests, higher input prices (sulfur), and higher energy prices (natural gas).

² Official statistics of the U.S. Department of Commerce; Swift and Moore, "1st Quarter 2009 Situation & Outlook," February 2009; Miller, "WTO Predicts Global Trade Will Slide," March 24, 2009, A8; Tullo, et al., "World Chemical Outlook," January 12, 2009; and Voith, "Chemical Industry Mirrors Larger Economy," January 12, 2009, 12–14. Voith adds, "Companies that produced chemicals in the U.S. to sell overseas also benefitted from the weak dollar. The currency exchange benefit, as high as 7 percent for some firms, went straight to the bottom line."

³ Swift and Moore, "1st Quarter 2009 Situation & Outlook," February 2009.

⁴ Voith, "Chemical Industry Mirrors Larger Economy," January 12, 2009, 12–14. Petrochemicals are generally used as intermediates in the production of other chemicals. Refineries located along the U.S. Gulf Coast supply a large share of U.S. production of petrochemicals.

⁵ Trade statistics for all industry/commodity groups in this sector are presented in app. B, table B.2.

⁶ U.S. pharmaceutical production slowed in 2008, increasing by about 1 percent compared with 3 percent growth in 2007. By comparison, the output of chemicals, not including pharmaceuticals, declined by 6 percent versus an increase of 0.2 percent in 2007. Swift and Moore, "1st Quarter 2009 Situation & Outlook," February 2009.

⁷ See Frost & Sullivan, "Use of Therapeutic Monoclonal Antibodies Increasing in Europe," September 15, 2008.

TABLE CH.2 Chemicals and related products: Leading changes in U.S. exports and imports, 2004–08^a

Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. EXPORTS:							
Increases:							
Medicinal chemicals (CH019)	27,098	29,296	32,460	37,041	42,146	5,105	13.8
Fertilizers (CH010)	2,718	3,005	3,014	3,470	7,171	3,701	106.7
Miscellaneous chemicals and specialties (CH023)	3,444	3,708	4,249	5,259	7,854	2,594	49.3
Miscellaneous inorganic chemicals (CH007)	5,608	7,003	8,737	10,169	11,674	1,505	14.8
Polyethylene resins in primary forms (CH025)	3,698	4,448	5,103	6,312	7,578	1,266	20.1
Decreases:							
Organic commodity chemicals (CH004)	4,631	4,295	4,360	5,787	4,845	-942	-16.3
Major primary olefins (CH001)	474	451	611	801	685	-116	-14.5
Saturated polyester resins (CH029)	1,014	1,059	1,159	1,295	1,188	-107	-8.2
All other	72,698	79,469	90,155	99,275	106,643	7,368	7.4
TOTAL	121,383	132,734	149,848	169,409	189,784	20,375	12.0
U.S. IMPORTS:							
Increases:							
Medicinal chemicals (CH019)	52,677	56,104	65,218	71,777	79,943	8,166	11.4
Fertilizers (CH010)	5,510	7,439	7,525	9,507	16,485	6,978	73.4
Major primary olefins (CH001)	5,908	7,774	8,062	9,472	12,812	3,340	35.3
Certain organic chemicals (CH006)	5,811	7,263	7,103	7,441	9,184	1,743	23.4
Miscellaneous chemicals and specialties (CH023)	2,497	2,907	3,249	3,799	5,315	1,516	39.9
Decreases:							
Paints, inks, and related items, and certain components thereof (CH011)	2,241	2,598	2,825	2,958	2,748	-210	-7.1
Polypropylene resins in primary forms (CH026)	359	415	395	463	379	-83	-18.0
All other	66,679	78,550	85,031	88,916	96,625	7,710	8.7
TOTAL	141,683	163,050	179,410	194,331	223,492	29,160	15.0

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

The two largest markets for U.S. exports of chemicals and related products were Canada and Mexico, accounting for a combined 28 percent of total exports. Canada and Mexico were also the third- and fourth-largest markets, respectively, for U.S. fertilizer exports in 2008. However, U.S. exports to the Netherlands and Germany grew the most, both in terms of absolute value and percentage increase. The Netherlands was the largest market for U.S. exports of miscellaneous chemicals and specialties, particularly certain fatty substances of animal or vegetable origin and mixtures thereof, including biodiesel. The Netherlands and Germany were also the top two markets for U.S. exports of medicinal products in 2008, accounting for 27 percent of total U.S. medicinal exports. Germany also accounted for the largest absolute increase in medicinal exports in 2008. U.S. medicinal exports to Germany were driven by the aforementioned related-party trade and the fact that Germany was the world's third-largest market for retail sales of pharmaceuticals in 2007, accounting for \$43 billion, or about 6 percent of the world market.⁸

U.S. Imports

In 2008, U.S. imports of chemicals and related products increased by \$29.2 billion (15 percent) to \$223.5 billion. The increase was driven largely by efforts to offset the impact of production outages resulting from the hurricanes and continued import strength in several industry segments, including fertilizers and medicinal chemicals.⁹ As with exports, higher world product prices contributed to the increase in value of fertilizer imports, as the volume increased at a slower pace. In pharmaceuticals, the economic slowdown and ongoing patient enrollment in the Medicare Part D prescription drug plan contributed to continuing demand for less-expensive generic products. Despite the steady increase in U.S. imports of medicinal chemicals, the value of U.S. sales of prescription drugs grew by only a little over 1 percent in 2008 versus 4 percent in 2007, reaching \$291 billion. Factors cited for the slowing growth include increased demand for lower-priced generic pharmaceuticals and declines in sales of new products and consumer demand.¹⁰ The United States remains, however, the world's largest market for retail sales of pharmaceuticals, with sales of about \$371 billion in 2008 compared with about \$350 billion in 2007, or slightly less than one-half the world market.

The two largest sources of U.S. imports of chemicals and related products were Canada and Ireland, together accounting for 25 percent of total sector imports. Canada was the largest source of U.S. imports of fertilizers, while Ireland was the largest source of U.S. imports of medicinal chemicals. Canada is not only well-situated logistically and geographically to serve U.S. fertilizer markets, but it also has a large indigenous supply of raw materials. Major fertilizer imports from Canada include potash, nitrogen fertilizers, and sulfur. Ireland has maintained a strong role in pharmaceuticals as a result of strong government support, the country's development of a life sciences infrastructure, "the lowest corporation tax in Europe" (about 13 percent), and "a young, skilled, well-educated workforce."¹¹

⁸ EIU, "USA: Healthcare and Pharmaceuticals Report," February 6, 2009.

⁹ The trade deficit in medicinal chemicals is a strong contributing factor to the overall trade deficit for chemicals and related products. If medicinal chemicals are excluded from the total, the chemicals sector had a positive trade balance of about \$4 billion in 2008 and about \$10 billion in 2007. Compiled from official statistics of the U.S. Department of Commerce; Swift, Sanchez, and Moore, *Guide to the Business of Chemistry 2008*, 2008, 65.

¹⁰ IMS Health, "IMS Health Reports U.S. Prescription Sales," March 19, 2009.

¹¹ Duke, "Life Sciences in Ireland," July, 2008.

Change in 2008 from 2007:

U.S. trade deficit: Increased by \$3.3 billion (54 percent) to \$9.3 billion

U.S. exports: Increased by \$3.7 billion (107 percent) to \$7.2 billion

U.S. imports: Increased by \$7.0 billion (73 percent) to \$16.5 billion

The U.S. trade deficit in fertilizers continued to rise in 2008. Imports increased by \$7.0 billion, compared with a \$3.7-billion increase in exports (table CH.3). The increase in trade was largely driven by strong upward movement in demand for, and prices of, grains and fertilizers.¹³ In the United States, fertilizer consumption increased as a result of record coarse grain plantings and harvests in the 2006–08 time period; however farmers were also able to afford to purchase more fertilizers because of record net U.S. farm income during the first half of 2008.¹⁴ Income increased as grain prices continued to grow;¹⁵ prices spiked in the third quarter of 2008 as a result of several factors, including demand from ethanol production.¹⁶ The depreciating U.S. dollar against other major currencies and a significant rise in energy prices—natural gas for domestic fertilizer feedstock and petroleum for process energy and transportation—also contributed to higher prices for domestic and imported fertilizer in the United States in 2008.¹⁷ Conversely, the depreciation of the U.S. dollar may have been beneficial to U.S. fertilizer exports.¹⁸

Two sectors—the U.S. phosphate fertilizer industry and the U.S. nitrogen fertilizer industry—accounted for much of the strong upward price trends in 2008. The increase in the value of total U.S. imports of fertilizers and related products was seven times greater than the increase in the volume. The U.S. phosphate fertilizer industry is the largest in the world, produces a significant surplus, and is the largest global net exporter of ammonium phosphate fertilizers.¹⁹ Because of strongly rising prices, the increase in value of U.S. phosphate fertilizer exports was 10 times greater than the increase in the volume. On the other hand, the U.S. nitrogen fertilizer industry, although relatively large in itself, has experienced a significant growing trade deficit for years, owing to unfavorable natural gas feedstock production economics relative to other major global producers.²⁰ In fact, the United States is the largest global importer of nitrogen fertilizers. Any increase in nitrogen fertilizer exports was insignificant compared with that of the export-oriented phosphate industry.

¹² This industry/commodity group includes: finished fertilizers, ammonia, a finished fertilizer and process chemicals, elemental sulfur, and other miscellaneous intermediate fertilizer process chemicals and ores).

¹³ Huang, McBride, and Vasavada, “Recent Volatility in U.S. Fertilizer Prices,” March 2009.

¹⁴ Slater and Kirby, *Commercial Fertilizers 2007*, October 2008.

¹⁵ USDA and WAOB, *Agricultural Projections to 2018*, February 2009.

¹⁶ USDA and WAOB, *World Agricultural Supply and Demand Estimates*, March 11, 2009.

¹⁷ USDOE, EIA, *Short-Term Energy Outlook*, March 10, 2009.

¹⁸ Huang, *Factors Contributing to the Recent Increase in U.S. Fertilizer Prices*, February 2009.

¹⁹ Ibid.

²⁰ Ibid.

TABLE CH.3 Fertilizers (CH010): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Canada	308	319	341	433	676	243	56.0
India	114	415	587	778	2,791	2,012	258.5
Trin & Tobago	1	^(b)	^(b)	1	2	1	202.9
Russia	^(b)	1	1	1	^(b)	^(b)	-37.9
Saudi Arabia	2	2	1	4	2	-2	-38.0
Venezuela	29	8	24	22	20	-2	-7.4
Brazil	379	242	256	414	692	278	67.0
Mexico	311	326	390	390	464	74	19.1
China	321	354	226	115	186	71	61.4
Iraq	0	0	0	^(b)	^(b)	^(b)	209.4
All other	1,253	1,338	1,188	1,311	2,337	1,026	78.2
Total	2,718	3,005	3,014	3,470	7,171	3,701	106.7
EU-27	36	37	33	37	61	24	64.6
OPEC	54	31	64	70	87	17	24.9
Latin America	1,171	999	1,210	1,549	2,216	667	43.0
CBERA	17	19	20	21	29	7	35.4
Asia	836	1,302	1,181	1,152	3,583	2,431	211.0
Sub-Saharan Africa	50	38	71	29	74	45	155.7
Central and Eastern Europe	1	1	1	1	3	1	86.3
U.S. imports of merchandise for consumption:							
Canada	1,753	2,470	2,422	2,947	5,529	2,582	87.6
India	1	1	1	1	27	26	3,170.8
Trin & Tobago	1,016	1,375	1,253	1,419	2,221	802	56.5
Russia	330	350	444	716	1,913	1,197	167.1
Saudi Arabia	497	628	801	953	1,488	535	56.1
Venezuela	385	428	489	587	874	288	49.1
Brazil	21	25	29	32	74	42	131.2
Mexico	53	37	59	73	284	211	289.5
China	78	60	74	229	398	169	73.8
Iraq	222	248	252	256	578	323	126.2
All other	1,155	1,816	1,699	2,294	3,098	804	35.0
Total	5,510	7,439	7,525	9,507	16,485	6,978	73.4
EU-27	251	454	327	518	626	109	21.0
OPEC	1,462	1,762	2,043	2,504	3,992	1,488	59.4
Latin America	1,539	1,944	1,922	2,182	3,587	1,404	64.3
CBERA	1,017	1,375	1,258	1,419	2,225	805	56.7
Asia	130	186	131	300	487	188	62.5
Sub-Saharan Africa	1	8	4	9	30	21	221.2
Central and Eastern Europe	83	247	129	174	150	-25	-14.2

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See footnote(s) at end of table.

TABLE CH.3 Fertilizers (CH010): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—Continued

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Canada	-1,445	-2,151	-2,082	-2,514	-4,853	-2,339	-93.1	
India	114	413	586	778	2,764	1,986	255.5	
Trin & Tobago	-1,015	-1,374	-1,253	-1,418	-2,219	-801	-56.5	
Russia	-330	-349	-443	-716	-1,913	-1,197	-167.3	
Saudi Arabia	-494	-625	-799	-949	-1,485	-536	-56.5	
Venezuela	-357	-419	-465	-565	-854	-289	-51.3	
Brazil	358	217	227	382	618	236	61.6	
Mexico	258	288	331	317	180	-137	-43.2	
China	244	293	151	-114	-212	-98	-86.3	
Iraq	-222	-248	-252	-256	-578	-323	-126.2	
All other	97	-479	-512	-983	-762	222	22.6	
Total	-2,792	-4,434	-4,512	-6,037	-9,314	-3,277	-54.3	
EU-27	-215	-417	-294	-480	-565	-85	-17.7	
OPEC	-1,408	-1,731	-1,980	-2,434	-3,905	-1,470	-60.4	
Latin America	-368	-944	-712	-633	-1,371	-738	-116.5	
CBERA	-1,000	-1,356	-1,238	-1,398	-2,196	-798	-57.1	
Asia	706	1,116	1,050	852	3,096	2,244	263.2	
Sub-Saharan Africa	49	30	67	19	44	24	124.1	
Central and Eastern Europe	-83	-246	-128	-173	-147	26	15.0	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

U.S. Exports

Driven by rising prices, U.S. exports of fertilizer products increased by \$3.7 billion (107 percent) to \$7.2 billion in 2008, but the volume increase was only an estimated 10 percent.²¹ The rise in prices was due principally to inordinately tight global supply-demand conditions in both the fertilizer and grain markets, which created supply shortages in each sector.²² U.S. exports of ammonium phosphate fertilizers accounted for about 76 percent of the total increase in U.S. exports of fertilizer products in 2008. Potash and elemental sulfur accounted for another 7 percent of the total, while minor increases in nitrogen fertilizers exports (4 percent) were also observed.²³

Ammonium phosphate fertilizers, diammonium phosphate (DAP), and monoammonium phosphate (MAP) accounted for a large portion of U.S. fertilizer exports in 2008. India accounted for 51 percent, by value, of all U.S. ammonium phosphate fertilizer exports, 68 percent of total U.S. DAP exports,²⁴ and 7 percent of total exports of MAP.²⁵ Aside from India, where demand is driven by a large population and a growing demand for phosphate fertilizers, the majority of U.S. DAP and MAP export shipments were either to countries lacking indigenous reserves of phosphate rock ore or to smaller phosphate producers with insufficient capacity. The United States exported DAP to a large number of countries, principally in Asia and South America, while MAP export shipments were mostly to Canada, Australia, Brazil, and Japan, which together accounted for 66 percent of total MAP exports.

U.S. Imports

In 2008, U.S. imports of fertilizer products increased by \$7 billion (73 percent) to \$16.5 billion, but only increased by an estimated 10 percent by volume. The rise in prices, which led to higher imports by value, was attributable to global fertilizer and grain supply shortages, the depreciated U.S. dollar, and higher energy prices, and was further compounded by China's decision to restrict exports of urea nitrogen fertilizer due to domestic shortages.

The United States, although a major producer of nitrogen fertilizers, has traditionally been a large importer of these fertilizers.²⁶ Ammonia and urea (nitrogen fertilizers) accounted for 41 percent of total U.S. fertilizer imports by value in 2008 (25 percent and 16 percent, respectively). The value of U.S. imports of these two fertilizers in 2008 rose by 52 percent, while volume declined by 12 percent.²⁷ Ammonia prices averaged \$559 per metric ton in 2008, compared with \$305 per metric ton in 2007; and urea was \$485 per metric ton in 2008, compared with \$309 per metric ton in 2007.

²¹ Volume data for 2007 and 2008 (finished fertilizers in HTS chap. 31 and ammonia in HTS chap. 28) were obtained from USGS, *Mineral Commodity Summaries 2009*, January 29, 2009.

²² Heffner and Prud'homme, *World Agriculture and Fertilizer Demand*, December 2008.

²³ Compiled from official statistics of the U.S. Department of Commerce.

²⁴ Indian importers favor DAP over MAP because of its more balanced nitrogen-to-phosphate ratio.

²⁵ DAP has a fertilizer nutrient analysis of 18-46-0; 18 percent nitrogen (N), 46 percent phosphorus pentoxide (P₂O₅), and 0 percent potassium oxide (K₂O), while MAP is an 11-52-0 analysis phosphate fertilizer.

²⁶ Huang, *Factors Contributing to the Recent Increase in U.S. Fertilizer Prices*, February 2009.

²⁷ Ammonia is an 82 percent nitrogen (N) analysis fertilizer, while urea contains 46 percent N.

The United States is also a major importer of potash fertilizers because of its limited reserves of indigenous potash (potassium chloride). Potash accounted for 24 percent of the total value of U.S. imports of fertilizers in 2008. Canada supplied 79 percent of U.S. potash imports and Russia, 18 percent. The world's largest reserves of potash and related production capacity are in the Canadian province of Saskatchewan.²⁸

Canada is also a major source of U.S. imports of elemental sulfur, a fertilizer intermediate recovered from petroleum and natural gas used to produce sulfuric acid for the processing of phosphate fertilizers and other products.²⁹ The United States, despite being a large volume producer of elemental sulfur, also imports relatively large amounts. Increases in world prices for elemental sulfur contributed to the overall growth in value of U.S. fertilizer imports.³⁰

Trinidad and Tobago (Trinidad) is a traditional source of U.S. imports of ammonia. Imports from Trinidad rose by 57 percent in 2008 and accounted for 49 percent of total U.S. imports of ammonia. As a Caribbean Basin Economic Recovery Act beneficiary country, Trinidad has strong ties to the U.S. marketplace due to geographic proximity and traditional manufacturing and marketing affiliations with the United States; Trinidad also has abundant supplies of low-cost natural gas feedstocks.³¹ Canada, Russia, and Ukraine, also traditional suppliers, accounted for 44 percent of U.S. imports of ammonia in 2008.

Canada is also a significant supplier of urea. Imports from Canada in 2008 were up by 42 percent in value compared with 2007, and accounted for 31 percent of total U.S. imports of urea. However, Middle Eastern suppliers Saudi Arabia, Kuwait, Qatar, and Bahrain provided a combined 34 percent of total U.S. urea imports, and the value of these imports, in aggregate, was up by 58 percent compared to 2007. These countries have commissioned several urea and ammonia plants in recent years due to plentiful supplies of low-cost natural gas feedstocks. The Middle Eastern countries, however, prefer to export value-added urea fertilizer products to global markets rather than ammonia,³² the feedstock for urea.³³ China accounted for 10 percent of total U.S. urea imports, and Trinidad and Venezuela, 13 percent each. The remaining 12 percent of total U.S. imports of urea was provided primarily by a large number of countries in Europe.

²⁸ ICIS and IFA, "ICIS Pricing: Fertilizers," October 2007 (accessed various dates). Potash has a nutrient analysis of 60 percent potassium oxide (K₂O).

²⁹ Ober, "Sulfur," January 2009.

³⁰ Green Markets, "Green Markets Price Scan," 2008.

³¹ Industry official, telephone interview by Commission staff, March 23, 2009.

³² Ammonia may be used both directly as a fertilizer or as a fertilizer intermediate, but is predominately used only directly as a nitrogen fertilizer in the vast organic soil acreages of the corn belt region of the United States because of its high nitrogen nutrient analysis (82 percent N), and the U.S.'s superior modes of transportation, storage, and application compared with most other countries.

³³ Industry official, telephone interview by Commission staff, March 23, 2009.

Organic Commodity Chemicals³⁴

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Change in 2008 from 2007:

U.S. trade surplus: Decreased by \$1.5 billion (56 percent) to \$1.2 billion
U.S. exports: Decreased by \$942 million (16 percent) to \$4.8 billion
U.S. imports: Increased by \$550 million (18 percent) to \$3.7 billion

In 2008, the U.S. trade surplus in organic commodity chemicals decreased by 56 percent. U.S. exports fell by 16 percent (\$942 million) and imports increased by 18 percent (\$550 million). Hurricanes Gustav and Ike forced unplanned shutdowns of U.S. refineries along the Gulf Coast, reducing production and causing a rise in U.S. imports and a fall in U.S. exports of organic commodity chemicals.³⁵ Although the price of petroleum, the primary input for most organic commodity chemicals, was highly volatile in 2008, such price swings affected both imports and exports of these heavily traded products.³⁶

Shifts in the trade of organic commodity chemicals reflected the trend toward increasing value-added production in OPEC countries, as these countries are undergoing a transition from shipping crude petroleum (i.e., to developed countries for processing) to increasingly refining near their source of cheap feedstock. China is also producing more of these basic petrochemicals as it works to develop a full range of industries. This increased overseas production was able to meet some of the global demand that was filled in previous years by U.S. exports.

U.S. Exports

Production outages, the requirement to meet domestic contractual obligations before making export spot sales, and an ongoing industry shift toward greater production in China and the Middle East resulted in reduced U.S. exports. Moreover, the hurricanes forced the temporary closure of the port of Houston, the largest U.S. petroleum and petrochemical port, restricting U.S. exports for more than a month.

Total U.S. exports of organic commodity chemicals decreased by 16 percent (\$942 million) to \$4.8 billion in 2008 (table CH.4). Exports to Asia declined by \$703 million (36 percent).

³⁴ This industry/commodity group includes synthetic organic chemicals that are used as intermediates in a number of industries ranging from plastics and rubber to adhesives and solvents. Specifically, this group includes the basic cyclic hydrocarbons of cyclohexane; *ortho*-, *meta*-, and *para*-xylene (individually, not mixed); styrene; ethylbenzene; cumene; cyclohexanol, methylcyclohexanol, and dimethylcyclohexanol; phenol; phthalic anhydride; terephthalic acid; dimethyl terephthalate; aniline; aniline salts; and 6-hexanelactam (ϵ -caprolactam).

³⁵ The hurricanes forced the temporary closure of 13 refineries that account for 19 percent of total U.S. refining capacity. U.S. production of refined products fell by 8 percent from 2007 levels. Schmollinger and Bakhsh, "U.S. Refiners Accelerate Closings as Ike Strengthens," September 12, 2008; USDOE, EIA, "Refinery Net Production," undated (accessed March 3, 2009).

³⁶ USDOE, EIA, "World Crude Oil Prices," undated (accessed March 2, 2009).

TABLE CH.4 Organic commodity chemicals (CH004): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Canada	501	549	634	555	344	-212	-38.1
Mexico	1,116	1,193	1,318	1,522	1,520	-2	-0.2
Brazil	146	143	251	330	449	119	36.0
Netherlands	239	254	324	478	327	-150	-31.4
Venezuela	37	33	41	43	51	8	19.7
China	430	327	167	495	470	-25	-5.0
Saudi Arabia	^(b)	^(b)	^(b)	2	^(b)	-1	-80.1
Taiwan	814	461	318	513	336	-177	-34.6
Iraq	0	^(b)	0	0	0	0	0.0
Algeria	0	^(b)	0	0	0	0	0.0
All other	1,349	1,334	1,309	1,850	1,348	-502	-27.1
Total	4,631	4,295	4,360	5,787	4,845	-942	-16.3
EU-27	382	498	697	874	705	-169	-19.4
OPEC	39	39	48	48	56	9	18.0
Latin America	1,579	1,659	1,984	2,280	2,427	147	6.4
CBERA	49	54	78	87	83	-3	-3.6
Asia	2,115	1,561	961	1,953	1,250	-703	-36.0
Sub-Saharan Africa	40	18	68	79	53	-26	-33.0
Central and Eastern Europe	^(b)	2	1	3	3	^(b)	-0.8
U.S. imports of merchandise for consumption:							
Canada	903	1,025	1,056	1,278	1,325	47	3.7
Mexico	85	23	25	19	19	^(b)	-1.7
Brazil	15	13	49	43	131	87	201.5
Netherlands	64	140	203	234	239	5	2.1
Venezuela	270	320	382	401	458	58	14.4
China	23	12	8	12	17	4	33.3
Saudi Arabia	123	110	170	216	370	154	71.4
Taiwan	2	4	4	6	9	3	44.4
Iraq	172	157	166	136	228	93	68.2
Algeria	38	60	54	89	216	127	142.1
All other	300	533	618	707	680	-26	-3.7
Total	1,997	2,398	2,736	3,141	3,691	550	17.5
EU-27	162	378	492	521	501	-21	-3.9
OPEC	649	682	825	899	1,379	480	53.4
Latin America	424	415	542	530	672	142	26.7
CBERA	4	10	12	8	14	6	71.1
Asia	53	129	58	129	92	-37	-28.5
Sub-Saharan Africa	1	6	5	8	27	20	256.6
Central and Eastern Europe	2	2	2	2	3	1	30.3

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See footnote(s) at end of table.

TABLE CH.4 Organic commodity chemicals (CH004): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Canada	-403	-476	-423	-722	-981	-259	-35.8	
Mexico	1,031	1,169	1,293	1,503	1,501	-2	-0.1	
Brazil	131	131	202	287	318	31	10.9	
Netherlands	175	115	120	243	88	-155	-63.7	
Venezuela	-234	-287	-341	-358	-407	-49	-13.8	
China	407	315	159	482	453	-29	-6.0	
Saudi Arabia	-123	-110	-170	-214	-369	-155	-72.6	
Taiwan	811	458	314	507	327	-180	-35.5	
Iraq	-172	-157	-166	-136	-228	-93	-68.2	
Algeria	-38	-60	-54	-89	-216	-127	-142.1	
All other	1,049	801	691	1,143	668	-475	-41.5	
Total	2,635	1,897	1,625	2,647	1,155	-1,492	-56.4	
EU-27	220	121	205	353	204	-149	-42.1	
OPEC	-610	-643	-778	-851	-1,323	-472	-55.4	
Latin America	1,155	1,244	1,442	1,749	1,754	5	0.3	
CBERA	44	45	65	78	69	-9	-11.4	
Asia	2,062	1,432	903	1,824	1,158	-667	-36.5	
Sub-Saharan Africa	39	13	63	72	26	-46	-64.0	
Central and Eastern Europe	-2	^(b)	-1	1	^(b)	-1	-67.3	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

Among individual countries, exports to Canada fell by \$212 million (38 percent), to Taiwan by \$177 million (35 percent), and to the Netherlands by \$150 million (31 percent). The chemicals accounting for the greatest decline in exports to Canada were *meta*-xylene, down by \$137 million (97 percent), and cyclohexane, down by \$44 million (38 percent). Styrene exports to China and Taiwan fell by \$147 million (95 percent) and \$127 million (45 percent), respectively.

U.S. exports to Brazil, which have increased in each of the last four years, increased by 36 percent (\$119 million) in 2008, with styrene accounting for the bulk of this expanded trade. Brazil's expanding regional trade of polystyrene resins and their downstream products made from styrene has been growing.³⁷ U.S. exports have increased to supplement the insufficient Brazilian production of styrene for conversion into these downstream products.

U.S. Imports

The hurricanes caused outages in many components of the petrochemical industry, including downstream operations. U.S. production of organic commodity chemicals fell more than demand did in 2008, and imports made up the difference.

Total U.S. imports increased by \$550 million (18 percent) to \$3.7 billion in 2008. Reflecting the previously mentioned trend of increased production near the source of the feedstock, imports from OPEC countries increased by \$480 million (53 percent), accounting for 37 percent of total imports. Saudi Arabia, Algeria, and Iraq supplied most of the increased imports. Imports of *para*-xylene from Iraq increased by \$79 million (99 percent), and from Saudi Arabia by \$98 million (96 percent). Likewise, imports of cumene from Saudi Arabia increased by \$51 million (52 percent), and from Algeria by \$27 million (34 percent). Imports of cyclohexane from Algeria increased from zero in 2007 to \$66 million in 2008.

³⁷ SRIC, "Polystyrene," November 2008, 580.1502 M-T; SRIC, "Styrene," December 2006, 694.3001 Q-R.

Miscellaneous Chemicals and Specialties³⁸

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Change in 2008 from 2007:

U.S. trade surplus: Increased by \$1.1 billion (74 percent) to \$2.5 billion

U.S. exports: Increased by \$2.6 billion (49 percent) to \$7.9 billion

U.S. imports: Increased by \$1.5 billion (40 percent) to \$5.3 billion

The large trade shifts reported in this grouping of miscellaneous chemicals and specialties products are principally due to increased in trade in biodiesel.³⁹ Production and demand for this biofuel have increased rapidly in the United States and Europe during the past five years. In the United States alone, shipments increased to 485 million gallons in 2007, an increase of more than 1,000 percent from 2004 levels. Much of the increase in U.S. shipments was driven by higher demand generated by the Renewable Fuels Standard, as well as the blenders' tax credit.⁴⁰

U.S. Exports

U.S. exports of these products increased by \$2.6 billion (49 percent) to \$7.9 billion in 2008. Exports of biodiesel accounted for a large share of the increase, particularly to markets such as the Netherlands and Belgium (table CH.5).

Exports of certain fatty substances⁴¹ (including biodiesel) to the Netherlands increased by \$1.1 billion (252 percent) to \$1.6 billion in 2008, and exports to Belgium increased by \$284 billion (400 percent) to \$355 million in 2008. Rotterdam and Antwerp are ocean/inland transfer ports, co-located with major petroleum refineries, from which biodiesel is distributed further inland by pipeline, barge, rail, or road transport in the European fuel distribution network.

Biodiesel is consumed in larger quantities in Europe than in the United States for various reasons, including the predominant use of diesel in the region, EU environmental mandates, a more pervasive "green" consciousness in the EU, an appreciation of biodiesel's

³⁸ This industry/commodity group includes a large number of disparate, unrelated miscellaneous chemicals and specialty chemical products not classified elsewhere.

³⁹ Generally methyl esters of mixed fatty acids made from vegetable oils. This product grouping only addresses pure (100 percent) biodiesel.

⁴⁰ The blenders' credit is a federal tax credit for biodiesel that was included in the American Jobs Creation Act of 2004 and extended by the Energy Policy Act of 2005. Fuel blenders can claim a tax credit for each gallon of biodiesel blended with petroleum diesel. The amount of the credit varies by the biodiesel feedstock (\$1 per gallon for biodiesel from agricultural products such as soybean oil and \$0.50 per gallon for biodiesel from recycled oils). USITC, *Industrial Biotechnology*, 2008, 2-5, 2-6.

⁴¹ Fatty substances of animal or vegetable origin and mixtures thereof, not elsewhere specified or included.

TABLE CH.5 Miscellaneous chemicals and specialties (CH023): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Netherlands	126	101	186	637	1,752	1,115	175.0
Canada	702	774	820	871	918	48	5.5
Germany	202	211	238	292	517	225	77.0
Argentina	25	24	26	39	49	10	26.3
China	129	131	184	245	281	37	14.9
Japan	408	403	450	429	462	33	7.6
Belgium	199	213	259	310	669	359	115.6
Mexico	280	357	447	443	536	93	20.9
United Kingdom	171	217	211	240	278	39	16.1
Malaysia	23	23	23	21	30	9	42.9
All other	1,179	1,254	1,406	1,733	2,361	628	36.2
Total	3,444	3,708	4,249	5,259	7,854	2,594	49.3
EU-27	939	961	1,182	1,927	3,950	2,023	105.0
OPEC	80	83	87	84	147	63	75.5
Latin America	537	648	771	814	1,088	274	33.7
CBERA	18	50	37	35	32	-3	-9.1
Asia	991	1,019	1,152	1,276	1,446	171	13.4
Sub-Saharan Africa	28	32	37	48	50	2	4.2
Central and Eastern Europe	11	12	18	18	56	38	211.5
U.S. imports of merchandise for consumption:							
Netherlands	47	43	70	68	68	1	1.1
Canada	287	331	388	409	506	97	23.8
Germany	295	300	307	337	379	42	12.6
Argentina	4	4	4	38	776	738	1,928.5
China	423	425	442	477	504	28	5.8
Japan	161	174	193	232	307	75	32.5
Belgium	29	37	22	18	26	8	41.9
Mexico	59	66	80	107	133	26	24.5
United Kingdom	149	170	171	176	203	27	15.1
Malaysia	176	214	234	332	389	57	17.0
All other	866	1,142	1,338	1,606	2,024	418	26.0
Total	2,497	2,907	3,249	3,799	5,315	1,516	39.9
EU-27	887	952	1,018	1,059	1,142	83	7.8
OPEC	72	128	137	132	169	37	28.1
Latin America	143	234	250	305	1,061	755	247.5
CBERA	^(b)	^(b)	^(b)	^(b)	^(b)	^(b)	45.2
Asia	981	1,129	1,297	1,689	2,142	453	26.8
Sub-Saharan Africa	46	57	64	72	101	29	40.7
Central and Eastern Europe	14	23	32	43	52	9	19.9

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See footnote(s) at end of table.

TABLE CH.5 Miscellaneous chemicals and specialties (CH023): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
Netherlands	79	58	115	569	1,683	1,114	195.7
Canada	415	443	432	462	413	-49	-10.7
Germany	-94	-89	-69	-45	138	183	(^c)
Argentina	21	20	22	1	-727	-727	(^c)
China	-295	-294	-258	-232	-223	9	3.8
Japan	247	230	257	197	155	-43	-21.6
Belgium	170	176	236	292	643	351	120.2
Mexico	221	290	367	336	403	66	19.8
United Kingdom	21	46	40	64	75	12	18.7
Malaysia	-153	-191	-211	-311	-359	-48	-15.3
All other	313	112	68	127	337	210	165.0
Total	947	801	1,000	1,461	2,539	1,078	73.8
EU-27	52	9	164	868	2,808	1,941	223.7
OPEC	7	-45	-50	-48	-21	26	55.1
Latin America	395	414	522	508	27	-481	-94.6
CBERA	18	50	37	35	31	-3	-9.5
Asia	10	-110	-144	-413	-695	-282	-68.3
Sub-Saharan Africa	-17	-25	-27	-24	-51	-27	-113.3
Central and Eastern Europe	-3	-10	-15	-25	4	30	(^c)

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

^cNot meaningful for purposes of comparison.

performance advantages, and land-use policies of the Common Agricultural Policy.⁴² European producer concerns about U.S. biodiesel export levels to the EU resulted in the initiation of an antidumping proceeding and antisubsidy proceeding by the EU on June 13, 2008. The EU subsequently imposed provisional antidumping and antisubsidy duties on March 11, 2009.⁴³ The ongoing EU investigations and other factors such as the global economic downturn contributed to a significant slowing in monthly export shipments of the aforementioned fatty substances, including biodiesel, toward the end of 2008, tempering the overall annual increase in such exports.

U.S. Imports

U.S. imports of mixtures of fatty acid esters, including methyl-ester biodiesel, from Argentina increased by \$723 million (2,135 percent) to \$757 million in 2008, while similar imports from Indonesia increased by \$137 million (100 percent) to \$275 million in 2008. The substantial growth in U.S. imports of biodiesel in 2008 is attributable primarily to countries such as Argentina, Indonesia, and Singapore. An October 2008 report to the Argentine Renewable Energies Chamber indicated that the rapid growth in biodiesel production capacity in Argentina is the result of factors such as availability of competitively priced soy oil and low labor costs.⁴⁴

Biodiesel (often derived from oilseed crushings) represents an important new market opportunity for oilseed producers around the world. Methyl-ester biodiesel can be made in large quantities at low production cost by adaptation of continuous fat-splitting process technology by substituting methanol for the water conventionally used.⁴⁵

⁴² The EU Common Agricultural Policy allows for biodiesel imports to be grown on land that would otherwise be taken out of production. European Biodiesel Board, "About Biodiesel," undated (accessed March 29, 2009).

⁴³ "Commission Regulation (EC) No 193/2009 of 11 March 2009 Imposing a Provisional Anti-dumping Duty on Imports of Biodiesel Originating in the United States of America" and "Commission Regulation (EC) No 194/2009 of 11 March 2009 Imposing a Provisional Countervailing Duty on Imports of Biodiesel Originating in the United States of America," *Official Journal of the European Union*, March 12, 2009, L67/22 through L67/84.

⁴⁴ Argentine Renewable Energies Chamber, "Outlook for the Argentine Biodiesel Industry," October 2008.

⁴⁵ Potts, "Carboxylic Acids (Manufacture)," 1978, 838.

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Electronic Products

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Change in 2008 from 2007:

U.S. trade deficit: Decreased by \$3.7 billion (2 percent) to \$176.8 billion

U.S. exports: Increased by \$2.3 billion (1 percent) to \$174.8 billion

U.S. imports: Decreased by \$1.4 billion (0.4 percent) to \$351.6 billion

For the first time in seven years, the U.S. merchandise trade deficit in electronic products decreased in 2008 (table EL.1). The trade deficit fell by \$3.7 billion (2 percent), as U.S. exports expanded while U.S. imports contracted slightly. U.S. exports of electronic goods to China increased, even as exports to other major Asian markets declined, primarily because production centers continued to move from countries like Taiwan (flat panel color TVs) and Japan (digital cameras) to China.

U.S. imports of electronic goods from its largest regional suppliers, Asia and Latin America, declined by a combined total of \$3.9 billion in 2008. The decline in electronics imports was largely registered in computer equipment, consumer electronics, and semiconductors (table EL.2).¹ Trade flows were affected by the global economic crisis, which weakened consumer demand for high-technology goods in the latter half of the year.

U.S. Exports

U.S. exports of electronic products increased marginally, by \$2.3 billion (1 percent) to \$174.8 billion in 2008 (table EL.1). Products contributing to the growth in U.S. exports included medical goods, with a \$3.0-billion (12 percent) increase, and measuring, testing, and controlling instruments, with a \$1.2-billion (6 percent) increase.

Malaysia and China accounted for the largest absolute increases in U.S. exports of electronic products. U.S. exports to Malaysia rose by \$980 million (17 percent) to \$6.8 billion, while U.S. exports to China increased by \$942 million (8 percent) to \$12.4 billion. U.S. exports declined to Japan (\$1.0 billion), Korea (\$838 million), and Germany (\$454 million).

U.S. exports of medical goods emerged as the second-leading U.S. export category in the electronic products sector in 2008, up from third place the prior year and behind only semiconductors and integrated circuits. The Netherlands and Japan contributed significantly to largest share of the \$28.4 billion growth in U.S. exports of medical equipment in 2008.

In 2008, the acquisition of Respironics, a U.S.-based respiratory equipment producer, by Philips, a Dutch medical equipment company, resulted in increased intracompany

¹ Trade statistics for all industry/commodity groups in this sector are presented in app. B, table B.3.

TABLE EL.1 Electronic products: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
China	6,903	7,952	11,113	11,433	12,375	942	8.2
Mexico	17,403	16,649	18,357	18,394	18,246	-148	-0.8
Japan	11,236	10,967	11,538	10,794	9,791	-1,003	-9.3
Canada	17,608	18,941	18,378	18,183	18,474	291	1.6
Malaysia	6,546	6,314	6,960	5,832	6,812	980	16.8
Korea	7,390	7,898	8,423	7,264	6,426	-838	-11.5
Taiwan	5,625	5,464	5,911	6,296	6,391	94	1.5
Germany	7,529	7,947	9,114	9,345	8,892	-454	-4.9
Singapore	6,004	6,039	6,035	6,658	6,512	-146	-2.2
United Kingdom	8,126	7,527	7,513	6,907	6,907	-1	(b)
All other	55,196	59,854	66,038	71,395	73,984	2,589	3.6
Total	149,564	155,552	169,381	172,502	174,810	2,308	1.3
EU-27	37,797	39,009	41,767	43,632	43,636	4	(b)
OPEC	3,017	3,846	4,829	5,352	5,960	608	11.4
Latin America	26,820	27,591	31,773	33,877	35,510	1,633	4.8
CBERA	787	927	1,190	1,217	1,252	35	2.9
Asia	57,841	59,420	65,108	63,345	62,934	-411	-0.6
Sub-Saharan Africa	879	1,009	1,232	1,275	1,451	176	13.8
Central and Eastern Europe	996	1,192	1,424	1,534	1,690	156	10.2
U.S. imports of merchandise for consumption:							
China	69,252	86,858	103,289	116,467	117,986	1,519	1.3
Mexico	38,991	40,221	47,107	53,999	53,228	-771	-1.4
Japan	32,023	31,512	30,838	31,542	30,734	-808	-2.6
Canada	10,982	12,480	11,958	12,141	11,830	-312	-2.6
Malaysia	22,273	27,554	29,401	25,265	22,608	-2,658	-10.5
Korea	19,706	15,382	14,332	15,076	17,222	2,146	14.2
Taiwan	16,506	16,333	18,431	18,034	16,561	-1,473	-8.2
Germany	9,043	9,969	10,926	11,960	12,259	299	2.5
Singapore	10,477	9,853	10,296	10,852	8,476	-2,377	-21.9
United Kingdom	5,319	5,413	5,532	5,701	5,812	111	2.0
All other	45,891	50,092	50,376	51,973	54,909	2,936	5.6
Total	280,463	305,667	332,485	353,009	351,622	-1,387	-0.4
EU-27	34,145	36,184	36,405	38,114	40,399	2,286	6.0
OPEC	25	34	74	35	33	-2	-4.8
Latin America	41,788	43,590	50,280	57,046	56,466	-581	-1.0
CBERA	70	77	79	77	77	(c)	0.1
Asia	186,101	205,380	224,948	236,023	232,665	-3,357	-1.4
Sub-Saharan Africa	71	76	85	94	95	1	1.6
Central and Eastern Europe	1,783	2,136	2,057	2,243	2,682	438	19.5

EL-2

See footnote(s) at end of table.

TABLE EL.1 Electronic products: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—Continued

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
China	-62,350	-78,906	-92,176	-105,034	-105,611	-577	-0.5
Mexico	-21,588	-23,572	-28,750	-35,605	-34,981	624	1.8
Japan	-20,787	-20,545	-19,300	-20,748	-20,943	-195	-0.9
Canada	6,626	6,461	6,419	6,041	6,644	603	10.0
Malaysia	-15,728	-21,240	-22,441	-19,433	-15,795	3,638	18.7
Korea	-12,316	-7,485	-5,908	-7,812	-10,796	-2,984	-38.2
Taiwan	-10,881	-10,870	-12,520	-11,737	-10,170	1,568	13.4
Germany	-1,514	-2,022	-1,813	-2,614	-3,367	-753	-28.8
Singapore	-4,473	-3,813	-4,260	-4,194	-1,963	2,231	53.2
United Kingdom	2,807	2,114	1,981	1,207	1,095	-112	-9.3
All other	9,306	9,763	15,662	19,423	19,076	-347	-1.8
Total	-130,899	-150,115	-163,105	-180,507	-176,812	3,695	2.0
EU-27	3,652	2,825	5,362	5,519	3,237	-2,282	-41.3
OPEC	2,992	3,812	4,756	5,317	5,926	610	11.5
Latin America	-14,968	-15,999	-18,508	-23,169	-20,955	2,214	9.6
CBERA	718	850	1,111	1,140	1,175	35	3.1
Asia	-128,260	-145,961	-159,840	-172,678	-169,732	2,946	1.7
Sub-Saharan Africa	807	933	1,147	1,181	1,356	175	14.8
Central and Eastern Europe	-788	-944	-632	-710	-992	-282	-39.8

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than 0.05 percent.

^cLess than \$500,000.

TABLE EL.2 Electronic products: Leading changes in U.S. exports and imports, 2004–08^a

Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. EXPORTS:							
Increases:							
Medical goods (EL022)	18,548	21,114	23,443	25,446	28,415	2,969	11.7
Measuring, testing, and controlling instruments (EL025)	16,603	17,399	19,669	20,963	22,195	1,232	5.9
Semiconductors and integrated circuits (EL015)	35,130	34,195	37,227	35,487	35,809	323	0.9
Telecommunications equipment (EL002)	13,958	14,183	14,779	16,882	17,151	269	1.6
Blank and prerecorded media (EL004)	4,282	4,618	4,449	4,139	4,365	227	5.5
Decreases:							
Computers, peripherals, and parts (EL017)	27,350	28,862	29,969	28,051	26,554	-1,498	-5.3
All other	33,692	35,181	39,845	41,534	40,320	-1,214	-2.9
TOTAL	149,564	155,552	169,381	172,502	174,810	2,308	1.3
U.S. IMPORTS:							
Increases:							
Telecommunications equipment (EL002)	39,341	49,220	53,318	60,699	64,331	3,633	6.0
Medical goods (EL022)	19,324	20,947	22,573	24,878	27,531	2,653	10.7
Television receivers and video monitors (EL003A)	17,509	22,712	28,628	33,267	34,757	1,490	4.5
Optical goods, including ophthalmic goods (EL020)	5,386	5,626	6,294	7,137	7,978	841	11.8
Decreases:							
Computers, peripherals, and parts (EL017)	89,264	93,950	102,468	106,789	102,338	-4,451	-4.2
Consumer electronics (EL003)	41,938	48,577	54,831	57,581	55,257	-2,325	-4.0
Semiconductors and integrated circuits (EL015)	26,256	25,425	27,022	26,259	25,298	-961	-3.7
Blank and prerecorded media (EL004)	5,333	5,747	5,748	5,550	4,873	-676	-12.2
All other	36,112	33,463	31,605	30,850	29,259	-1,591	-5.2
TOTAL	280,463	305,667	332,485	353,009	351,622	-1,387	-0.4

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

shipments and a substantial increase in U.S. exports of medical goods to the Netherlands.² Further, U.S. medical device firms are increasingly using the Netherlands as a major distribution hub for medical device sales to Europe and the Middle East.³ U.S. exports to Japan, which had been growing at a sluggish pace in recent years due to inefficiencies in the Japanese regulatory approval system for medical goods,⁴ revived in 2008 after Japan announced plans to streamline its regulatory process.⁵ U.S. exports of medical devices to Belgium and China grew by more than 25 percent in 2008.

U.S. exports of measuring, testing, and controlling instruments continued to climb for the fifth consecutive year, with U.S. exports to China, Mexico, and the United Kingdom increasing the most. Higher demand for U.S.-made precision instruments, as well as rising unit values, contributed to this growth.⁶

U.S. Imports

U.S. imports of electronic products decreased by \$1.4 billion (0.4 percent) to \$351.6 billion in 2008, as significant increases in U.S. imports of telecommunications equipment (\$3.6 billion) and medical goods (\$2.7 billion) were outweighed by decreases in imports of computer equipment (\$4.5 billion), consumer electronics (\$2.3 billion), and semiconductors and integrated circuits (\$961 million). China was by far the largest supplier of U.S. imports of electronic goods in 2008; imports from China rose by less than 2 percent in 2008. U.S. imports from most other large suppliers declined, including Malaysia (by \$2.7 billion), Singapore (by \$2.4 billion), and Taiwan (by \$1.5 billion).

U.S. imports of computers, consumer electronics, and semiconductors all posted 4 percent declines in 2008. U.S. demand for personal computers registered double-digit growth for two decades before slowing considerably in 2008, owing to market saturation and adverse economic conditions.⁷ Demand for personal computers was also likely affected by the increasingly advanced functions offered by certain telecommunications devices such as smartphones, which allow users to access the Internet, store photos and music, and watch videos. Domestic demand for consumer electronics products also declined in 2008, due in part to market saturation for popular products such as MP3 players.

Semiconductor sales are closely linked to the economic cycle, and after six years of strong growth in the industry, both volumes and prices of semiconductors fell in the final quarter of 2008.⁸ In particular, the economic crisis adversely affected consumer demand for end-use devices containing semiconductors, especially automotive products and information technology products.⁹

² *Medical Product Outsourcing*, "Philips Electronics Expands Medical Device Portfolio," January 1, 2008.

³ New Zealand Trade and Enterprise, "The Netherlands Country Brief," August 2006.

⁴ For further information on the Japanese regulatory approval system for medical goods, see USITC, *Medical Devices and Equipment: Competitive Conditions Affecting U.S. Trade in Japan and Other Principal Foreign Markets*, USITC Publication 3909, 2007.

⁵ Mezo, "Reform in Japan" December 22, 2008.

⁶ See the Measuring, Testing and Controlling Instruments section of this chapter for more detail.

⁷ EIU, "USA: Telecoms and Technology," March 12, 2009.

⁸ EIU, "World Hardware: Semiconductor Market Update," February 2009.

⁹ SIA, "Global Semiconductor Sales Fell by 2.8 Percent in 2008," February 2, 2009.

The increase in imports of telecom equipment was almost wholly attributable to Korea and Mexico. Imports of equipment from Korea, primarily cellular phones and wireless networking equipment, increased by \$2.3 billion (32 percent) in 2008. Imports from Mexico, primarily cellular phones, rose by \$1.6 billion (18 percent). Imports from China, by far the largest supplier of telecom equipment to the United States, grew by only 1 percent (\$214 million) in 2008. Smartphones have become more attractive to U.S. consumers as prices have fallen, carriers have improved service coverage and quality, and new models incorporating popular features like touch-screens have entered the market.¹⁰ The 69 percent growth of the smartphone market in North America in 2008 is likely a contributing factor to the increase in imports of cellular phones because such equipment is typically not manufactured in the United States.¹¹

Continued growth in U.S. demand for medical services in 2008 led to an increase in imports of medical goods of \$2.7 billion (11 percent).¹² Ireland accounted for slightly less than one-half of this increase. Ireland's low corporate tax rate and highly skilled workforce make it an attractive location for manufacturing, and 13 of the world's top 25 medical device companies have established manufacturing plants there.¹³ Other major suppliers of medical devices to the United States in 2008 were Mexico and Germany. Collectively, these three countries accounted for nearly 50 percent of total imports in that year.

¹⁰ EIU, "USA Telecoms: Smartphones Picking Up Market Share," March 4, 2009.

¹¹ EIU, "World Telecoms: Advertisers Get a Trove of Clues in Smartphones," March 11, 2009.

¹² The United States spends more on healthcare than any other country in the world (roughly 16 percent of GDP in each of the last five years). EIU, "USA: Healthcare and Pharmaceuticals Report," February 12, 2009.

¹³ For example, in December 2008, a subsidiary of the U.S. pharmaceutical firm Johnson & Johnson opened a facility to manufacture state-of-the-art medical devices in Ireland. In addition, an Irish company, Cook Medical, became the first in the world to manufacture a drug-eluting stent to treat peripheral artery disease in November 2008. Drug-eluting stents are tiny, hollow metal or plastic tubes inserted into an artery or blood vessel to restore blood flow. They are coated with a drug that prevents scarring of the arterial tissue. Episcom Business Intelligence Ltd., "The Medical Device Market: Ireland," January 31, 2009; Ireland Department of Enterprise, Trade and Employment, "Cordis Medical Device Manufacturing Facility Opens in Cashel," December 2, 2008; and Manufacturing Ireland, "Cooking Up a Storm," November 30, 2008.

Measuring, Testing, and Controlling Instruments¹⁴

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Change in 2008 from 2007:

U.S. trade surplus: Increased by \$1.1 billion (50 percent) to \$3.4 billion

U.S. exports: Increased by \$1.2 billion (6 percent) to \$22.2 billion

U.S. imports: Increased by \$86 million (0.5 percent) to \$18.8 billion

The increase in the U.S. trade surplus for measuring, testing, and controlling instruments was driven by the growth of U.S. exports (up by \$1.2 billion, or 6 percent) outpacing that of U.S. imports (up by \$86 million, or 1 percent) (table EL.3). The measuring, testing, and controlling instruments industry is highly globalized, consisting of large multinational companies that source products and related components from their worldwide production locations to serve global markets. A combination of factors contributed to the increased value of U.S. exports of these products in 2008, including growing demand from end-use industries that required advances in instrument precision to meet higher quality, safety, and environmental control standards.¹⁵ Another contributing factor to the increased value of U.S. exports was the higher average unit value of traded instruments.¹⁶

U.S. Exports

The increased value of U.S. exports for measuring, testing, and controlling instruments is due primarily to the globalization of the industry and the weak U.S. dollar relative to the currencies of several major U.S. export markets.¹⁷ U.S. exports to China, a major market for this sector, led the growth in 2008; such exports increased by \$352 million (23 percent) to \$1.9 billion. This industry sector was listed among China's top 10 imports for 2008, with

¹⁴ This industry/commodity group covers a wide range of instruments including surveying, meteorological, and geophysical instruments; instruments that measure atmospheric conditions (e.g., pyrometers, barometers, and hygrometers); instruments that measure flow, level, and pressure and other variables of liquids and gases (meters); instruments used for various physical and chemical analysis (e.g., chromatographs, electrophorus devices, and spectrophotometers); production meters for gas, liquid, and electricity supply; and instruments for measuring ionizing radiation.

¹⁵ Examples of such end-use industries include construction, mining, automotive, and commodity manufacturing, particularly where computerized process control systems are utilized to compare, on an ongoing basis, real-time processing readings with a pre-established set of parameters. These control systems allow for immediate intervention as necessary. IBISWorld Inc., *Measuring, Testing, and Navigational Instrument Manufacturing*, July 25, 2008, 9–20.

¹⁶ Although the export value of instruments for which quantity data were collected represents only 36 percent of the total export value, the unit value does provide some measure of value change in 2008. The value of instruments increased by \$540 million (almost 8 percent) to \$8.2 billion; the quantity decreased by 8 million instruments (12 percent) to 59.5 million; and the trade-weighted average unit export value increased by \$24.46 (22 percent) to \$138.00 per instrument.

¹⁷ The U.S. dollar depreciated in 2008 relative to the Canadian and Singaporean dollars, the euro, and the Chinese yuan, but strengthened against the Mexican peso and British pound. Board of Governors of the Federal Reserve System, "Foreign Exchange Rates (Annual)," January 2, 2009.

TABLE EL.3 Measuring, testing, and controlling instruments (EL025): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
Canada	2,897	2,877	3,035	3,072	3,021	-51	-1.7	
Mexico	1,597	1,490	1,438	1,585	1,741	156	9.8	
Germany	1,218	1,345	1,535	1,627	1,700	73	4.5	
China	996	1,109	1,349	1,533	1,885	352	23.0	
Japan	1,508	1,405	1,685	1,457	1,349	-108	-7.4	
United Kingdom	825	830	909	957	1,074	118	12.3	
France	596	685	833	794	718	-77	-9.6	
Singapore	582	577	692	779	891	112	14.4	
Malaysia	265	261	353	303	298	-5	-1.8	
Korea	637	782	754	810	822	12	1.4	
All other	5,480	6,037	7,087	8,047	8,697	650	8.1	
Total	16,603	17,399	19,669	20,963	22,195	1,232	5.9	
EU-27	4,491	4,867	5,470	5,756	6,086	331	5.7	
OPEC	370	523	721	869	1,003	134	15.4	
Latin America	2,264	2,325	2,468	2,869	3,269	399	13.9	
CBERA	63	84	100	138	128	-9	-6.9	
Asia	5,576	5,755	6,672	6,823	7,159	336	4.9	
Sub-Saharan Africa	136	148	195	270	291	20	7.5	
Central and Eastern Europe	120	148	195	250	280	30	12.2	
U.S. imports of merchandise for consumption:								
Canada	1,152	1,320	1,496	1,652	1,598	-53	-3.2	
Mexico	2,872	2,850	2,800	3,066	2,735	-332	-10.8	
Germany	1,889	2,093	2,299	2,548	2,519	-29	-1.1	
China	1,162	1,333	1,471	1,746	1,995	249	14.2	
Japan	2,359	2,356	2,447	2,578	2,511	-67	-2.6	
United Kingdom	1,201	1,244	1,279	1,513	1,614	102	6.7	
France	406	515	624	742	723	-19	-2.6	
Singapore	277	277	302	377	425	49	12.9	
Malaysia	385	464	565	706	767	60	8.5	
Korea	67	81	134	151	182	31	20.7	
All other	2,597	2,825	3,155	3,598	3,695	96	2.7	
Total	14,367	15,359	16,573	18,678	18,764	86	0.5	
EU-27	4,887	5,283	5,677	6,457	6,558	101	1.6	
OPEC	3	5	13	7	6	-2	-22.6	
Latin America	2,930	2,910	2,898	3,161	2,839	-322	-10.2	
CBERA	4	6	9	11	9	-3	-22.4	
Asia	4,651	4,994	5,517	6,290	6,611	320	5.1	
Sub-Saharan Africa	9	10	10	13	9	-4	-27.4	
Central and Eastern Europe	181	200	215	211	212	1	0.5	

See footnote(s) at end of table.

TABLE EL.3 Measuring, testing, and controlling instruments (EL025): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
Canada	1,746	1,557	1,538	1,420	1,423	2	0.2
Mexico	-1,276	-1,359	-1,362	-1,481	-994	488	32.9
Germany	-671	-748	-764	-921	-819	103	11.1
China	-166	-224	-123	-213	-110	103	48.5
Japan	-851	-951	-762	-1,122	-1,162	-41	-3.6
United Kingdom	-376	-414	-370	-556	-540	16	2.9
France	191	171	210	52	-5	-57	^(b)
Singapore	305	300	390	402	465	63	15.7
Malaysia	-120	-204	-212	-403	-469	-66	-16.3
Korea	571	701	620	659	640	-20	-3.0
All other	2,883	3,212	3,932	4,448	5,002	554	12.4
Total	2,237	2,040	3,096	2,286	3,431	1,146	50.1
EU-27	-395	-416	-207	-702	-472	230	32.7
OPEC	368	518	707	862	997	135	15.7
Latin America	-666	-585	-430	-291	430	721	^(b)
CBERA	59	78	91	126	119	-7	-5.5
Asia	924	761	1,155	533	549	16	3.0
Sub-Saharan Africa	126	138	186	257	281	24	9.3
Central and Eastern Europe	-61	-52	-19	39	69	29	75.1

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bNot meaningful for purposes of comparison.

the products largely used in infrastructure and manufacturing projects.¹⁸ U.S. exports to Mexico, the United Kingdom, and Singapore each followed suit; collectively increasing by \$386 million (12 percent) to \$3.7 billion in 2008.¹⁹

In 2008, the growth in U.S. exports was dominated by parts for measuring, testing, and controlling instruments (increased by \$393 million, 6 percent, to \$6.7 billion); U.S. exports to Mexico and China accounted for most of this growth, increasing by, \$754 million (18 percent) to \$11 million and by \$93 million (20 percent) to \$554 million, respectively. Major U.S. manufacturers of products in this sector have manufacturing and distribution operations in Mexico and China. U.S. exports of physical and chemical analysis instruments increased by the next largest amount (increased by \$336 million, 8 percent, to \$4.7 billion); U.S. exports to China dominated the growth in these instruments (increased by \$147 million, 41 percent, to \$504 million).²⁰ The third-largest increase in sector exports was accounted for by surveying and geophysical measurement instruments (increased by \$263 million, 28 percent to \$1.2 billion); U.S. exports to the United Kingdom dominated the growth in exports of these instruments (increased by 144 percent to \$67 million), followed by Canada (increased by \$67 million, 44 percent to \$107 million) and Singapore (increased by \$33 million, 85 percent, to \$69 million).²¹

U.S. Imports

U.S. imports of measuring, testing, and controlling instruments increased only slightly in 2008, by \$86 million (0.5 percent) to \$18.8 billion. Factors that limited import growth in 2008 included a general decrease in U.S. construction and manufacturing activity,²² which are major markets for this product sector, and the depreciated dollar relative to the currencies of several major suppliers to the U.S. market. U.S. imports from China and the United Kingdom increased in 2008, growing by \$249 million (14 percent) and \$102 million (7 percent), respectively. Although the U.S. dollar depreciated relative to the Chinese yuan, intracompany transfers by major U.S. companies and large global producers with facilities in the U.S. market that have manufacturing operations in China contributed to four consecutive years of increased U.S. imports. In addition, the United Kingdom is a global leader in this industry sector; UK companies have a number of operations in the U.S. market, contributing to four consecutive years of increased imports due to intracompany transfers. The stronger U.S. dollar relative to the British pound, in 2008 also spurred increased imports from the United Kingdom.

¹⁸ EIU, *Business China*, March 2, 2009, 10.

¹⁹ Canada continued to be the leading U.S. export market for this sector despite a decrease of \$51 million (down nearly 2 percent) in U.S. exports, attributable to a combination of factors including lower prices of Canadian mined commodities, which contributed to reduced Canadian export revenues, and an overall economic downturn. Although Japan also continued to be a major market for this sector, exports to that market have decreased in the past two years, down by \$228 million (14 percent) in 2007 and by \$108 million (7 percent) in 2008. OECD, "Developments in Individual OECD Countries, Canada," 2008, 118.

²⁰ Physical and chemical measuring instruments are typically used in chemical laboratories and in manufacturing and processing operations. They include spectrometers, which measure properties of light for analyzing material composition; chromatographs and electrophoresis instruments, which separate and isolate molecules from other molecules of a mixture; and a variety of other instruments to measure gas and smoke, thermal burden, viscosity, expansion, and surface tension.

²¹ Surveying and range finders are used in a variety of industries, including mining, construction, and civil engineering. Geophysical instruments measure activities of the earth including oceanography, seismology (earthquakes), and volcanology (volcanoes).

²² USDOC, BEA, "Table 6.ID: National Income Without Capital Consumption Adjustment by Industry."

Korea, Malaysia, and Singapore each accounted for a comparatively small amount of U.S. imports in 2008. Imports from these countries collectively increased by \$140 million (11 percent) to \$1.4 billion.²³ Imports decreased from all other major suppliers.²⁴

In terms of product shifts, parts of measuring, testing, and controlling instruments recorded the largest increase in 2008 (by 6 percent to \$4.7 billion); imports from three countries contributed significantly to this increase: China (increased by 28 percent to \$531 million), Mexico (increased by 12 percent to \$607 million), and Germany (increased by 8 percent to \$707 million). These shifts are illustrative of the globalization of supply chains in this sector. The largest increase was in parts for physical and chemical analysis instruments.²⁵ In the same year, instruments for physical and chemical analysis recorded the next-largest increase (by 5 percent to nearly \$3 billion), most of which entered from China and Ireland. Gas, liquid, and electricity supply meters accounted for the third-largest increase (by 40 percent to \$261 million); Mexico accounted for most of this growth (increased by 40 percent to \$202 million), followed by China and the United Kingdom (a combined increase of 275 percent to \$30 million). Although imports increased for a number of product groups within this sector, imports of others declined, resulting in a relatively flat U.S. import market for 2008.²⁶

²³ Although imports from these three countries increased in 2008, their collective import market share remained constant over the 2004–08 period at 7 percent. By comparison, the import market shares for China and the United Kingdom increased in 2008 to 11 percent and 9 percent, respectively.

²⁴ Although the U.S. dollar appreciated relative to the Mexican peso in 2008, sector products imported from Mexico decreased in value. The 2007 growth in U.S. imports from Mexico was an anomaly (table EL.3), which contributed to the large decrease (\$332 million) in 2008. U.S. imports from Mexico continued the downward trend in 2008, steadily losing U.S. import market share to other major suppliers.

²⁵ U.S. imports of parts for physical and chemical analysis instruments increased by 7 percent to \$1.3 billion in 2008. China and Germany dominated the growth in imports of these parts, with a combined increase of \$357 million.

²⁶ In 2008, the largest decrease was in automatic regulating instruments used for home, office, and industrial environment control applications (decreased by 12 percent to \$3.0 billion), followed by revolution and production counters (decreased by 15 percent to \$722 million). For both product groups, imports from Mexico recorded the largest decreases, down by 27 percent to \$925 million for auto regulating instruments and by 22 percent to \$415 million for revolution and production counters.

Optical Goods²⁷

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Change in 2008 from 2007:

U.S. trade deficit: Increased by \$1.0 billion (53 percent) to \$3.0 billion

U.S. exports: Decreased by \$203 million (4 percent) to \$5.0 billion

U.S. imports: Increased by \$841 million (12 percent) to \$8.0 billion

The U.S. trade deficit in optical goods increased by 53 percent to \$3.0 billion in 2008, representing the largest year-to-year change in the past five years (table EL.4). Reduced purchases of U.S.-manufactured optical components and inputs by struggling Asian equipment producers, and the continued transfer of U.S. contact lens production to Europe and Asia, led to lower U.S. exports. Meanwhile, continued demand by U.S. consumers for digital photography and consumer electronics products—which incorporate high-value optical components such as digital lenses and liquid-crystal displays—contributed to a significant increase in imports.

U.S. Exports

In 2008, U.S. exports of optical goods declined by \$203 million (4 percent) to \$5.0 billion. Sales of U.S.-made optical products and components used as manufacturing inputs by large industrial, machine tool, and consumer electronics producers in Japan, Korea, China, and Taiwan declined significantly, largely due to downturns in global markets for such goods.²⁸ For example, U.S. exports of lasers to Japan, the largest market for U.S.-made optical products, decreased by 20 percent to \$200 million, while exports of precision lenses and components to that country fell by more than one-third to \$184 million. These declines occurred as Japanese manufacturers reduced their demand for optical components as sales of cars, electronics, and machinery all continued to decline.²⁹ After increasing by 15 percent to \$792 million in 2007, U.S. exports of contact lenses dropped by 3 percent in 2008, as major U.S. producers shifted some of their production to manufacturing subsidiaries in the United Kingdom, Ireland, and Malaysia.³⁰

²⁷ This industry/commodity group includes optical instruments, such as microscopes, telescopes, and liquid crystal devices; optical lenses, including camera lenses; and ophthalmic goods, including eyeglasses, sunglasses, and eyeglass and sunglass lenses and frames.

²⁸ U.S. industry officials, telephone interview by Commission staff, March 10, 2009; Anderson and Overton, "Photonics Enters a Period of High Anxiety," January 2009, 55–76.

²⁹ Harden, "Japan Leads Rich Nations Downward," March 10, 2009, D04; U.S. industry officials, telephone interviews by Commission staff, January 9–11, 2009.

³⁰ Finfacts Team, "Vistakon To Invest Over €100 Million," March 15, 2006, 1; Johnson & Johnson, "Form 10-K," February 9, 2009, 1–20; Gale Group, "Bausch & Lomb To Adjust Worldwide Contact Lens Manufacturing Workforce," September 20, 2006; IBISWorld Inc., *Ophthalmic Lens Manufacturing in the U.S.*, January 27, 2009, 20–25; and IBISWorld Inc. "Ophthalmic Lens Wholesaling in the US," January 27, 2009, 22–27.

TABLE EL.4 Optical goods, including ophthalmic goods (EL020): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Japan	755	950	950	961	847	-114	-11.9
China	141	274	357	378	295	-83	-21.9
Germany	233	351	343	381	411	30	8.0
Korea	429	514	581	465	347	-118	-25.3
United Kingdom	350	315	374	451	499	48	10.5
Italy	48	58	57	54	83	29	54.3
Canada	241	281	300	322	355	32	10.0
Taiwan	374	426	360	334	219	-115	-34.5
Netherlands	264	287	412	406	318	-89	-21.8
Singapore	154	147	181	211	198	-13	-6.4
All other	1,003	1,061	1,127	1,203	1,391	189	15.7
Total	3,992	4,664	5,041	5,166	4,963	-203	-3.9
EU-27	1,152	1,244	1,466	1,604	1,670	66	4.1
OPEC	57	68	83	62	113	51	83.6
Latin America	337	338	272	282	394	112	39.9
CBERA	13	10	13	31	36	5	17.1
Asia	1,995	2,514	2,663	2,640	2,177	-464	-17.6
Sub-Saharan Africa	12	15	16	17	20	3	17.2
Central and Eastern Europe	21	22	34	75	86	10	13.9
U.S. imports of merchandise for consumption:							
Japan	1,366	1,279	1,296	1,264	1,503	239	18.9
China	1,057	1,179	1,516	1,904	1,939	35	1.8
Germany	414	438	475	543	554	11	2.0
Korea	90	117	124	279	549	270	96.5
United Kingdom	218	209	188	233	272	39	16.5
Italy	548	599	743	794	678	-116	-14.6
Canada	160	168	144	155	400	244	157.4
Taiwan	228	240	276	288	289	1	0.3
Netherlands	81	75	113	108	83	-24	-22.5
Singapore	96	117	145	138	158	20	14.3
All other	1,127	1,205	1,274	1,430	1,553	123	8.6
Total	5,386	5,626	6,294	7,137	7,978	841	11.8
EU-27	1,686	1,766	1,968	2,177	2,131	-46	-2.1
OPEC	(^b)	(^b)	1	(^b)	(^b)	(^b)	13.9
Latin America	146	162	187	211	217	6	2.7
CBERA	2	(^b)	(^b)	(^b)	1	(^b)	87.0
Asia	3,245	3,357	3,821	4,414	5,024	610	13.8
Sub-Saharan Africa	6	8	9	11	7	-4	-34.1
Central and Eastern Europe	34	42	51	55	59	4	8.0

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See footnote(s) at end of table.

TABLE EL.4 Optical goods, including ophthalmic goods (EL020): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
Japan	-611	-329	-345	-303	-656	-353	-116.6
China	-916	-904	-1,159	-1,527	-1,644	-117	-7.7
Germany	-181	-87	-132	-163	-143	19	11.9
Korea	339	397	457	185	-202	-387	^(c)
United Kingdom	132	106	185	218	227	9	4.1
Italy	-500	-541	-686	-740	-595	145	19.6
Canada	81	113	156	167	-45	-212	^(c)
Taiwan	145	186	84	46	-70	-116	^(c)
Netherlands	183	211	299	299	234	-64	-21.5
Singapore	58	30	36	74	40	-33	-45.1
All other	-125	-144	-147	-227	-162	66	28.9
Total	-1,395	-962	-1,253	-1,971	-3,016	-1,045	-53.0
EU-27	-534	-522	-502	-573	-461	112	19.5
OPEC	56	68	83	61	113	51	84.0
Latin America	191	176	84	70	177	107	151.6
CBERA	10	10	13	31	36	5	16.4
Asia	-1,250	-843	-1,158	-1,774	-2,847	-1,073	-60.5
Sub-Saharan Africa	6	7	6	6	13	6	105.8
Central and Eastern Europe	-13	-21	-16	21	27	6	29.4

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

^cNot meaningful for purposes of comparison.

U.S. Imports

U.S. imports of optical goods from Japan, Canada, and Korea increased the most in 2008, while imports from the largest supplier, China, remained stagnant. Major Japanese camera makers took advantage of recent spikes in U.S. demand for digital single-lens reflex cameras (DSLRs) and increased their sales of add-on products, particularly interchangeable lenses, in 2008.³¹ Although sales of less sophisticated, compact digital cameras have slowed, sales of DSLRs grew; lower selling prices, a greater range of models, and more effective distribution of DSLRs by Japanese producers such as Nikon and Canon³² contributed to the growth in this more sophisticated segment of the U.S. consumer photography products market.³³ Other Japanese-manufactured optical products registering import growth in the United States included lasers, microscopes, and polarized glass.

Improved features and falling prices on a wide range of video-based consumer electronics products, such as flat-panel displays, fueled an increase in U.S. imports of specialized, Korean-made liquid-crystal devices and components. These included components used in the assembly of monitors and other display devices in U.S. facilities of a major Japanese-based consumer electronics firm.³⁴ Intracompany trade between Korean electronics manufacturers and their U.S. subsidiaries also contributed to the increase in U.S. imports of optical goods and components.

While China continued to be the largest supplier of U.S. imports of optical goods, accounting for just under 25 percent of the total, imports from that country rose by less than 2 percent in 2008 and consisted principally of eyeglass frames, sunglasses, reading glasses, and camera lenses.³⁵ China's exports of camera lenses to the United States and other foreign markets have trended downward since peaking in 2000, as global camera equipment firms shifted the production of lower-end photographic equipment from China to other countries with lower wage rates such as Malaysia, Vietnam, and Thailand.³⁶ By contrast, Japan continues to dominate the market for high-end cameras and lenses.³⁷

³¹ Hogan, "Photokina 2008 Commentary," 2008, 1–4; *Digital Photography News*, "Canon Announces New 50D Digital SLRView Track," August 26, 2008, 1.

³² Cheesman, "Canon to Boost DSLR Camera Lens Production," March 31, 2008, 1.

³³ InfoTrends, "Infotrends Releases Landmark Study," November 13, 2008, 1.

³⁴ U.S. industry officials, telephone interview by Commission staff, March 10, 2009.

³⁵ IBISWorld Inc., *Camera Equipment Manufacturing in China*, August 28, 2008, 8, 10.

³⁶ Most of the large camera equipment firms are headquartered in Japan, but manufacture lower-end cameras and lenses in less-developed Asian countries. *Ibid.*, 8–12.

³⁷ *Ibid.*, 12.

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Energy-Related Products¹

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Change in 2008 from 2007:

U.S. trade deficit: Increased by \$92.4 billion (31 percent) to \$390.6 billion
U.S. exports: Increased by \$35.1 billion (75 percent) to \$81.7 billion
U.S. imports: Increased by \$127.5 billion (37 percent) to \$472.3 billion

In 2008, the U.S. trade deficit in energy-related products increased by 31 percent, primarily because of increased prices for crude petroleum, the feedstock for the production of petroleum products (table EP.1). The trade deficits in energy-related products was equivalent to 42 percent of the total U.S. merchandise trade deficit in 2008. The trade deficits for crude petroleum, petroleum products, natural gas, and electricity all increased, primarily because of the rising prices. In contrast, coal, coke, and related chemical products moved from a small deficit to a small surplus in 2008.

World prices for crude petroleum increased from an average of \$68 per barrel during 2007 to an average of \$95 per barrel during 2008.² Average spot market prices rose during the second and third quarters of 2008, peaking during the first week of July at a high of \$133 per barrel,³ after which prices began to decline during the remainder of July and August. Prices continued to decline before falling sharply during November and December to a low of \$40 per barrel. The increase in prices was largely in response to rising demand, particularly in developing countries such as China and India, in the face of relatively stagnant world production.⁴ During the second half of 2008, the continuing economic downturn and weakening demand for certain petroleum products led to declining prices.⁵ For example, U.S. demand for distillate and residual fuel oils, which are primarily used for heating, declined by more than 10 percent by quantity as a result of relatively mild weather conditions during the 2007–08 winter, and demand for finished motor fuels declined by about 2 percent in response to high gasoline prices.

¹ The products covered in this sector are crude petroleum, petroleum products, natural gas, coal and other carbonaceous materials, and electricity.

² The prices presented in this section are an average of spot market prices for all types of crude petroleum.

³ While futures trading prices reached \$147 per barrel in July 2008, only North Sea Brent crude rose to over \$140 per barrel in 2008.

⁴ World production of crude petroleum increased by only 1 percent during the 2007–08 period. Production declined in some major producing countries, such as Nigeria, whose production declined by 8 percent, Norway, which declined by 3 percent, and Venezuela, Russia, and Mexico, each by 1 percent; production increased in certain OPEC countries such as Saudi Arabia and Kuwait, each of which increased production by 5 percent, as well as Iraq, which increased production by about 9 percent.

⁵ Crude petroleum is traded on the world market in dollars and there is an inverse relationship between the value of the U.S. dollar and crude petroleum. A weak U.S. economy and depreciated U.S. dollar has generally led to bearish crude petroleum prices, while a strong U.S. economy and an appreciated dollar are likely to lead to higher crude petroleum prices. Officials of the American Petroleum Institute and the National Petrochemical and Refiners' Association, telephone interview by Commission staff, May 12, 2009.

TABLE EP.1 Energy-related products: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Canada	5,754	8,487	8,953	10,563	16,772	6,209	58.8
Mexico	3,379	5,508	5,925	7,015	11,329	4,314	61.5
Saudi Arabia	48	57	49	69	94	24	35.2
Venezuela	170	202	636	644	637	-7	-1.1
Nigeria	28	38	120	84	448	364	432.0
Angola	1	2	3	7	9	2	26.8
Iraq	(^b)	(^b)	1	(^b)	(^b)	(^b)	-12.3
Russia	26	81	48	84	116	33	39.2
Algeria	25	30	47	191	54	-137	-71.6
Netherlands	893	1,061	2,148	2,920	6,256	3,336	114.2
All other	11,458	14,427	21,069	25,096	46,023	20,926	83.4
Total	21,783	29,892	38,999	46,674	81,737	35,063	75.1
EU-27	3,128	4,119	6,896	7,449	15,653	8,204	110.1
OPEC	476	742	1,822	1,732	1,921	189	10.9
Latin America	7,249	11,644	15,311	19,151	31,722	12,571	65.6
CBERA	1,323	2,003	2,783	3,948	5,903	1,955	49.5
Asia	4,442	4,117	5,258	6,014	8,978	2,965	49.3
Sub-Saharan Africa	187	233	548	667	1,538	871	130.5
Central and Eastern Europe	102	253	311	365	1,016	651	178.4
U.S. imports of merchandise for consumption:							
Canada	49,278	66,116	73,748	79,138	111,953	32,815	41.5
Mexico	18,966	25,029	32,116	33,549	42,626	9,077	27.1
Saudi Arabia	17,851	23,268	28,154	31,381	48,651	17,269	55.0
Venezuela	20,261	28,016	32,598	34,031	45,277	11,246	33.0
Nigeria	16,233	23,713	27,800	32,431	38,028	5,596	17.3
Angola	4,432	8,393	11,467	12,148	18,618	6,470	53.3
Iraq	6,496	7,008	9,253	8,776	18,171	9,396	107.1
Russia	4,935	8,471	10,195	11,234	17,313	6,079	54.1
Algeria	5,435	8,517	12,062	14,325	15,994	1,669	11.6
Netherlands	2,024	3,759	5,218	4,720	6,606	1,886	40.0
All other	49,643	70,906	76,557	83,095	109,087	25,993	31.3
Total	195,553	273,197	319,168	344,829	472,325	127,496	37.0
EU-27	16,028	22,623	26,057	28,011	33,956	5,945	21.2
OPEC	76,649	108,315	132,176	144,043	201,637	57,595	40.0
Latin America	56,061	77,970	90,843	92,898	124,181	31,283	33.7
CBERA	6,160	9,236	9,248	8,972	8,648	-324	-3.6
Asia	3,928	5,348	7,311	8,178	7,055	-1,123	-13.7
Sub-Saharan Africa	26,299	40,327	47,814	54,238	71,727	17,488	32.2
Central and Eastern Europe	233	297	308	128	206	78	60.6

EP-2

See footnote(s) at end of table.

TABLE EP.1 Energy-related products: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—Continued

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
Canada	-43,524	-57,629	-64,796	-68,575	-95,182	-26,607	-38.8
Mexico	-15,587	-19,522	-26,191	-26,534	-31,297	-4,763	-18.0
Saudi Arabia	-17,803	-23,211	-28,106	-31,312	-48,557	-17,245	-55.1
Venezuela	-20,090	-27,814	-31,962	-33,387	-44,640	-11,253	-33.7
Nigeria	-16,205	-23,675	-27,679	-32,347	-37,579	-5,232	-16.2
Angola	-4,430	-8,391	-11,464	-12,141	-18,609	-6,468	-53.3
Iraq	-6,495	-7,008	-9,252	-8,775	-18,171	-9,396	-107.1
Russia	-4,910	-8,390	-10,147	-11,150	-17,197	-6,047	-54.2
Algeria	-5,410	-8,487	-12,015	-14,135	-15,940	-1,805	-12.8
Netherlands	-1,131	-2,698	-3,070	-1,800	-350	1,449	80.5
All other	-38,185	-56,478	-55,487	-57,999	-63,065	-5,066	-8.7
Total	-173,770	-243,304	-280,170	-298,155	-390,588	-92,433	-31.0
EU-27	-12,899	-18,504	-19,161	-20,563	-18,303	2,259	11.0
OPEC	-76,172	-107,573	-130,354	-142,311	-199,716	-57,405	-40.3
Latin America	-48,812	-66,326	-75,532	-73,748	-92,459	-18,711	-25.4
CBERA	-4,837	-7,232	-6,465	-5,025	-2,745	2,279	45.4
Asia	514	-1,230	-2,053	-2,164	1,923	4,088	(^c)
Sub-Saharan Africa	-26,112	-40,094	-47,266	-53,571	-70,188	-16,617	-31.0
Central and Eastern Europe	-131	-44	3	236	810	573	242.4

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

^cNot meaningful for purposes of comparison.

U.S. Exports

U.S. exports of energy-related products increased by 75 percent (\$35.1 billion) to \$81.7 billion in 2008. Canada and Mexico continued to be the leading markets for these exports. Most of the increase in exports is accounted for by petroleum products, which rose by \$27.3 billion (87 percent) in 2008 (table EP.2).⁶ U.S. exports of coal and coke, natural gas, crude petroleum, and electricity also increased. Analyses for crude petroleum, petroleum products, and coal and coke are presented later in this chapter.

Both the quantity and value of U.S. exports of natural gas increased from 2007 to 2008. While the value of these U.S. exports increased by \$2.0 billion (41 percent) to \$6.9 billion in 2008, the quantity of exports of natural gas increased to 980 billion cubic feet in 2008 from 822 billion cubic feet in 2007, or by 19 percent. Canada remains the primary U.S. export market, as most of the U.S. trade in natural gas is via pipelines shared with Canada and, to a lesser extent, Mexico; trade fluctuates from year to year based on market availability along the pipeline. U.S. exports to Canada trended upward in recent years as several new and larger pipelines became operational.⁷ These pipelines carry natural gas to western Canada, where natural gas production from conventional sources has been difficult due to climate and terrain. In addition, some of the increase in U.S. exports is destined for storage facilities in and around Ontario.⁸ The value of U.S. exports of natural gas increased by 41 percent in 2008, not only due to the quantity increase but also because of rising prices.

The city gate price of natural gas increased from \$8.12 per thousand cubic feet in 2007 to \$9.15 per thousand cubic feet in 2008.⁹ The price increase was largely attributed to increased domestic consumption, coupled with production shutdowns in the Gulf of Mexico as a result of Hurricanes Gustav and Ike.

The value of U.S. exports of electricity increased by \$395 million (40 percent) to \$1.4 billion in 2008, while the quantity of such U.S. exports increased by 20 percent. Canada is the only market to which the United States exports electricity, as the two nations share an interconnected grid across the border. The value increase is attributable to increased costs for natural gas and coal, the primary fossil fuels used to power most electricity generating plants. The quantity of U.S. exports to Canada fluctuates annually as sides of the grid alternately go down for maintenance.

U.S. Imports

In 2008, U.S. imports of energy-related products increased by 37 percent to \$472.3 billion. Canada remained the leading source of U.S. imports of energy-related products, with Saudi Arabia, Venezuela, and Mexico the other primary U.S. import suppliers. U.S. imports of crude petroleum, the largest energy import category, increased by \$88.5 billion (47 percent) to \$275.0 billion in 2008, due to the aforementioned price increase. U.S. imports of

⁶ Trade statistics for all industry/commodity groups in this sector are presented in app. B, table B.4.

⁷ Because of the level of trade along the 22 existing U.S.-Canadian border pipeline crossing points, some experts consider the United States and Canada to be one market.

⁸ Statistics Canada, Trade Data Online.

⁹ The city gate price is the point or measuring station at which a gas distribution company receives natural gas from a pipeline company or transmission system.

petroleum products and coal and coke also increased significantly in 2008 (as discussed later in this chapter) (table EP.2).

U.S. imports of natural gas rose by \$7.8 billion (18 percent) to \$52.8 billion in 2008, due entirely to increases in prices; in terms of quantity, U.S. imports of natural gas actually decreased by 13 percent to 4.0 trillion cubic feet, primarily because of Canada's difficulties in producing natural gas in the Western Canadian Sedimentary Basin, coupled with increased U.S. production. As stated above, most of the U.S. trade in natural gas is via pipelines shared with Canada, and to a lesser extent, Mexico, and trade fluctuates annually. Canada remains the primary U.S. import source, accounting for 99 percent of pipeline gas.

Both the value and quantity of U.S. imports of liquefied natural gas (LNG), which accounts for about 3 percent of total natural gas imports, declined in 2008. Trinidad and Tobago remained the leading LNG supplier, accounting for about 70 percent of U.S. LNG imports, with small shipments from Saudi Arabia and Iraq.¹⁰

The value of U.S. imports of electricity increased by \$927 million (34 percent) to \$3.6 billion in 2008, while the quantity of U.S. imports increased by only 13 percent. As stated above, the value increase is largely attributable to increased costs for natural gas and coal. Canada remains the only source of U.S. imports of electricity, which is transmitted across the interconnected grid.

¹⁰ Natural gas is condensed into LNG to make it more cost-efficient to transport over long distances where pipelines do not exist. As a result, the price for LNG averages about 50–60 percent higher than that of pipeline natural gas. LNG accounts for only about 5–7 percent of the world's total consumption of natural gas and, therefore, the higher price of LNG has little overall impact. In an effort to diversify sourcing of LNG, the United States imports small quantities from countries other than Trinidad and Tobago.

TABLE EP.2 Energy-related products: Leading changes in U.S. exports and imports, 2004–08^a

Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. EXPORTS:							
Increases:							
Petroleum products (EP005)	12,651	18,302	26,407	31,484	58,765	27,282	86.7
Coal, coke, and related chemical products (EP003) . . .	3,556	4,318	5,179	5,877	10,255	4,379	74.5
Natural gas and components (EP006)	2,906	4,045	3,688	4,905	6,893	1,988	40.5
Crude petroleum (EP004)	265	627	852	993	2,296	1,303	131.1
Electrical energy (EP001)	829	1,039	1,052	991	1,386	395	39.9
Decreases:							
Nuclear materials (EP002)	1,575	1,562	1,822	2,424	2,141	-283	-11.7
All other	0	0	0	0	0	0	0.0
TOTAL	21,783	29,892	38,999	46,674	81,737	35,063	75.1
U.S. IMPORTS:							
Increases:							
Crude petroleum (EP004)	100,338	137,331	171,243	186,476	274,950	88,474	47.4
Petroleum products (EP005)	51,579	77,684	89,448	98,577	126,441	27,864	28.3
Natural gas and components (EP006)	34,195	46,211	45,118	44,910	52,757	7,847	17.5
Coal, coke, and related chemical products (EP003) . . .	5,555	6,316	6,930	6,880	9,102	2,222	32.3
Electrical energy (EP001)	1,261	2,479	2,518	2,713	3,641	927	34.2
Nuclear materials (EP002)	2,625	3,175	3,910	5,273	5,435	162	3.1
All other	0	0	0	0	0	0	0.0
TOTAL	195,553	273,197	319,168	344,829	472,325	127,496	37.0

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

Crude Petroleum

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Change in 2008 from 2007:

U.S. trade deficit: Increased by \$87.2 billion (47 percent) to \$272.7 billion
U.S. exports: Increased by \$1.3 billion (131 percent) to \$2.3 billion
U.S. imports: Increased by \$88.5 billion (47 percent) to \$275.0 billion

The U.S. trade deficit with respect to crude petroleum increased by 47 percent in 2008 (table EP.3). The United States accounts for 2 percent of the world's reserves of crude petroleum and 7 percent of the world's total production. In 2008, the United States was third in crude petroleum production, at 1.8 billion barrels, behind Russia with 3.7 billion barrels and Saudi Arabia with 3.3 billion barrels. However, the United States is a large net importer of crude petroleum, the feedstock for the production of refined products. Despite a decline in the quantity of U.S. imports, the trade deficit for crude petroleum increased in 2008 as a result of the rapid rise in the per-barrel price of crude petroleum, which increased from an average of \$68 per barrel during 2007 to an average of \$95 per barrel during 2008.

U.S. Exports

U.S. exports of crude petroleum, which are minimal and account for less than 0.5 percent of domestic production, are prohibited with certain exceptions.¹¹ In terms of quantity, U.S. exports of crude petroleum remained constant during the 2007–08 period at 10 million barrels. Canada, which accounted for 100 percent of the total quantity of U.S. crude petroleum exports in 2008, has been the only consistent market for these exports, with the level of exports fluctuating based on refinery needs on either side of the border. Most of the U.S. exports to Canada consist of shipments of West Texas Intermediate (WTI) crude.¹² WTI prices rose from an average of \$70 per barrel in 2007 to an averaged more than \$100 per barrel in 2008.

¹¹ U.S. exports of crude petroleum have been prohibited since 1973, except as approved by the U.S. government. Canada has been the only consistent market for these exports, which are part of a commercial exchange agreement between U.S. and Canadian refiners that has been approved by the secretary of the U.S. Department of Energy. In May 1996, the president determined that allowing exports of Alaskan North Slope (ANS) crude was in the national interest, thus ending the 23-year ban on ANS crude exports. However, the president can impose new export restrictions in the event of severe crude petroleum supply shortages.

¹² WTI is a light crude, lighter than Brent crude. It contains about 0.24 percent sulfur, rating it a sweet crude, sweeter than Brent. Its properties and production site make it ideal for being refined in the United States, mostly in the Midwest and Gulf Coast regions. WTI has an API gravity of around 39.6 (specific gravity of around 0.827).

TABLE EP.3 Crude petroleum (EP004): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
Canada	237	606	850	993	2,296	1,303	131.1
Mexico	(^b)	(^b)	(^b)	0	0	0	0.0
Nigeria	0	0	0	0	0	0	0.0
Venezuela	0	0	0	0	0	0	0.0
Saudi Arabia	0	0	0	0	0	0	0.0
Angola	0	0	0	0	0	0	0.0
Iraq	0	0	0	0	0	0	0.0
Ecuador	0	20	0	0	0	0	0.0
Algeria	0	0	0	0	0	0	0.0
Brazil	0	0	0	0	0	0	0.0
All other	28	1	2	0	0	0	0.0
Total	265	627	852	993	2,296	1,303	131.1
EU-27	(^b)	(^b)	0	0	0	0	0.0
OPEC	0	20	0	0	0	0	0.0
Latin America	(^b)	20	(^b)	0	0	0	0.0
CBERA	0	(^b)	0	0	0	0	0.0
Asia	28	(^b)	2	0	0	0	0.0
Sub-Saharan Africa	0	0	0	0	0	0	0.0
Central and Eastern Europe	0	0	0	0	0	0	0.0
U.S. imports of merchandise for consumption:							
Canada	18,888	24,120	32,889	37,929	62,485	24,556	64.7
Mexico	17,186	22,364	29,195	29,848	37,629	7,782	26.1
Nigeria	15,377	21,911	25,968	30,453	35,711	5,258	17.3
Venezuela	11,645	16,023	19,296	21,950	30,058	8,108	36.9
Saudi Arabia	9,178	11,612	13,796	15,153	25,437	10,283	67.9
Angola	4,240	8,115	11,086	11,728	17,781	6,052	51.6
Iraq	2,821	2,808	4,842	4,771	9,905	5,135	107.6
Ecuador	2,709	4,274	5,065	4,271	6,955	2,684	62.8
Algeria	1,673	2,436	4,849	5,770	6,900	1,130	19.6
Brazil	628	1,265	2,546	2,682	6,522	3,839	143.1
All other	15,992	22,403	21,711	21,921	35,567	13,647	62.3
Total	100,338	137,331	171,243	186,476	274,950	88,474	47.4
EU-27	1,669	2,718	1,264	1,043	1,352	309	29.7
OPEC	48,853	69,164	86,992	95,968	136,185	40,217	41.9
Latin America	36,656	49,482	62,229	64,365	89,536	25,171	39.1
CBERA	859	1,135	1,747	1,309	904	-405	-31.0
Asia	646	758	1,312	930	1,464	534	57.4
Sub-Saharan Africa	24,614	37,069	44,606	50,879	67,322	16,443	32.3
Central and Eastern Europe	0	55	0	0	0	0	0.0

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See footnote(s) at end of table.

TABLE EP.3 Crude petroleum (EP004): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Canada	-18,651	-23,514	-32,040	-36,935	-60,189	-23,254	-63.0	
Mexico	-17,186	-22,364	-29,195	-29,848	-37,629	-7,782	-26.1	
Nigeria	-15,377	-21,911	-25,968	-30,453	-35,711	-5,258	-17.3	
Venezuela	-11,645	-16,023	-19,296	-21,950	-30,058	-8,108	-36.9	
Saudi Arabia	-9,178	-11,612	-13,796	-15,153	-25,437	-10,283	-67.9	
Angola	-4,240	-8,115	-11,086	-11,728	-17,781	-6,052	-51.6	
Iraq	-2,821	-2,808	-4,842	-4,771	-9,905	-5,135	-107.6	
Ecuador	-2,709	-4,254	-5,065	-4,271	-6,955	-2,684	-62.8	
Algeria	-1,673	-2,436	-4,849	-5,770	-6,900	-1,130	-19.6	
Brazil	-628	-1,265	-2,546	-2,682	-6,522	-3,839	-143.1	
All other	-15,964	-22,403	-21,709	-21,921	-35,567	-13,647	-62.3	
Total	-100,073	-136,704	-170,391	-185,482	-272,654	-87,172	-47.0	
EU-27	-1,669	-2,718	-1,264	-1,043	-1,352	-309	-29.7	
OPEC	-48,853	-69,144	-86,992	-95,968	-136,185	-40,217	-41.9	
Latin America	-36,656	-49,462	-62,229	-64,365	-89,536	-25,171	-39.1	
CBERA	-859	-1,134	-1,747	-1,309	-904	405	31.0	
Asia	-618	-757	-1,310	-930	-1,464	-534	-57.4	
Sub-Saharan Africa	-24,614	-37,069	-44,606	-50,879	-67,322	-16,443	-32.3	
Central and Eastern Europe	0	-55	0	0	0	0	0.0	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

U.S. Imports

In terms of quantity, U.S. imports of crude petroleum declined by 3 percent to 3.6 billion barrels in 2008, because of declines in domestic consumption coupled with increased U.S. production in the Gulf of Mexico. However, U.S. imports of crude petroleum continued to account for more than 60 percent of domestic consumption.

Canada, which has been the leading U.S. import source of crude petroleum for decades, continued to be the largest single supplier of crude petroleum to the U.S. market, accounting for 23 percent of the total volume of imports. Large multinational energy companies operate on both sides of the border and exchange crude and petroleum products across the border. Also, an integrated system of shared pipelines crossing the U.S.-Canadian border provides for ease of transporting crude petroleum from the wellhead to refineries.

Canada and Mexico together accounted for 36 percent of the total quantity of U.S. imports, while OPEC members together accounted for 50 percent. Iraq has been attempting to regain its position as a world exporter of crude petroleum. U.S. imports of crude petroleum from Iraq increased in, by about 26 percent terms of quantity, all of which was destined for storage in the Strategic Petroleum Reserve.¹³ U.S. imports from Nigeria declined by about 15 percent in terms of quantity, due in part to labor unrest in Nigeria that resulted in some production disruptions.

¹³ The Strategic Petroleum Reserve is a stockpile of crude petroleum and certain petroleum products maintained by the federal government for use during major supply interruptions.

Petroleum Products

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Change in 2008 from 2007:

U.S. trade deficit: Increased by \$582 million (1 percent) to \$67.7 billion

U.S. exports: Increased by \$27.3 billion (87 percent) to \$58.8 billion

U.S. imports: Increased by \$27.9 billion (28 percent) to \$126.4 billion

The trade deficit in petroleum products increased by 1 percent in 2008, as the growth in the value of imports slightly outpaced the growth in exports. The per-barrel price for crude petroleum, the feedstock to refineries for the production of petroleum products, increased significantly during 2008, thus affecting the value of trade. In fact, the quantity of U.S. exports of petroleum products increased by a much smaller percentage, and the quantity of imports actually decreased (table EP.4). The United States, the world's largest consumer of petroleum products, supplied nearly 90 percent of U.S. demand for petroleum products with domestic production, albeit in part from imported crude petroleum feedstock.

U.S. Exports

While U.S. exports of petroleum products increased by 87 percent in terms of value, the volume of exports increased by 26 percent, from 513 million barrels in 2007 to 644 million barrels in 2008. In terms of quantity, U.S. exports of petroleum products were minimal, accounting for only about 6 percent of total U.S. production in 2008. The largest markets for U.S. exports were Mexico and Canada, which together accounted for nearly 30 percent of the total. These exports generally fluctuate annually based on refinery output on either side of the respective borders.¹⁴ The primary petroleum products exported were distillate and residual fuel oils, which are used primarily for home and industrial heating.

Another market for U.S. exports was the Netherlands, to which exports increased by 65 percent in terms of quantity.¹⁵ The Netherlands was the shipping point for U.S. exports of distillate and residual fuel oils in Western Europe and markets in Africa. In addition, Brazil purchased U.S.- produced petroleum coke for industrial fuel use, and Chile purchased U.S. exports of specialty lubricants and greases for industrial applications; other markets that accounted for small percentages of total U.S. exports of petroleum products, include Gibraltar and Turkey; however, U.S. exports to these countries were primarily fuels destined

¹⁴ For example, if a refinery in Canada initiates routine maintenance or product turnaround, U.S. exports of petroleum products could increase to supplement the decrease in Canadian production.

¹⁵ U.S. exports to other countries included Chile (which accounted for 8 percent of the total quantity of exports), Gibraltar (3 percent), Brazil (3 percent), and Turkey (2 percent). However, these exports accounted for less than 0.5 percent of total U.S. production of petroleum products.

TABLE EP.4 Petroleum products (EP005): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
Canada	1,725	2,605	3,272	4,105	6,968	2,863	69.7	
Saudi Arabia	45	52	45	60	70	9	15.3	
Mexico	2,799	4,781	5,024	5,725	9,672	3,947	68.9	
Russia	22	38	40	56	80	25	44.0	
Venezuela	165	185	629	638	631	-7	-1.1	
Netherlands	547	497	1,716	1,799	5,076	3,277	182.2	
United Kingdom	198	471	466	309	580	271	87.7	
Algeria	1	1	23	153	3	-150	-97.8	
Iraq	(^b)	(^b)	(^b)	(^b)	(^b)	(^b)	-12.3	
France	270	208	211	407	1,042	635	156.0	
All other	6,879	9,464	14,980	18,230	34,642	16,412	90.0	
Total	12,651	18,302	26,407	31,484	58,765	27,282	86.7	
EU-27	1,785	1,935	4,270	4,142	10,850	6,708	162.0	
OPEC	433	662	1,766	1,643	1,721	78	4.7	
Latin America	6,251	10,378	13,738	16,957	28,712	11,755	69.3	
CBERA	1,313	1,993	2,767	3,925	5,844	1,919	48.9	
Asia	2,010	2,360	3,012	3,631	5,335	1,705	46.9	
Sub-Saharan Africa	157	211	512	627	1,452	825	131.5	
Central and Eastern Europe	36	30	75	72	145	73	102.0	
U.S. imports of merchandise for consumption:								
Canada	6,747	8,977	10,131	11,856	14,420	2,565	21.6	
Saudi Arabia	5,739	8,073	9,734	11,424	16,514	5,091	44.6	
Mexico	1,698	2,500	2,697	3,243	4,677	1,435	44.2	
Russia	2,929	5,741	7,392	8,238	12,838	4,600	55.8	
Venezuela	6,382	9,161	10,452	9,271	11,480	2,210	23.8	
Netherlands	1,662	3,421	4,434	3,170	5,014	1,843	58.1	
United Kingdom	3,352	4,432	4,689	5,864	6,387	523	8.9	
Algeria	1,742	2,857	3,993	4,868	5,563	696	14.3	
Iraq	2,194	2,660	2,643	2,524	5,330	2,806	111.2	
France	942	1,520	2,016	2,090	3,293	1,203	57.5	
All other	18,190	28,342	31,268	36,031	40,923	4,892	13.6	
Total	51,579	77,684	89,448	98,577	126,441	27,864	28.3	
EU-27	11,757	17,157	21,354	22,244	27,568	5,324	23.9	
OPEC	18,061	26,581	30,738	32,807	45,790	12,983	39.6	
Latin America	13,575	20,722	20,988	20,341	25,523	5,182	25.5	
CBERA	2,621	4,742	4,509	4,422	4,937	515	11.6	
Asia	2,053	3,484	5,126	6,445	3,764	-2,681	-41.6	
Sub-Saharan Africa	1,149	2,528	2,041	2,004	3,246	1,242	62.0	
Central and Eastern Europe	57	125	229	121	163	41	34.2	

See footnote(s) at end of table.

TABLE EP.4 Petroleum products (EP005): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Canada	-5,022	-6,372	-6,859	-7,750	-7,452	298	3.8	
Saudi Arabia	-5,694	-8,021	-9,688	-11,363	-16,445	-5,081	-44.7	
Mexico	1,101	2,281	2,327	2,483	4,995	2,512	101.2	
Russia	-2,907	-5,703	-7,351	-8,182	-12,758	-4,576	-55.9	
Venezuela	-6,217	-8,976	-9,823	-8,632	-10,849	-2,217	-25.7	
Netherlands	-1,115	-2,924	-2,718	-1,372	62	1,433	(^c)	
United Kingdom	-3,155	-3,962	-4,223	-5,555	-5,807	-252	-4.5	
Algeria	-1,741	-2,856	-3,970	-4,715	-5,560	-845	-17.9	
Iraq	-2,194	-2,660	-2,643	-2,524	-5,330	-2,806	-111.2	
France	-672	-1,312	-1,805	-1,683	-2,251	-568	-33.7	
All other	-11,311	-18,878	-16,288	-17,800	-6,281	11,520	64.7	
Total	-38,928	-59,382	-63,042	-67,094	-67,675	-582	-0.9	
EU-27	-9,973	-15,222	-17,085	-18,102	-16,718	1,384	7.6	
OPEC	-17,628	-25,918	-28,972	-31,164	-44,069	-12,905	-41.4	
Latin America	-7,324	-10,345	-7,250	-3,384	3,189	6,573	(^c)	
CBERA	-1,308	-2,748	-1,742	-497	907	1,404	(^c)	
Asia	-42	-1,124	-2,113	-2,815	1,571	4,386	(^c)	
Sub-Saharan Africa	-992	-2,316	-1,529	-1,377	-1,794	-417	-30.3	
Central and Eastern Europe	-22	-95	-154	-49	-17	32	64.7	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

^cNot meaningful for purposes of comparison.

for the Naval Storage for use by U.S. and British military ships supporting operations in Iraq and Afghanistan.¹⁶

U.S. Imports

The value of U.S. petroleum product imports increased by 28 percent in 2008, entirely because of the increased price for these products; the quantity of U.S. imports decreased by 9 percent to 1.1 billion barrels. The decrease in the quantity of imports is largely attributable to increased domestic production in 2008, as three refineries previously shutdown for maintenance were reactivated in early 2008, and demand for distillate and residual fuel oils declined due to milder than expected winter weather conditions.¹⁷

The primary sources of U.S. imports of petroleum products in 2008 continued to be Canada (which accounted for 20 percent of the total quantity of imports), Russia (10 percent), Algeria (9 percent), and Venezuela (7 percent). Residual fuel oils (used primarily as industrial heating and bunker fuels for heating and power), motor fuels, and jet fuels accounted for nearly all of the quantity decrease in U.S. imports.¹⁸

¹⁶ National Petrochemical and Refiners' Association official, telephone interview with Commission staff, April 1, 2009.

¹⁷ National Petrochemical and Refiners' Association, "Quarterly Survey," first through fourth quarter 2008.

¹⁸ Although the official statistics of the U.S. Department of Commerce show U.S. imports of petroleum products from Iraq increasing significantly from 2007 to 2008, these data are likely misclassifications, as 2005 was the last year for such imports because Iraq's refineries were disabled or destroyed. While there are plans to build new world scale refineries in Iraq, none have yet to be completed, and during the 2007–08 period, there were no operating refineries in Iraq.

Coal, Coke, and Related Chemical Products

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Change in 2008 from 2007:

U.S. trade balance: Changed by \$2.2 billion, from a \$1.0 billion deficit to a \$1.2 billion surplus

U.S. exports: Increased by \$4.4 billion (75 percent) to \$10.3 billion

U.S. imports: Increased by \$2.2 billion (32 percent) to \$9.1 billion

The United States accounts for the largest share of the world's recoverable coal reserves (25 percent) and is a major world supplier of coal. The U.S. trade balance for coal, coke, and related chemical products changed from a deficit of \$1.0 billion in 2007 to a trade surplus of \$1.2 billion in 2008, primarily because exports increased at a higher rate than imports (table EP.5). In addition, the world price of coal increased from an average of \$88 per short ton in 2007 to a record high average of \$156 per short ton in 2008, due to increased worldwide demand as crude petroleum prices caused a substitution of coal for petroleum in some applications, coupled with decreased amounts of Chinese coal available on the world market.¹⁹

U.S. Exports

In terms of quantity, U.S. exports of coal increased by 38 percent during the 2007–08 period, from 59 million short tons in 2007 to 82 million short tons in 2008. U.S. exports rose to supplement the reduction of China's exports of coal to the world market in 2008. In addition, demand for both metallurgical coals (used for industrial purposes) and steam coals (used for heating) increased in Europe as petroleum prices rose and natural gas supplies from Russia were interrupted. Also, world demand increased as newly consuming nations, such as Brazil, India, and Korea, increased coal purchases.²⁰

U.S. Imports

In contrast to the 32 percent (\$2.2-billion) increase in the value of U.S. coal imports, the quantity of U.S. imports decreased by 6 percent, from 36 million short tons in 2007 to 34 million short tons in 2008. The decrease is attributed to reduced demand by electric utilities for coal in favor of natural gas, coupled with lower demand for electricity because of a relatively mild winter in 2008.²¹ Most of the imports in 2008 were delivered to Gulf Coast and West Coast power plants. Colombia and Canada remained the leading suppliers of low-sulfur coals to the U.S. market.

¹⁹ USDOE, EIA, *Quarterly Coal Report*, various issues.

²⁰ Ibid.

²¹ Ibid.

TABLE EP.5 Coal, coke, and related chemical products (EP003): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Canada	752	1,020	1,172	1,096	1,225	128	11.7
Colombia	4	1	2	3	3	(^b)	18.2
China	69	7	29	22	33	11	48.3
Saudi Arabia	2	3	1	3	20	18	683.2
Netherlands	165	218	186	398	718	320	80.3
Brazil	295	373	444	593	951	358	60.4
Venezuela	4	13	3	2	2	-1	-32.8
Algeria	24	28	24	38	51	13	35.4
India	228	254	320	284	731	447	157.8
Korea	335	333	523	451	655	203	45.0
All other	1,679	2,066	2,474	2,987	5,869	2,881	96.4
Total	3,556	4,318	5,179	5,877	10,255	4,379	74.5
EU-27	817	1,339	1,711	2,168	3,836	1,668	77.0
OPEC	37	51	33	47	93	46	98.3
Latin America	471	554	654	778	1,378	599	77.0
CBERA	2	4	11	7	41	34	484.2
Asia	1,238	1,001	1,229	1,073	2,201	1,127	105.0
Sub-Saharan Africa	23	19	32	37	81	44	119.0
Central and Eastern Europe	66	222	235	292	869	577	197.6
U.S. imports of merchandise for consumption:							
Canada	541	614	572	620	610	-10	-1.6
Colombia	597	968	1,204	1,290	1,666	376	29.2
China	657	379	415	250	1,250	1,000	400.1
Saudi Arabia	451	602	817	747	1,095	348	46.5
Netherlands	97	84	294	452	391	-61	-13.5
Brazil	55	58	61	112	105	-7	-6.2
Venezuela	679	838	660	643	756	113	17.6
Algeria	344	512	698	683	695	12	1.8
India	12	10	1	10	1	-9	-89.3
Korea	59	100	34	80	41	-39	-48.5
All other	2,062	2,151	2,175	1,994	2,493	498	25.0
Total	5,555	6,316	6,930	6,880	9,102	2,222	32.3
EU-27	705	632	854	1,038	998	-40	-3.8
OPEC	2,017	2,661	2,899	2,761	3,632	871	31.5
Latin America	1,392	1,961	1,990	2,116	2,590	473	22.4
CBERA	8	16	11	10	3	-7	-66.7
Asia	933	783	689	643	1,720	1,078	167.7
Sub-Saharan Africa	71	23	24	41	51	10	24.7
Central and Eastern Europe	174	87	74	2	37	35	2,249.7

See footnote(s) at end of table.

TABLE EP.5 Coal, coke, and related chemical products (EP003): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Canada	211	406	600	477	615	138	29.0	
Colombia	-594	-966	-1,202	-1,287	-1,663	-376	-29.2	
China	-588	-372	-386	-228	-1,217	-989	-433.9	
Saudi Arabia	-450	-599	-816	-744	-1,075	-330	-44.3	
Netherlands	68	134	-108	-54	327	381	^(c)	
Brazil	240	315	382	481	846	365	75.8	
Venezuela	-676	-825	-656	-640	-754	-114	-17.8	
Algeria	-320	-483	-674	-646	-644	1	0.2	
India	216	243	319	274	730	456	166.4	
Korea	276	233	490	371	614	242	65.2	
All other	-383	-85	299	993	3,376	2,383	240.0	
Total	-1,998	-1,998	-1,751	-1,003	1,154	2,157	^(c)	
EU-27	112	708	857	1,130	2,838	1,708	151.2	
OPEC	-1,980	-2,610	-2,866	-2,714	-3,539	-825	-30.4	
Latin America	-922	-1,407	-1,336	-1,338	-1,212	126	9.4	
CBERA	-6	-12	^(c)	-3	38	41	^(c)	
Asia	305	218	540	431	481	50	11.5	
Sub-Saharan Africa	-48	-4	8	-4	29	34	^(c)	
Central and Eastern Europe	-108	135	161	291	833	542	186.7	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

^cNot meaningful for purposes of comparison.

Although the value of U.S. imports of coal and other carbonaceous materials from China increased by about 400 percent, the quantity decreased by nearly 5 percent. The increase in the value of these imports is primarily due to the rapid rise in the price of Chinese coke, which rose from \$190 per short ton in 2007 to more than \$475 per short ton by mid-2008.²² China accounts for 80–85 percent of the total quantity of U.S. coke imports.

²² Coke industry official, telephone interview by Commission staff, March 25, 2009.

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Forest Products

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Change in 2008 from 2007:

U.S. trade deficit: Decreased by \$6.5 billion (49 percent) to \$6.9 billion
U.S. exports: Increased by \$2.3 billion (7 percent) to \$35.4 billion
U.S. imports: Decreased by \$4.3 billion (9 percent) to \$42.3 billion

The U.S. trade deficit in forest products declined by nearly one-half in 2008, as exports increased and imports decreased (table FP.1). The continued decline of the U.S. residential housing market was an important factor in this trend. The trade deficit in forest products has fallen steadily in recent years since U.S. housing starts peaked in 2005.

All but two of the product groups within the forest products sector registered increased exports with wood pulp and wastepaper and industrial papers and paperboards accounting for the largest increase in U.S. exports in 2008. With respect to imports, the majority of product groups decreased; three product groups—lumber, wood veneer and wood panels, and moldings, millwork, and joinery—registered the largest declines in U.S. imports in 2008 (table FP.2).¹

Canada is the largest trading partner of the United States in forest products, followed by China, Mexico, and Japan. These four countries accounted for 40 percent, 14 percent, 8 percent, and 3 percent, respectively, of total U.S. trade in forest products in 2008.

U.S. Exports

U.S. exports of forest products rose by \$2.3 billion (7 percent) to 35.4 billion in 2008. Canada was the largest market for U.S. exports of forest products in 2008, followed by Mexico, China, Japan, and the United Kingdom. Exports to all of these countries increased. Two product groups, wood pulp and wastepaper and industrial papers and paperboards, accounted for nearly one-half of all U.S. exports of forest products in 2008. Much of the growth in U.S. exports of wood pulp and wastepaper in 2008 was due to increased demand by China. The rapid growth of the paper industry in China in recent years has been accompanied by a corresponding increase in the demand for the raw materials to make paper—wood pulp and wastepaper, and the United States is a large producer and exporter of woodpulp and wastepaper.² The rise in U.S. exports of industrial papers and paperboards in 2008 was due, at least in part, to a depreciated U.S. dollar relative to some other currencies, which increased the competitiveness of U.S. products included within this product group, such as tissue and linerboard to make cardboard boxes.

¹ Trade statistics for all industry/commodity groups in this sector are presented in app. B, table B.5.

² Stafford, "Environmental Aspects of China's Papermaking Fiber Supply," July 2007.

TABLE FP.1 Forest products: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Canada	8,536	9,111	9,846	10,236	10,557	320	3.1
China	1,651	1,995	2,572	3,272	3,518	246	7.5
Mexico	3,451	3,860	4,258	4,312	4,837	525	12.2
Japan	1,963	1,907	1,964	1,859	2,019	160	8.6
Germany	608	685	717	902	988	86	9.5
Brazil	212	241	251	329	409	80	24.4
United Kingdom	1,118	1,191	1,220	1,300	1,393	93	7.1
Italy	718	788	839	954	945	-9	-0.9
Korea	696	688	683	814	863	48	5.9
Finland	22	23	19	23	28	5	22.8
All other	6,663	7,322	7,787	9,086	9,804	718	7.9
Total	25,637	27,809	30,156	33,088	35,362	2,273	6.9
EU-27	4,385	4,745	4,947	5,539	5,698	159	2.9
OPEC	465	490	536	669	787	119	17.7
Latin America	5,341	6,014	6,645	7,076	7,930	854	12.1
CBERA	333	431	458	473	504	32	6.7
Asia	6,052	6,403	7,090	8,228	8,868	640	7.8
Sub-Saharan Africa	140	164	185	206	276	70	33.8
Central and Eastern Europe	108	135	134	198	218	20	10.0
U.S. imports of merchandise for consumption:							
Canada	27,584	28,224	26,717	23,435	20,496	-2,939	-12.5
China	4,398	5,463	6,630	7,317	7,371	54	0.7
Mexico	1,274	1,420	1,559	1,584	1,457	-127	-8.0
Japan	683	692	649	648	642	-6	-0.9
Germany	1,461	1,664	1,733	1,602	1,493	-109	-6.8
Brazil	2,203	2,305	2,365	2,064	1,928	-136	-6.6
United Kingdom	784	825	702	748	700	-49	-6.5
Italy	416	424	455	470	479	9	1.8
Korea	517	544	601	559	527	-32	-5.7
Finland	1,107	1,024	1,210	1,151	1,025	-126	-11.0
All other	7,164	7,418	7,795	6,982	6,173	-809	-11.6
Total	47,591	50,003	50,416	46,561	42,291	-4,270	-9.2
EU-27	6,276	6,668	6,797	6,140	5,671	-470	-7.6
OPEC	84	83	77	71	77	6	7.9
Latin America	4,935	5,180	5,603	4,980	4,515	-466	-9.4
CBERA	25	26	23	20	19	-1	-5.4
Asia	7,651	8,806	10,213	10,983	10,642	-341	-3.1
Sub-Saharan Africa	178	191	166	183	169	-14	-7.5
Central and Eastern Europe	98	167	147	126	93	-33	-26.4

FP-2

See footnote(s) at end of table.

TABLE FP.1 Forest products: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—Continued

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Canada	-19,047	-19,113	-16,871	-13,199	-9,939	3,260	24.7	
China	-2,747	-3,468	-4,058	-4,045	-3,853	192	4.7	
Mexico	2,177	2,440	2,698	2,728	3,380	652	23.9	
Japan	1,280	1,214	1,315	1,212	1,377	166	13.7	
Germany	-853	-978	-1,016	-699	-505	195	27.8	
Brazil	-1,991	-2,064	-2,113	-1,736	-1,519	217	12.5	
United Kingdom	334	366	518	551	693	142	25.7	
Italy	302	363	384	483	466	-17	-3.6	
Korea	178	143	82	255	335	80	31.3	
Finland	-1,084	-1,001	-1,191	-1,128	-997	131	11.6	
All other	-501	-96	-8	2,104	3,631	1,528	72.6	
Total	-21,953	-22,194	-20,260	-13,473	-6,930	6,543	48.6	
EU-27	-1,892	-1,923	-1,850	-602	27	629	^(b)	
OPEC	381	407	459	597	710	113	18.9	
Latin America	406	833	1,041	2,096	3,415	1,319	63.0	
CBERA	308	405	435	453	485	33	7.2	
Asia	-1,598	-2,404	-3,123	-2,755	-1,774	982	35.6	
Sub-Saharan Africa	-38	-28	19	23	107	83	359.1	
Central and Eastern Europe	9	-32	-13	72	125	53	73.5	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bNot meaningful for purposes of comparison.

TABLE FP.2 Forest products: Leading changes in U.S. exports and imports, 2004–08^a

Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. EXPORTS:							
Increases:							
Wood pulp and wastepaper (FP009)	4,521	5,081	5,749	6,916	7,809	894	12.9
Industrial papers and paperboards (FP011)	5,733	6,287	6,788	7,518	8,281	763	10.1
Printed matter (FP016)	4,431	4,906	5,217	5,652	5,825	173	3.1
Miscellaneous paper products (FP015)	1,551	1,663	1,811	1,755	1,860	105	6.0
Decreases:							
Lumber (FP002)	1,930	2,026	2,275	2,124	1,889	-235	-11.1
All other	7,473	7,847	8,316	9,124	9,697	573	6.3
TOTAL	25,637	27,809	30,156	33,088	35,362	2,273	6.9
U.S. IMPORTS:							
Increases:							
Industrial papers and paperboards (FP011)	4,240	4,388	4,713	4,895	5,252	357	7.3
Wood pulp and wastepaper (FP009)	2,953	3,074	3,194	3,750	4,023	272	7.3
Tissue and tissue products (FP011B)	1,544	1,695	1,724	1,834	2,018	185	10.1
Paperboard (FP011A)	2,063	2,021	2,320	2,337	2,461	124	5.3
Decreases:							
Lumber (FP002)	8,808	9,005	8,335	6,508	4,404	-2,104	-32.3
Wood veneer and wood panels (FP004)	7,115	7,218	6,623	5,169	3,941	-1,228	-23.8
Moldings, millwork, and joinery (FP003)	4,184	4,433	4,750	3,894	3,040	-853	-21.9
Printed matter (FP016)	4,230	4,660	4,842	5,227	5,048	-179	-3.4
Miscellaneous articles of wood (FP007)	1,359	1,465	1,462	1,402	1,276	-126	-9.0
All other	11,093	12,045	12,454	11,545	10,828	-718	-6.2
TOTAL	47,591	50,003	50,416	46,561	42,291	-4,270	-9.2

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

U.S. Imports

U.S. imports of forest products fell by \$4.3 billion (9 percent) to \$42.3 billion in 2008. Canada was the largest source of imports in 2008, accounting for almost one-half of all U.S. imports. China was the second-largest supplier to the U.S. market, followed by Brazil, Germany, and Mexico. Imports from Canada, Brazil, Germany, and Mexico declined in 2008, whereas imports from China rose slightly.

The sharp decline in U.S. imports of lumber, wood veneer and wood panels, and moldings, millwork, and joinery in 2008 was caused by the continued weakness in the U.S. residential housing market, which reduced demand and prices for these products. In 2008, housing starts in the United States declined by 33 percent and were at the lowest level in at least the last 50 years. In fourth quarter 2008, housing starts, at an annualized rate, were at an even lower level.³ From 2007 to 2008, the average U.S. price for framing lumber decreased by 11 percent, and the average U.S. price for structural panels decreased by 2 percent, which contributed to the decline in the value of imports.⁴ A drop in residential repair and remodeling activity further dampened demand for these wood products.⁵

³ USDOC, U.S. Census Bureau, "New Privately Owned Housing Units Started," undated (accessed March 25, 2009).

⁴ Random Lengths, *2008 Yearbook*, 2009.

⁵ Weyerhaeuser Company, *2008 Annual Report and Form 10-K*, 2009.

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Minerals and Metals¹

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Change in 2008 from 2007:

U.S. trade deficit: Decreased by \$8.7 billion (12 percent) to \$65.2 billion
U.S. exports: Increased by \$19.5 billion (19 percent) to \$119.8 billion
U.S. imports: Increased by \$10.8 billion (6 percent) to \$185.0 billion

The U.S. trade deficit in minerals and metals declined by \$8.7 billion (12 percent) to \$65.2 billion in 2008, as U.S. exports increased by almost twice as much as imports (table MM.1). This was the second consecutive year in which the U.S. trade deficit in minerals and metals declined. The growth in the value of both U.S. exports and imports was largely due to rising raw material prices rather than growth in the quantities traded. U.S. exports were further spurred by the growing economies of certain large trading partners,² and a weaker U.S. dollar during the first half of the year.³

The U.S. trade deficit in minerals and metals with Asia rose by \$1.2 billion (5 percent) to \$26.7 billion in 2008 and accounted for 41 percent of the total U.S. deficit in this sector. Principal U.S. trading partners in Asia included China, Japan, Korea, and India. The U.S. trade deficit with the EU decreased by \$2.2 billion (26 percent) to \$6.4 billion. Leading U.S. trading partners in the EU included the United Kingdom, Switzerland, and Germany. In 2008, the United States significantly expanded its trade surpluses with Switzerland and the United Kingdom, largely due to rising U.S. exports of precious metals and non-numismatic coins.

U.S. Exports

In 2008, NAFTA trading partners Canada and Mexico maintained their long-held positions as the leading markets for U.S. minerals and metals exports (table MM.1). However, Switzerland overtook China and the United Kingdom to become the third-leading destination for U.S. exports. In 2008, Switzerland recorded the largest increases in U.S. exports in terms of absolute value (\$4.0 billion) and on a percentage basis (59 percent). Most of this increase was accounted for by exports of precious metals and non-numismatic

¹ Precious metals and non-numismatic coins, iron and steel waste and scrap, ferroalloys, and primary iron products are the leading product groups in terms of absolute trade shifts in the minerals and metals sector and are discussed separately in this chapter.

² Certain key trading partners showed healthy growth in 2008. The economies of China and India, for example, grew by 9 percent and 7 percent, respectively, and the world economy grew by 3 percent. See IMF, World Economic Outlook Update, January 28, 2009.

³ Council of Economic Advisers, *2009 Economic Report of The President*, January 2009, 44; Fenton, "Iron and Steel," May 2008. For further detail, see separate discussions on key commodity groups in this chapter.

TABLE MM.1 Minerals and metals: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
Canada	16,835	19,110	22,687	24,689	27,816	3,127	12.7
China	3,197	5,215	7,736	9,043	9,701	659	7.3
Mexico	7,958	9,258	11,635	11,896	13,492	1,596	13.4
United Kingdom	2,788	3,429	6,587	8,379	9,865	1,486	17.7
Israel	457	1,359	2,026	2,746	2,516	-229	-8.4
Switzerland	2,644	3,202	4,612	6,905	10,950	4,045	58.6
Germany	1,513	1,848	2,569	3,292	3,635	342	10.4
India	388	719	902	1,981	2,868	887	44.8
Japan	1,955	2,385	3,221	4,094	3,995	-98	-2.4
Korea	1,497	1,447	1,823	2,723	3,385	661	24.3
All other	11,356	14,939	19,146	24,512	31,529	7,017	28.6
Total	50,588	62,911	82,944	100,260	119,753	19,493	19.4
EU-27	8,101	11,040	16,389	20,757	22,965	2,208	10.6
OPEC	984	1,502	1,903	2,521	3,275	754	29.9
Latin America	10,073	11,745	14,716	15,728	18,807	3,079	19.6
CBERA	446	599	742	821	949	128	15.5
Asia	10,285	13,447	18,380	24,393	28,714	4,321	17.7
Sub-Saharan Africa	344	405	655	610	861	251	41.1
Central and Eastern Europe	205	278	278	373	524	151	40.4
U.S. imports of merchandise for consumption:							
Canada	22,636	25,590	32,155	34,562	36,695	2,134	6.2
China	13,890	17,553	23,462	25,749	28,975	3,226	12.5
Mexico	9,623	11,366	13,266	13,877	14,715	838	6.0
United Kingdom	2,942	3,093	3,748	4,158	4,041	-117	-2.8
Israel	7,527	8,543	9,069	10,065	9,995	-70	-0.7
Switzerland	753	778	1,011	947	1,168	221	23.3
Germany	4,637	5,495	6,611	7,175	7,443	268	3.7
India	4,748	5,091	5,816	6,424	7,534	1,110	17.3
Japan	4,724	5,013	5,871	5,780	5,996	216	3.7
Korea	2,168	2,783	3,611	3,328	4,174	846	25.4
All other	47,248	52,063	64,890	62,141	64,258	2,116	3.4
Total	120,897	137,367	169,510	174,207	184,994	10,787	6.2
EU-27	22,094	24,533	27,836	29,375	29,376	1	(^b)
OPEC	1,567	1,677	1,681	1,335	1,682	346	25.9
Latin America	21,239	25,402	30,991	29,985	31,453	1,468	4.9
CBERA	408	341	397	663	844	181	27.3
Asia	32,610	37,898	47,885	49,892	55,456	5,564	11.2
Sub-Saharan Africa	4,344	4,565	5,961	7,391	7,274	-117	-1.6
Central and Eastern Europe	1,233	1,306	1,454	1,167	1,163	-5	-0.4

MM-2

See footnote(s) at end of table.

TABLE MM.1 Minerals and metals: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—Continued

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Canada	-5,801	-6,480	-9,468	-9,873	-8,879	993	10.1	
China	-10,692	-12,339	-15,726	-16,707	-19,274	-2,567	-15.4	
Mexico	-1,665	-2,108	-1,631	-1,981	-1,223	758	38.3	
United Kingdom	-153	335	2,839	4,221	5,824	1,603	38.0	
Israel	-7,070	-7,184	-7,043	-7,319	-7,478	-159	-2.2	
Switzerland	1,891	2,424	3,601	5,959	9,783	3,824	64.2	
Germany	-3,124	-3,646	-4,041	-3,882	-3,808	74	1.9	
India	-4,360	-4,372	-4,915	-4,443	-4,666	-223	-5.0	
Japan	-2,770	-2,628	-2,650	-1,687	-2,001	-314	-18.6	
Korea	-671	-1,335	-1,788	-604	-789	-184	-30.5	
All other	-35,893	-37,124	-45,744	-37,630	-32,728	4,901	13.0	
Total	-70,309	-74,456	-86,567	-73,947	-65,240	8,706	11.8	
EU-27	-13,993	-13,493	-11,446	-8,618	-6,410	2,207	25.6	
OPEC	-583	-175	222	1,186	1,594	408	34.4	
Latin America	-11,166	-13,657	-16,274	-14,256	-12,646	1,611	11.3	
CBERA	38	258	345	158	105	-53	-33.7	
Asia	-22,325	-24,451	-29,506	-25,499	-26,743	-1,243	-4.9	
Sub-Saharan Africa	-4,000	-4,161	-5,306	-6,781	-6,412	368	5.4	
Central and Eastern Europe	-1,029	-1,028	-1,176	-794	-639	155	19.5	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than 0.05 percent.

coins, which rose by \$7.2 billion (38 percent) in 2008. Exports to Switzerland, an important global banking center, were aided by rising prices and the weaker U.S. dollar against some other major currencies.⁴

In 2008, Asia remained the largest regional destination for U.S. exports of minerals and metals products, followed by the EU (table MM.1). Several emerging economies, notably China and India, are among the fastest-growing economies in the world. Leading U.S. exports to Asia included copper and related articles and iron and steel waste and scrap, which are important raw materials used in the rapidly growing Asian steel industries. U.S. exports of minerals and metals to India grew sharply, by \$887 million (45 percent) to \$2.9 billion in 2008.⁵ India's fast-growing economy and the appreciation of the rupee against the U.S. dollar during the first half of the year benefitted U.S. exporters. Key U.S. exports to India included natural and synthetic gemstones, which largely are used in jewelry manufacturing.⁶

Precious metals and non-numismatic coins accounted for the largest absolute U.S. export increase, up by over \$7.2 billion (38 percent) to \$26.5 billion in 2008. Gold exports accounted for most of this increase. Other commodity groups that experienced significant export growth included steel mill products, which rose by \$4.2 billion (34 percent) to \$16.7 billion, and iron and steel waste and scrap, which grew by \$3.5 billion (50 percent) to \$10.4 billion.⁷ Rising prices, the depreciating U.S. dollar, and moderate demand in the United States were central to the increase in U.S. exports (table MM.2).⁸

U.S. Imports

In 2008, Canada and China were the leading suppliers of minerals and metals to the United States.⁹ U.S. imports from China grew by an average annual rate of approximately 30 percent during the 2004–06 period, but slowed to a 10 percent increase in 2007 and a 13 percent increase in 2008.¹⁰ Despite the slowdown, U.S. imports from China rose faster than overall U.S. imports of minerals and metals, resulting in a rising import market share for China.

By region, Asia was the leading supplier of minerals and metals to the U.S. market, accounting for about 30 percent of the total in 2008. U.S. imports from Asia increased by the largest in absolute terms, by \$5.5 billion (table MM.1). Principal Asian suppliers included China and India, with steel mill products the leading Asian exports to the U.S. market in 2008.

⁴ For more detail, see the section on Precious and Non-numismatic Coins in this chapter.

⁵ At \$2.9 billion in absolute terms, U.S. exports of minerals and metals to India in 2008 were relatively low. However, the 45 percent increase in U.S. exports in 2008 made India the ninth-largest destination for U.S. exports of minerals and metals.

⁶ IMF, "World Economic Outlook Update," January 28, 2009.

⁷ For more detail, see the section on Iron and Steel Waste and Scrap in this chapter.

⁸ Trade statistics for all industry/commodity groups in this sector are presented in app. B, table B.6.

⁹ China's production of raw steel, a key component of the minerals and metals group, increased by 24 million tons (5 percent) to 513 million tons in 2008. At the same time, U.S. production of raw steel decreased by 4 million tons (4 percent) to 94 million tons in 2008. See Fenton, "Iron and Steel," January 2009.

¹⁰ SEASIS, "Impact of China's Tax Policy," January 2008.

TABLE MM.2 Minerals and metals: Leading changes in U.S. exports and imports of, 2004–08^a

Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. EXPORTS:								
Increases:								
Precious metals and non-numismatic coins (MM020)	6,204	7,522	13,360	19,289	26,534	7,245	37.6	
Steel mill products (MM025)	7,015	9,331	10,479	12,535	16,737	4,202	33.5	
Iron and steel waste and scrap (MM023)	2,923	3,451	4,256	6,910	10,384	3,474	50.3	
Decreases:								
Zinc ores, concentrates, and residues (MM006)	426	490	1,076	1,204	616	-589	-48.9	
All other	34,019	42,118	53,773	60,322	65,483	5,160	8.6	
TOTAL	50,588	62,911	82,944	100,260	119,753	19,493	19.4	
U.S. IMPORTS:								
Increases:								
Steel mill products (MM025)	21,559	23,534	31,500	29,204	36,870	7,666	26.2	
Precious metals and non-numismatic coins (MM020)	9,055	10,029	14,232	16,022	18,750	2,728	17.0	
Primary iron products (MM021)	1,898	2,033	2,227	2,236	3,856	1,620	72.4	
Ferroalloys (MM022)	1,885	1,834	1,954	2,788	4,310	1,522	54.6	
Decreases:								
Copper and related articles (MM036)	5,565	7,766	13,803	12,577	11,153	-1,424	-11.3	
Cement, stone, and related products (MM009)	5,897	7,144	8,151	7,637	6,499	-1,138	-14.9	
Zinc and related articles (MM040)	1,135	1,139	2,524	2,807	1,765	-1,042	-37.1	
All other	73,903	83,889	95,121	100,935	101,790	855	0.8	
TOTAL	120,897	137,367	169,510	174,207	184,994	10,787	6.2	

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

The largest increase in U.S. imports was in steel mill products, which grew by \$7.7 billion (26 percent) to \$36.9 billion in 2007 (table MM.2). Much of this increase was in imports of pipes and tubes of carbon and alloy steels from China and India, largely for the extraction and distribution of fossil fuels. U.S. imports of these products from China rose by \$1.7 billion (over 90 percent) to \$3.6 billion in 2008. Several of India's linepipe producers won contracts to supply large natural-gas pipe-line projects in the United States, contributing to the sharp rise of 69 percent (\$399 million) in imports of these products from India. The sharp increase in energy prices during the 2007–08 period led to a rapid rise in U.S. demand for interstate pipe-line infrastructure.¹¹

U.S. imports of ferroalloys also grew sharply in 2008, increasing by \$1.5 billion (55 percent) to \$4.3 billion (table MM.2). Strong demand in Asia resulted in a significant increase in global prices of ferroalloys, which led to a large increase in the U.S. trade deficit in ferroalloys, despite a reduction in U.S. steel production.¹²

¹¹ *American Metal Market*, "Report: JSW Delays Pipe Expansion," December 12, 2008.

¹² Ferroalloys are mainly used as additives to molten steel during the steel making process to help the steel achieve certain desired engineering characteristics. For more detail, see the section on Ferroalloys in this chapter.

Precious Metals and Non-numismatic Coins¹³

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Change in 2008 from 2007:

U.S. trade surplus: Increased by \$4.5 billion (138 percent) to \$7.8 billion

U.S. exports: Increased by \$7.2 billion (38 percent) to \$26.5 billion

U.S. imports: Increased by \$2.7 billion (17 percent) to \$18.8 billion

The U.S. trade surplus in precious metals and non-numismatic coins grew by \$4.5 billion (138 percent) to \$7.8 billion in 2008 (table MM.3). In 2008, the trend of increased U.S. exports of nonmonetary gold (\$3.2-billion net export gain) and precious-metal waste and scrap (\$2.5-billion net export gain) continued; these gains exceeded increased imports of precious-metal non-numismatic coins (\$856 million net import gain) and silver (\$456 million net import gain).

Average annual prices continued to rise in 2008 for gold,¹⁴ platinum,¹⁵ and silver¹⁶ (table MM.4),¹⁷ heightened by supply concerns arising from mine output disruptions¹⁸ and rising investment demand for tangible wealth-preserving alternatives to unstable equity and tightening credit markets.¹⁹

Price shifts for most other platinum-group metals (PGMs) were more modest.²⁰ In 2008, average annual price increases caused values to rise faster than quantities for certain forms

¹³ This industry/commodity group includes gold, silver, and platinum-group metals (platinum, palladium, rhodium, iridium, osmium, and ruthenium) in unwrought or semi-manufactured forms; precious-metal waste and scrap; and precious-metal non-numismatic coins. Non-numismatic coins, also known as bullion coins, are valued primarily for their precious metal content. Although of modern mintage, non-numismatic coins may also have numismatic (collector or historical) value above that of their precious metal content, in certain cases, due to scarcity, and design flaws, etc. Monetary gold held as official reserves by central banks is specifically excluded from this group.

¹⁴ The price of gold exceeded \$1,000 per troy ounce in London for the first time ever on March 14, 2008. World Gold Council, "Gold Price Fix Above US\$1000," March 14, 2008.

¹⁵ Kassakovich, "Speculative Buying Pushes Platinum to \$2,060," February 15, 2009.

¹⁶ Silver Institute, "Silver Price Demonstrates Solid Strength," January 8, 2009.

¹⁷ Upward pressure on prices for precious metals (which are traded predominantly in terms of U.S. dollars throughout the world) eased in 2008 compared with previous years, as the value of the U.S. dollar began to rebound against most major foreign currencies in the middle to latter part of the year. For more detail, see the Economic Overview chapter of this report.

¹⁸ O'Donovan, "S. African Power Cuts Send Gold, Platinum to New Highs," January 25, 2008.

¹⁹ Gold bears neither the credit risk nor the default risk as do other financial instruments. World Gold Council, "Investors Seek Safe Haven," October 23, 2008.

²⁰ By contrast, the price of ruthenium declined as the electronics industry scaled back output of ruthenium-containing components, and more ruthenium-bearing scrap was recovered. Ruthenium is utilized in perpendicular magnetic recording hard disks, plasma display panels, and chip resistors. Jollie, *Platinum 2008*, November 2008, 11–26; Loferski, "Platinum-group Metals in December 2008," February 2009, 1. For more information about the U.S. electronics industry, see the Electronics Products chapter of this report. For palladium, rhodium, iridium, and osmium, lower mine and refinery output were counterbalanced by lower industrial usage, as financial disruptions spread among the world's major economies during the second half of the year. For more detail, see the Economic Overview chapter of this report.

TABLE MM.3 Precious metals and non-numismatic coins (MM020): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
Switzerland	2,401	2,894	4,205	6,467	10,356	3,889	60.1	
United Kingdom	1,179	1,567	4,403	5,779	7,168	1,389	24.0	
Canada	1,131	802	1,563	2,016	3,009	993	49.3	
South Africa	2	16	2	42	186	144	343.6	
Mexico	176	133	237	244	212	-32	-13.1	
Germany	217	359	685	1,081	1,222	141	13.1	
Russia	^(b)	^(b)	^(b)	4	9	5	129.0	
Japan	204	333	504	952	804	-149	-15.6	
Peru	3	4	3	^(b)	4	4	1,699.8	
Italy	79	175	306	271	381	110	40.4	
All other	813	1,239	1,452	2,432	3,183	751	30.9	
Total	6,204	7,522	13,360	19,289	26,534	7,245	37.6	
EU-27	1,580	2,198	5,581	7,395	9,095	1,699	23.0	
OPEC	137	350	259	504	591	87	17.3	
Latin America	300	227	350	334	302	-32	-9.5	
CBERA	2	3	5	18	5	-13	-71.6	
Asia	531	969	1,216	2,411	2,498	88	3.6	
Sub-Saharan Africa	7	17	2	42	190	148	352.9	
Central and Eastern Europe	2	1	1	3	11	8	232.4	
U.S. imports of merchandise for consumption:								
Switzerland	144	83	233	122	165	43	35.4	
United Kingdom	690	917	1,284	1,638	1,581	-57	-3.5	
Canada	2,080	1,960	2,660	2,922	4,220	1,298	44.4	
South Africa	1,764	1,845	2,711	3,801	3,038	-763	-20.1	
Mexico	732	927	2,023	1,993	2,793	800	40.2	
Germany	212	285	575	851	947	96	11.3	
Russia	476	565	699	832	1,263	431	51.8	
Japan	80	68	138	250	169	-81	-32.4	
Peru	1,195	1,739	1,635	826	965	139	16.9	
Italy	60	76	124	190	258	68	36.0	
All other	1,622	1,563	2,150	2,599	3,352	753	29.0	
Total	9,055	10,029	14,232	16,022	18,750	2,728	17.0	
EU-27	1,176	1,439	2,390	3,161	3,524	363	11.5	
OPEC	45	20	28	110	79	-31	-28.1	
Latin America	3,058	3,726	5,052	4,305	5,705	1,399	32.5	
CBERA	32	40	55	75	94	19	25.8	
Asia	182	203	298	518	558	40	7.7	
Sub-Saharan Africa	1,766	1,851	2,715	3,807	3,049	-758	-19.9	
Central and Eastern Europe	16	13	12	15	8	-7	-45.5	

MM-8

See footnote(s) at end of table.

TABLE MM.3 Precious metals and non-numismatic coins (MM020): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
Switzerland	2,256	2,810	3,971	6,345	10,191	3,846	60.6
United Kingdom	489	650	3,120	4,141	5,587	1,446	34.9
Canada	-948	-1,158	-1,096	-906	-1,211	-305	-33.6
South Africa	-1,762	-1,829	-2,710	-3,759	-2,852	907	24.1
Mexico	-556	-794	-1,787	-1,748	-2,581	-833	-47.6
Germany	5	73	110	230	275	45	19.7
Russia	-476	-565	-699	-828	-1,254	-426	-51.4
Japan	124	265	366	703	635	-68	-9.6
Peru	-1,192	-1,736	-1,632	-825	-961	-135	-16.4
Italy	19	99	183	82	123	41	50.7
All other	-809	-324	-698	-166	-169	-3	-1.6
Total	-2,851	-2,507	-872	3,267	7,784	4,517	138.3
EU-27	404	759	3,191	4,234	5,571	1,337	31.6
OPEC	92	330	231	393	512	118	30.0
Latin America	-2,758	-3,500	-4,702	-3,972	-5,403	-1,431	-36.0
CBERA	-31	-37	-49	-57	-89	-32	-56.4
Asia	349	765	918	1,892	1,940	48	2.5
Sub-Saharan Africa	-1,759	-1,834	-2,713	-3,764	-2,859	906	24.1
Central and Eastern Europe	-14	-12	-11	-11	3	14	(^c)

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

^cNot meaningful for purposes of comparison.

TABLE MM.4 Precious-metals: Average annual prices, 2004–08

Year	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Dollars per troy ounce</i>							
Gold ^a	409.17	444.45	603.77	695.39	871.96	176.57	25	
Silver ^b	6.65	7.31	11.55	13.38	14.99	1.61	12	
Platinum-group metals: ^c								
Platinum	848.76	899.51	1,144.42	1,308.44	1,578.25	269.81	21	
Palladium	232.93	203.54	322.93	357.34	355.12	-2.22	-1	
Rhodium	983.24	2,059.73	4,561.06	6,203.09	6,533.57	330.48	5	
Iridium	185.33	169.51	349.45	444.43	448.34	3.91	1	
Osmium	(^d)	(^d)	(^d)	(^d)	(^d)	(^e)	(^e)	
Ruthenium	64.22	74.41	193.09	573.74	324.52	-249.22	-43	

Source: Statistics of the London Bullion Market Association; Loferski, "Platinum-group Metals in December 2008," February 2009; George, "Platinum-group Metals in December 2007," February 2008; George, "Platinum-group Metals in December 2006," February 2007; and George, "Platinum-group Metals in December 2005," February 2006.

^aLondon final price.

^bLondon daily (noon) price.

^cEnglehard Corp. unfabricated price.

^dNot reported.

^eNot applicable.

of precious metals traded by the United States. For example, the value of gold exported in the unwrought form of refined bullion rose by 51 percent in value, roughly three times the 17 percent rise in quantity, and the value of silver imported as bullion rose by 7 percent, even though the quantity declined by 8 percent.

U.S. Exports

Gold accounted for the largest increase by value in U.S. exports of precious metals and non-numismatic coins in 2008, rising by \$4.7 billion (40 percent) to \$16.5 billion (table MM.5). Most of this export increase was in refined bullion, exports of which rose by \$4.4 billion (51 percent) to \$13.1 billion. The leading foreign markets for gold bullion, Switzerland and the United Kingdom, received the largest increases in exports from the United States. Both countries are not only premier global banking centers but are also centers for fabricating and trading precious metals.

TABLE MM.5 Precious metals and non-numismatic coins: Changes in U.S. exports, 2004–08

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
Gold	3,591	4,834	7,429	11,773	16,517	4,745	40	
Waste and scrap	1,763	1,749	3,065	4,933	7,668	2,735	55	
Silver	271	286	1,011	786	947	161	20	
Non-numismatic coins	38	42	116	182	239	57	31	
Platinum-group metals	542	610	1,739	1,614	1,162	-452	-28	
Total	6,204	7,522	13,360	19,289	26,534	7,245	38	

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

Note: Calculations based on unrounded data.

U.S. exports of precious-metal waste and scrap rose by \$2.7 billion (55 percent) to \$7.7 billion. U.S. exports of silver, the predominant type of waste and scrap, increased by \$1.9 billion (80 percent) to \$4.3 billion. Silver prices increased enough in 2008 to offset lower quantities of waste and scrap exported for refining.²¹ U.S. exports were primarily to Switzerland, followed by the United Kingdom. Both of these destinations have significant precious-metals recovery and refining facilities.

By contrast, PGMs were the only precious metals for which U.S. exports declined in 2008, by \$452 million (28 percent) to \$1.2 billion. Various unwrought forms (both unrefined and refined) predominated, which together declined by \$458 million (35 percent) to \$867 million, due to lower U.S. mine output of PGMs.²² Although Japan was the leading foreign market for such exports, exports to Japan declined the most and can be largely attributed to reduced demand from Japanese manufacturers of automotive catalysts, industrial products, and jewelry.²³ Lower U.S. exports of unwrought PGMs to China, largely attributable to reduced demand from jewelry producers,²⁴ also contributed to the overall export decline. However, decreased U.S. shipments to the United Kingdom were overshadowed by increased shipments to Germany and Italy, as European consumption of platinum and palladium increased in 2008, particularly due to increased demand related to automotive catalysts production.²⁵

²¹ U.S. exports of silver waste and scrap fell by 616 metric tons (19 percent) to 2,565 metric tons in 2008. By contrast, U.S. refinery output of secondary silver (from scrap) rose by 10 metric tons (less than 1 percent) to reach 1,550 metric tons. Compiled from official statistics of the U.S. Department of Commerce; Brooks, "Silver," January 2009, 148.

²² Output of platinum and palladium from the two operating U.S. PGM mines fell by 160 kilograms (4 percent) to 3.7 metric tons and by 400 kilograms (3 percent) to 12.4 metric tons, respectively, in 2008. Loferski, "Platinum-group Metals," January 2009, 122.

²³ Japanese consumption declined by 125,000 troy ounces (14 percent) to 795,000 troy ounces of platinum and by 55,000 troy ounces (4 percent) to 1.4 million troy ounces of palladium in 2008. Jollie, *Platinum 2008*, November 2008, 33, 35. For more general information, see the Japan chapter of this report.

²⁴ Chinese consumption declined by 55,000 troy ounces (5 percent) to 1.1 million troy ounces of higher-priced platinum but rose by 175,000 troy ounces (14 percent) to 1.4 million troy ounces of lower-priced palladium in 2008. Jollie, *Platinum 2008*, November 2007, 33, 35. For more general information, see the China chapter of this report.

²⁵ European's consumption increased by 260,000 troy ounces (10 percent) to 2.9 million troy ounces of platinum, and by 275,000 troy ounces (21 percent) to 1.6 million troy ounces of palladium in 2008. Jollie, *Platinum 2008*, November 2008, 33, 35. For more general information, see the EU chapter of this report.

U.S. Imports

Gold also accounted for the largest increase in U.S. imports of precious metals and non-numismatic coins in 2008, rising by \$1.5 billion (37 percent) to \$5.7 billion (table MM.6). Increased imports of gold were predominantly of unwrought forms, particularly unrefined doré²⁶ (up by \$793 million, or 77 percent, to \$1.8 billion) and refined bullion (up by \$763 million, or 31 percent, to \$3.2 billion). Most of the increase in imports of doré was from Mexico²⁷ and Colombia, where mines and smelters contracted with U.S. refineries for increased quantities of their output in 2008.²⁸ Most of the increase in imports of bullion was from Canada, with additional increased imports from Colombia, the United Kingdom, and Switzerland. Canada and Colombia are significant producers of mined gold,²⁹ whereas the United Kingdom and Switzerland are major gold trading centers.³⁰

TABLE MM.6 Precious metals and non-numismatic coins: Changes in U.S. imports, 2004–08

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
Gold	3,827	4,202	5,171	4,134	5,681	1,547	37
Non-numismatic coins	244	237	305	289	1,201	912	316
Silver	1,013	1,178	1,900	2,375	2,992	617	26
Waste and scrap	466	525	1,017	1,481	1,760	279	19
Platinum-group metals	3,505	3,885	5,838	7,742	7,115	-627	-8
Total	9,055	10,029	14,232	16,022	18,750	2,728	17

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

Note: Calculations based on unrounded data.

U.S. imports of non-numismatic (bullion) coins increased by \$912 million (316 percent) to \$1.2 billion in 2008. Gold coins (both newly minted and resold) accounted for most of this gain (up by \$804 million, or 336 percent) to \$1.0 billion, as investors increasingly sought precious metals in recognized forms that are both

²⁶ Doré is an unrefined mixture of precious and base metals from the initial smelting of precious-metal ores and concentrates. Subsequent refining produces high-purity precious metals in the unwrought forms of bullion, grains and nuggets, and powder.

²⁷ Mexican mined gold output rose by 2 metric tons (5 percent) to 41 metric tons in 2008. George, “Gold,” January 2009, 69.

²⁸ Precious-metal refining contracts are negotiated annually between mines and refineries, and doré can be sent readily anywhere around the world via air freight due to the high unit value of precious metals. However, more detailed information about specific contracts is not readily available. U.S. imports of gold doré from Mexico rose by 24 metric tons (318 percent) to 32 metric tons in 2008 and from Colombia by 8 metric tons (114 percent) to 15 metric tons in 2008. Compiled from official statistics of the U.S. Department of Commerce.

²⁹ Canadian mines produced 100 metric tons of gold, or 4 percent of the global total of 2,330 metric tons, in 2008. George, “Gold,” January 2009, 69.

³⁰ U.S. imports of gold bullion from Canada rose by 7 metric tons (10 percent) to 84 metric tons, from Colombia by 2 metric tons (57 percent) to 4 metric tons, from the United Kingdom by 2 metric tons (45 percent) to 6 metric tons, and from Switzerland by 1 metric ton (207 percent) to 2 metric tons in 2008. Compiled from official statistics of the U.S. Department of Commerce.

readily storable and tradeable.³¹ The U.S. Mint was not able to meet rising demand for bullion coins due to shortages of coin blanks from its suppliers,³² and foreign mints struggled to meet rising demand as well.³³ Canada was the predominant source of U.S. imports and accounted for the largest import increase.³⁴ U.S. imports from Austria, South Africa, Switzerland, and Australia also rose strongly. All but Switzerland have long-established government programs to sell officially minted legal-tender gold coins;³⁵ Switzerland is a major global banking and trading center for precious metals in all forms, including non-numismatic coins.

U.S. imports of silver rose by \$617 million (26 percent) to \$3.0 billion. The predominant form was unrefined doré, up by \$393 million (121 percent) to \$717 million, as U.S. precious-metals refineries processed less doré from domestic silver mines during 2008.³⁶ As the world's largest producer of silver, Peru was the leading U.S. import source and accounted for the largest import increase.³⁷

By contrast, PGMs were the only precious metals for which U.S. imports declined in 2008, by \$627 million (8 percent) to \$7.1 billion, despite high import reliance to meet domestic consumption needs.³⁸ Most of this import decline was in various unwrought forms (both unrefined and refined), which fell by \$483 million (7 percent) to \$6.7 billion, as the economic downturn adversely affected the key PGM-consuming industries.³⁹ Among U.S. import sources, imports from South Africa declined the most. As the world's predominant

³¹ According to a representative of the South African Gold Coin Exchange, coin dealers worldwide were running out of bullion coins and were selling "often at significant premiums" over the price of gold. World Gold Council, "Demand Growing for Gold Coins," December 12, 2008.

³² Because of record sales of non-numismatic gold coins in fiscal year 2008 (up by 328,000 troy ounces or 200 percent to 492,000 troy ounces), the U.S. Mint reported being forced to suspend sales in late August 2008, which were subsequently resumed under an allocation program. U.S. Mint, *2008 Annual Report*, undated, 35–36.

³³ For example, the Austrian Mint reportedly had to add a third work shift to increase its output of gold coins. World Gold Council, "Growing Demand for Gold Coins," October 13, 2008.

³⁴ The Canadian Gold Maple Leaf coin, introduced in 1979, was the first non-numismatic bullion coin available to the world with purity of 99.99 percent (9999 fine) gold. Royal Canadian Mint, "Why Invest in Royal Canadian Mint Bullion?" undated (accessed March 28, 2009).

³⁵ Austrian Mint, "Vienna Philharmonic Gold Coin," undated, (accessed March 28, 2009); South Africa Mint Co., "2008 Krugerrand Series," undated (accessed March 28, 2009); and Perth Mint Australia, "Bullion Coins," undated (accessed March 28, 2009).

³⁶ U.S. refinery output of primary silver from doré fell by 1,610 metric tons (39 percent) to 2,500 metric tons in 2008. Brooks, "Silver," January 2009, 148.

³⁷ Peruvian mines produced 3,600 metric tons of silver, or 17 percent of the global total of 20,900 metric tons, in 2008. *Ibid.*, 149.

³⁸ U.S. net import reliance as a percentage of apparent domestic consumption was estimated at 91 percent for platinum and 72 percent for palladium in 2008. Domestic sources of PGMs are restricted to the output of two operating mines and the small quantities recovered as byproducts from refining of smelted copper. Loferski, "Platinum-group Metals," January 2009, 122.

³⁹ PGMs are valued for their unique catalytic properties and relative chemical inertness under elevated temperature and pressure conditions, which is particularly useful for emissions control, chemical synthesis, and petroleum refining, for which there are few adequate alternatives. North American (U.S. and Canadian) consumption declined by 405,000 troy ounces (44 percent) to 525,000 troy ounces of platinum, and by 295,000 troy ounces (17 percent) to 1.5 million troy ounces of palladium in 2008. Jollie, *Platinum 2008*, November 2008, 33, 35. For more information, see the Chemicals, Electronic Products, and Transportation Equipment chapters, and the Petroleum Products section of the Energy-related Products chapter of this report.

producer of PGMs,⁴⁰ South Africa's mine output was disrupted⁴¹ by electric power supply reductions in early 2008, labor unrest, flooding of deep mine shafts, and idling of some mines in response to lower PGM prices.⁴²

⁴⁰ In 2008, South African mines produced 153 metric tons of platinum, 76 percent of the global total of 200 metric tons, and 80 metric tons of palladium, or 39 percent of the global total of 206 metric tons. Loferski, "Platinum-group Metals," January 2009, 123.

⁴¹ South African mined platinum output fell by 13 metric tons (8 percent) to 153 metric tons, and mined palladium output fell by 7 metric tons (8 percent) to 80 metric tons, in 2008. South African mines produced 153 metric tons of platinum, 76 percent of the global total of 200 metric tons, and 80 metric tons of palladium, or 39 percent of the global total of 206 metric tons, in 2008. Ibid.

⁴² O'Donovan, "Anglo American Lists Operations Hit by Power Shortage," January 29, 2008; O'Donovan, "Mineworkers Down Tools," September 11, 2008; O'Donovan, "Anglo Platinum Production Down 75% at Flooded Mine," January 24, 2008; and O'Donovan, "Thousands of Lonmin Jobs at Risk," November 28, 2008.

Iron and Steel Waste and Scrap⁴³

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Change in 2008 from 2007:

U.S. trade surplus: Increased by \$3.1 billion (52 percent) to \$8.9 billion

U.S. exports: Increased by \$3.5 billion (50 percent) to \$10.4 billion

U.S. imports: Increased by \$0.4 billion (39 percent) to \$1.5 billion

In 2008, the U.S. trade surplus in iron and steel scrap increased by \$3.1 billion (52 percent) to \$8.9 billion, as a result of a substantial increase in exports (table MM.7). Exports increased in both quantity and unit value principally due to strong demand to support increased steel production in Asia.⁴⁴ Scrap consumption in the United States declined due to lower domestic steel production, contributing to the increased availability of scrap for export. Steel scrap, which had a higher unit value in 2008, accounted for a \$1.6 billion increase in exports.

U.S. Exports

U.S. exports of iron and steel scrap increased by \$3.5 billion (50 percent) to \$10.4 billion in 2008. An increase of \$3.9 billion in exports of non-stainless-steel scrap was partially offset by a decrease of \$435 million in exports of stainless-steel scrap. For non-stainless-steel scrap exports, both quantity and price increased to new highs. Due to high worldwide demand to support steel production in China and other Asian countries, the price of steel scrap rose, along with the prices of iron ore and primary iron products such as pig iron and direct-reduced iron. The average unit value of exported non-stainless-steel scrap was 32 percent higher in 2008 than in 2007, and the quantity of exports also increased by 32 percent to 20.5 million metric tons, an unprecedented level for such exports. U.S. exports of non-stainless-steel scrap to Turkey, the primary destination for U.S. scrap, increased by 38 percent in quantity, but 122 percent in value, as the average unit value of exports to Turkey increased to \$448 per metric ton in 2008 from \$278 in 2007. Although steel production in Turkey was down by 2 percent in 2008, and Turkey's overall imports of non-stainless-steel scrap increased by less than 2 percent in quantity, Turkish imports of U.S. scrap were up by 1.1 million metric tons, offsetting a decline of 1.2 million metric tons in Turkey's imports from Russia.⁴⁵ Russia has declined in importance as a supplier of scrap to the world market since 2004, with its annual exports having declined by 6.5 million metric tons during the 2004–08 period, whereas U.S. annual exports increased by 9.8 million metric tons during that period.⁴⁶

⁴³ This industry/commodity group includes all carbon-, alloy-, and stainless-steel scrap.

⁴⁴ *Metal Bulletin*, "Ferrous Scrap Cargoes Draw in Record \$520 a Tonne," January 23, 2008.

⁴⁵ GTIS, Global Trade Atlas Database (accessed March 16, 2009).

⁴⁶ *Ibid.*

TABLE MM.7 Iron and steel waste and scrap (MM023): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
Turkey	136	299	566	906	2,008	1,102	121.6
China	924	1,258	1,600	1,876	1,844	-32	-1.7
Canada	237	264	285	351	648	297	84.6
Korea	490	317	191	560	1,201	641	114.5
Taiwan	94	153	244	705	1,171	466	66.2
Malaysia	81	109	202	350	512	162	46.2
Mexico	305	287	247	221	341	119	53.9
Thailand	150	78	109	248	451	202	81.5
Egypt	12	52	99	144	400	256	177.3
India	91	221	168	337	365	28	8.4
All other	403	413	544	1,211	1,443	232	19.2
Total	2,923	3,451	4,256	6,910	10,384	3,474	50.3
EU-27	217	219	271	532	447	-85	-15.9
OPEC	3	17	8	14	2	-11	-83.9
Latin America	358	317	289	276	441	165	59.6
CBERA	2	2	5	12	7	-5	-43.5
Asia	1,935	2,270	2,720	4,677	6,378	1,701	36.4
Sub-Saharan Africa	25	13	16	3	1	-2	-71.4
Central and Eastern Europe	5	(^b)	1	2	2	1	50.1
U.S. imports of merchandise for consumption:							
Turkey	(^b)	(^b)	(^b)	(^b)	(^b)	(^b)	116.2
China	1	1	2	1	(^b)	-1	-62.7
Canada	599	579	772	760	1,021	261	34.4
Korea	(^b)	(^b)	(^b)	(^b)	(^b)	(^b)	-60.5
Taiwan	(^b)	(^b)	(^b)	(^b)	(^b)	(^b)	70.7
Malaysia	0	(^b)	(^b)	(^b)	(^b)	(^b)	-21.2
Mexico	58	61	95	138	151	13	9.2
Thailand	(^b)	0	(^b)	1	1	(^b)	35.1
Egypt	1	1	2	1	1	-1	-65.3
India	(^b)	0	(^b)	(^b)	(^b)	(^b)	-98.6
All other	583	279	383	148	281	132	89.3
Total	1,244	921	1,255	1,051	1,456	405	38.5
EU-27	511	253	367	131	258	127	96.5
OPEC	9	2	1	1	1	(^b)	-34.0
Latin America	95	73	108	153	169	17	10.9
CBERA	6	1	4	2	7	5	196.6
Asia	3	4	5	5	6	1	18.3
Sub-Saharan Africa	3	2	0	0	(^b)	(^b)	(^c)
Central and Eastern Europe	0	0	(^b)	0	(^b)	(^b)	(^c)

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See footnote(s) at end of table.

TABLE MM.7 Iron and steel waste and scrap (MM023): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
Turkey	136	299	566	906	2,008	1,102	121.6
China	923	1,256	1,598	1,875	1,844	-31	-1.7
Canada	-362	-314	-487	-408	-372	36	8.8
Korea	490	316	191	559	1,201	641	114.6
Taiwan	93	153	244	704	1,170	466	66.1
Malaysia	81	109	202	350	512	162	46.2
Mexico	248	226	152	83	190	107	128.4
Thailand	150	78	109	247	450	202	81.7
Egypt	11	52	96	143	400	257	179.8
India	91	221	168	336	365	29	8.5
All other	-180	134	161	1,062	1,162	100	9.4
Total	1,680	2,529	3,001	5,859	8,928	3,069	52.4
EU-27	-294	-34	-95	401	190	-211	-52.7
OPEC	-7	15	7	12	1	-11	-88.5
Latin America	263	244	180	124	272	148	119.8
CBERA	-4	1	1	9	-1	-10	(^c)
Asia	1,932	2,266	2,715	4,672	6,372	1,700	36.4
Sub-Saharan Africa	22	11	16	3	1	-2	-72.4
Central and Eastern Europe	5	(^b)	(^b)	2	2	1	41.4

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

^cNot meaningful for purposes of comparison.

U.S. exports of stainless-steel scrap declined by \$435 million (27 percent) in 2008, as a 35 percent drop in average unit value more than offset a 13 percent increase in quantity. The value of stainless-steel scrap is closely related to the value of the nickel contained in it, and thus the price of such scrap is closely related to the price of nickel. Unlike the prices of most commodities, which increased in 2008, the price of nickel peaked in 2007 and declined in 2008, bringing the price of stainless-steel scrap down.⁴⁷ U.S. exports of stainless-steel scrap to China, the largest producer of stainless steel in the world, declined in both quantity and value, as China's production of stainless steel declined by 4 percent and the quantity of its imports of stainless-steel scrap from all sources declined by 36 percent.⁴⁸ U.S. exports of stainless-steel scrap to other Asian markets, including Taiwan, Japan, and Korea, decreased by 11 percent in value, despite an increase of 37 percent in quantity.

U.S. Imports

U.S. imports of iron and steel scrap increased by \$405 million (39 percent) in 2008. The increase was entirely due to higher prices for scrap during 2008, which resulted in part from increased world demand. The average unit value of scrap imports increased by 44 percent, but the quantity of scrap imported decreased by 3 percent. As the largest scrap-exporting country in the world, U.S. imports of scrap derive primarily from cross-border trade with NAFTA partners Canada (70 percent of imports) and Mexico (10 percent).⁴⁹

⁴⁷ *Metal Bulletin*, Price Archives Database (accessed March 17, 2009).

⁴⁸ International Stainless Forum, "World Economic Crisis Drives 2008 Stainless Production Lower," March 12, 2009.

⁴⁹ GTIS, Global Trade Atlas Database (accessed March 17, 2009).

Primary Iron Products⁵⁰

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Change in 2008 from 2007:

U.S. trade deficit: Increased by \$1.6 billion (72 percent) to \$3.8 billion

U.S. exports: Increased by \$12 million (153 percent) to \$19 million

U.S. imports: Increased by \$1.6 billion (72 percent) to \$3.9 billion

The U.S. trade deficit in primary iron products widened considerably in 2008 (table MM.8), due to significantly higher global prices, and in turn, higher U.S. import values (U.S. exports being very small). Higher prices resulted from increased global steel demand and tight supplies of iron ore and the primary iron products derived from iron ore that are used as inputs in steel production. U.S. imports of primary iron products include pig iron, direct-reduced iron (DRI), and hot-briquetted iron (HBI), which are used primarily in flat-rolled steel production by electric-arc furnace (EAF) steel producers.⁵¹ Despite increased U.S. import values, the volume of U.S. imports of primary iron products decreased by 3 percent to 7.5 million metric tons in 2008. Moreover, during the 2004–08 period, U.S. import volumes decreased by 1.6 million metric tons, or 17 percent. This is partially due to fluctuating U.S. demand from large flat-rolled steel consumers, including the automotive and home appliance industries, in 2007 and 2008;⁵² periods of inclement weather in Brazil, the largest exporter of pig iron to the United States, which hampered the production of charcoal used as an input in pig iron production;⁵³ and growing domestic steel demand and production in Brazil, which left less iron products available for export to the United States.⁵⁴

Increased steel demand in China and other countries, as well as reduced iron ore supplies, contributed to an unprecedented increase in primary iron product prices, which generally

⁵⁰ This industry/commodity group includes roasted iron pyrites; nonalloy and alloy pig iron; spiegelisen in primary forms; ferrous products obtained from direct reduction of iron ore; and spongy ferrous products in lumps, pellets, or like forms.

⁵¹ Whereas EAF steel mills (or mini-mills) use ferrous scrap as a primary input in the production of carbon steel long products, mini-mills use merchant (mostly imported) pig iron, DRI, or HBI as higher-quality substitutes for ferrous scrap in the production of carbon or alloy flat-rolled steel products. Pig iron, DRI, or HBI is used in addition to ferrous scrap because of their higher iron content and fewer residual elements. Frank Griscom (executive director, The Hot Briquetted Iron Association), telephone interview by Commission staff, March 19, 2009. Although U.S. integrated steel mills produce blast furnace pig iron, 95 percent of the iron produced is consumed internally in steel production. Fenton, "Iron and Steel," January 2008, 87.

⁵² In addition, advances in technology have allowed EAF steel producers to maximize the value of raw materials, improve productivity, and reduce costs. Frank Griscom (executive director, The Hot Briquetted Iron Association), telephone interview by Commission staff, March 19, 2009. The proportion of pig iron, DRI, or HBI is determined by the quality of steel being made, ferrous scrap availability, and price. Millbank, "Merchant Pig Iron Sees Reasons for Growth," September 6, 2007.

⁵³ Nijkerk, "Market Analysis: Ferrous," April 2007, 83.

⁵⁴ Kinch, "(MB) Brazil Set to Lose Top Ranking," September 21, 2007.

TABLE MM.8 Primary iron products (MM021): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
Brazil	(b)	(b)	(b)	0	(b)	(b)	(c)
Venezuela	0	(b)	(b)	(b)	(b)	(b)	-58.9
Trin & Tobago	0	0	0	0	0	0	-100.0
Russia	0	0	0	(b)	0	(b)	-100.0
Ukraine	0	0	0	0	0	0	0.0
Canada	2	3	1	2	12	10	597.6
South Africa	0	0	0	0	(b)	(b)	(c)
Sweden	(b)	0	(b)	0	0	0	0.0
Japan	(b)	(b)	(b)	(b)	1	1	949.5
Mexico	2	4	1	3	2	-1	-19.2
All other	7	5	10	3	4	2	62.2
Total	10	12	12	8	19	12	152.5
EU-27	1	2	3	1	(b)	(b)	-12.0
OPEC	(b)	(b)	(b)	(b)	(b)	(b)	-33.4
Latin America	4	6	1	3	3	(b)	-2.4
CBERA	(b)	(b)	(b)	(b)	(b)	(b)	140.8
Asia	2	1	1	1	2	2	184.0
Sub-Saharan Africa	(b)	(b)	(b)	(b)	(b)	(b)	-65.9
Central and Eastern Europe	(b)	0	0	(b)	(b)	(b)	-95.5
U.S. imports of merchandise for consumption:							
Brazil	914	1,198	1,126	1,124	1,993	869	77.3
Venezuela	379	318	308	218	553	335	153.3
Trin & Tobago	108	68	96	343	508	164	47.9
Russia	330	218	504	354	413	60	16.8
Ukraine	19	77	48	96	207	111	114.9
Canada	70	84	79	41	102	60	145.7
South Africa	24	44	46	46	56	10	21.9
Sweden	0	0	(b)	(b)	20	20	4,117.7
Japan	1	3	3	2	3	1	33.1
Mexico	0	(b)	2	0	0	0	0.0
All other	52	22	15	10	1	-9	-91.7
Total	1,898	2,033	2,227	2,236	3,856	1,620	72.4
EU-27	21	1	(b)	2	21	19	974.5
OPEC	379	318	308	218	553	335	153.3
Latin America	1,401	1,592	1,532	1,686	3,054	1,368	81.2
CBERA	108	68	96	343	508	164	47.9
Asia	32	17	9	2	3	1	32.1
Sub-Saharan Africa	24	44	46	46	56	10	21.9
Central and Eastern Europe	(b)	(b)	(b)	0	0	0	0.0

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See footnote(s) at end of table.

TABLE MM.8 Primary iron products (MM021): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Brazil	-914	-1,198	-1,126	-1,124	-1,993	-869	-77.3	
Venezuela	-379	-318	-308	-218	-553	-335	-153.4	
Trin & Tobago	-108	-68	-96	-343	-508	-165	-48.0	
Russia	-330	-218	-504	-354	-413	-60	-16.9	
Ukraine	-19	-77	-48	-96	-207	-111	-114.9	
Canada	-69	-81	-78	-40	-90	-50	-125.9	
South Africa	-24	-44	-46	-46	-56	-10	-21.9	
Sweden	^(b)	0	^(b)	^(b)	-20	-20	-4,117.7	
Japan	-1	-3	-3	-2	-2	^(b)	-7.5	
Mexico	2	4	-1	3	2	-1	-19.2	
All other	-45	-17	-6	-8	3	11	^(c)	
Total	-1,887	-2,021	-2,215	-2,229	-3,837	-1,608	-72.2	
EU-27	-19	2	2	-1	-20	-19	-2,718.6	
OPEC	-379	-318	-308	-218	-553	-335	-153.5	
Latin America	-1,397	-1,586	-1,531	-1,682	-3,051	-1,368	-81.3	
CBERA	-108	-68	-96	-343	-507	-164	-47.9	
Asia	-31	-16	-8	-1	-1	1	59.4	
Sub-Saharan Africa	-24	-44	-46	-46	-56	-10	-21.9	
Central and Eastern Europe	^(b)	^(b)	^(b)	^(b)	^(b)	^(b)	-95.5	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

^cNot meaningful for purposes of comparison.

tracked rising prices for other steel raw materials during the 2005–08 period (table MM.9).⁵⁵ During the second half of 2008, however, demand for steel and primary iron products declined amid the global economic downturn, prompting falling steel and raw material prices and decreasing production of steel and primary iron products. By November 2008, for example, 60 out of 106 blast furnaces that produce pig iron in Brazil were reportedly idled as a result of weak demand and low prices.⁵⁶ Similarly, HBI producers in Venezuela, a large HBI exporter to the U.S. market, shuttered production facilities because of low HBI prices relative to production costs.⁵⁷ Curtailed production of primary iron products continued into 2009.

TABLE MM.9 Average annual steel raw materials prices, 2005–08

Item	2005	2006	2007	Change, 2008 from 2007		
				2008	Absolute	Percent
<i>Dollars per metric ton</i>						
Pig Iron ^a	260 ^b	291	317	638	320	101.1
HBI ^c	232 ^b	239	285	475	190	66.8
Scrap, auto bundles ^d	257	286	298	523	224	75.1
Scrap, no. 1 heavy melt ^e	200	229	261	371	111	42.5

Source: Pig iron and HBI prices from *Metal Bulletin*, Price Archives Database (accessed March 20, 2009); scrap steel prices from Purchasingdata.com, “Steel Price Transaction Report,” undated (accessed March 20, 2009).

^aUnited States prices for imported pig iron, c.i.f. Gulf of Mexico.

^bJanuary 2005 prices are unavailable and were not calculated in the annual average.

^cLatin America export prices for hot briquetted iron (HBI), f.o.b. stowed.

^dU.S. prices for scrap steel auto bundles. Prices quoted in U.S. dollars per gross ton and converted to metric tons by multiplying by 1.1016047.

^eU.S. prices for scrap steel no. 1 heavy melt, Chicago. Prices quoted in U.S. dollars per gross ton and converted to metric tons by multiplying by 1.1016047.

U.S. Exports

The United States is a net importer of primary iron products and exports negligible volumes (relative to U.S. imports) of pig iron, primarily to Canada and Mexico. U.S. exports of primary iron products increased by \$12 million (over 150 percent) to \$19 million in 2008, due to substantial price increases. By contrast, U.S. export volumes decreased by 21 percent to 67,000 metric tons in 2008. During the 2004–08 period, the annual volume of U.S. exports changed little.

U.S. Imports

U.S. imports of primary iron products increased by \$1.6 billion (72 percent) to \$3.9 billion in 2008, as a result of an unprecedented increase in prices for primary iron products and other raw materials (i.e., ferrous scrap) used in flat-rolled steel production primarily by U.S.

⁵⁵ During the 2004–08 period, worldwide crude steel production increased by 24 percent to 1.3 billion metric tons. China accounted for 86 percent of production growth during the period. CRU Steel Monitor, *Crude Steel Production Data*, 2009.

⁵⁶ Marais, “HBI, Pig Iron Troubles Could Bode Well for Scrap,” November 3, 2008.

⁵⁷ Marais, “Pig Iron, HBI Output Crash as Demand Evaporates,” November 20, 2008.

EAF producers. For example, in 2008, the average unit value of U.S. imports of primary iron products increased by 77 percent to \$511 per metric ton.⁵⁸ During the second half of 2008, however, declining U.S. steel demand led to curtailed production of primary iron products and increasing levels of unused production capacity of major suppliers to the United States. As a result, U.S. import values and volumes of primary iron products are expected to decline in 2009.

The largest suppliers of primary iron products to the United States were Brazil (primarily pig iron), Venezuela (primarily DRI/HBI), and Trinidad and Tobago (primarily DRI). The value of U.S. imports from Brazil increased by 77 percent to \$2.0 billion in 2008, due to significant price increases for imported pig iron;⁵⁹ the volume of U.S. imports from Brazil increased by only 1 percent. Although the value of U.S. imports from Venezuela increased by 153 percent to \$553 million in 2008, U.S. import volumes increased by only 20 percent. However, from 2006 to 2008, U.S. import volumes from Venezuela decreased by more than 23 percent to 1.2 million metric tons, as Venezuelan DRI/HBI producers faced inadequate iron ore and pellet supplies from both Brazilian and domestic suppliers, resulting in lower production and export volumes in 2006 and 2007.⁶⁰ The value of U.S. imports from Trinidad and Tobago increased by 48 percent to \$508 million in 2008, but U.S. import volumes declined slightly. However, from 2006 to 2008, the value of U.S. imports from Trinidad and Tobago increased by 429 percent to \$508 million (and the volume by 270 percent to 1.4 million metric tons), as U.S. steel producer Nucor started production of DRI at its Nu-Iron plant located in Trinidad in 2006. The facility supplies Nucor with approximately 1.5 million metric tons of DRI annually.⁶¹

⁵⁸ For more information on changes to the U.S. trade balance for ferrous scrap, see the Iron and Steel Waste and Scrap section of this chapter.

⁵⁹ Factors contributing to increased prices for imported pig iron from Brazil include increased global steel demand, limited iron ore and iron ore pellet production capacity and pig iron supply in Brazil, and growing domestic steel demand and production in Brazil.

⁶⁰ Midrex Technologies, Inc., *2007 World Direction Reduction Statistics*, 2008, 2; Frank Griscom (executive director, The Hot Briquetted Iron Association), telephone interview by Commission staff, March 19, 2009.

⁶¹ Bowen, "Nucor Shrugs off Reports," December 3, 2008.

Change in 2008 from 2007:

U.S. trade deficit: Increased by \$1.5 billion (58 percent) to \$4.1 billion

U.S. exports: Increased by \$14 million (7 percent) to \$220 million

U.S. imports: Increased by \$1.5 billion (55 percent) to \$4.3 billion

In 2008, the U.S. trade deficit in ferroalloys rose by \$1.5 billion (58 percent) to \$4.1 billion, as a result of a substantial increase in imports (table MM.10). The import increase was due primarily to growth in the global prices of almost all ferroalloys, resulting in large part from strong demand in China and other Asian countries. Despite the fact that steel production—the main use for ferroalloys—declined by almost 7 percent in the United States in 2008, imports of ferroalloys grew by 7 percent in quantity. That quantity increase, combined with an average unit value increase of 44 percent, resulted in a 55 percent increase in the value of imports.

U.S. Exports

The United States is not a major exporter of ferroalloys, because in most cases, there is no U.S. production of the basic raw materials (ores) or of the ferroalloys themselves. In 2008, U.S. exports of ferroalloys increased by \$14 million (7 percent), primarily due to higher prices caused by greater worldwide demand for raw materials used in steelmaking. The quantity of all ferroalloy exports increased by only 2 percent. Ferroalloys that contributed to the increase in U.S. exports were ferromolybdenum, for which exports increased by \$8 million (14 percent), and ferrovandium, for which exports increased by \$7 million (127 percent).⁶³

U.S. Imports

U.S. imports of ferroalloys increased by \$1.5 billion (55 percent) to \$4.3 billion, as the price of most ferroalloys soared. In 2008, imports of ferromanganese increased by \$776 million (217 percent); the quantity of which increased by 42 percent and the average unit value of which increased by 123 percent.

⁶² This industry/commodity group includes alloys of iron with other metals for use in steelmaking. The alloys of most importance are those of iron with manganese, silicon, chromium, nickel, molybdenum, vanadium, and niobium.

⁶³ Ferromolybdenum is produced from a byproduct of copper mining and from molybdenum ores mined in the United States. Ferrovandium is produced from processing certain wastes from petroleum refining and from ashes and waste from the combustion of certain petroleum fuels.

TABLE MM.10 Ferroalloys (MM022): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
South Africa	0	0	(^b)	1	1	(^b)	-6.8	
China	6	4	2	1	3	2	184.0	
Kazakhstan	0	0	0	0	0	0	0.0	
Russia	0	0	0	(^b)	4	4	4,161.0	
Brazil	2	6	4	4	11	7	200.4	
Canada	46	88	72	87	107	20	23.5	
Korea	(^b)	(^b)	(^b)	1	1	1	102.3	
India	(^b)	(^b)	(^b)	1	(^b)	(^b)	-75.5	
Norway	0	0	0	0	0	0	0.0	
Dominican Rep	(^b)	0	0	(^b)	(^b)	(^b)	-73.4	
All other	27	63	68	112	93	-19	-16.8	
Total	81	162	146	206	220	14	6.9	
EU-27	6	37	38	56	50	-6	-10.1	
OPEC	2	1	(^b)	10	1	-10	-92.0	
Latin America	22	31	31	41	46	5	12.0	
CBERA	(^b)	(^b)	(^b)	0	1	1	(^c)	
Asia	6	5	4	4	9	5	108.5	
Sub-Saharan Africa	0	0	(^b)	1	2	(^b)	36.8	
Central and Eastern Europe	(^b)	(^b)	(^b)	(^b)	0	(^b)	-100.0	
U.S. imports of merchandise for consumption:								
South Africa	494	279	368	556	1,048	492	88.4	
China	269	351	280	376	602	226	60.2	
Kazakhstan	128	143	113	203	367	164	80.5	
Russia	100	157	127	149	332	183	122.8	
Brazil	78	83	119	180	256	76	42.3	
Canada	36	79	74	111	123	12	10.7	
Korea	28	25	52	58	194	136	234.8	
India	24	1	3	11	157	146	1,357.2	
Norway	113	82	90	81	156	75	92.2	
Dominican Rep	103	111	202	323	154	-169	-52.2	
All other	513	523	525	740	922	182	24.5	
Total	1,885	1,834	1,954	2,788	4,310	1,522	54.6	
EU-27	205	220	155	142	106	-36	-25.6	
OPEC	37	36	41	43	47	4	9.2	
Latin America	293	354	512	813	723	-90	-11.1	
CBERA	0	0	0	0	(^b)	(^b)	(^c)	
Asia	331	397	358	469	992	522	111.3	
Sub-Saharan Africa	536	343	411	580	1,135	555	95.8	
Central and Eastern Europe	127	141	84	116	51	-66	-56.6	

MM-25

See footnote(s) at end of table.

TABLE MM.10 Ferroalloys (MM022): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
South Africa	-494	-279	-368	-555	-1,046	-492	-88.7
China	-264	-347	-278	-375	-599	-224	-59.8
Kazakhstan	-128	-143	-113	-203	-367	-164	-80.5
Russia	-100	-157	-127	-149	-328	-179	-120.5
Brazil	-77	-77	-115	-177	-246	-69	-39.1
Canada	10	9	-3	-24	-15	9	35.8
Korea	-28	-25	-52	-57	-193	-136	-236.4
India	-24	-1	-3	-10	-156	-146	-1,441.6
Norway	-113	-82	-90	-81	-156	-75	-92.2
Dominican Rep	-103	-111	-202	-323	-154	169	52.2
All other	-486	-459	-457	-628	-829	-200	-31.9
Total	-1,805	-1,673	-1,807	-2,582	-4,090	-1,508	-58.4
EU-27	-199	-184	-117	-86	-55	31	35.7
OPEC	-35	-35	-41	-33	-46	-13	-41.3
Latin America	-271	-322	-482	-771	-676	95	12.3
CBERA	^(b)	^(b)	^(b)	0	^(b)	^(b)	^(c)
Asia	-325	-392	-353	-465	-983	-518	-111.4
Sub-Saharan Africa	-536	-343	-411	-578	-1,133	-555	-95.9
Central and Eastern Europe	-127	-141	-84	-116	-51	66	56.5

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

^cNot meaningful for purposes of comparison.

In South Africa,⁶⁴ the most important source for imports of ferromanganese, a fatal accident at a large plant resulted in a several-week shutdown of all production, and a several-month loss of production from the affected producing furnace.⁶⁵ As a result, the company was forced to declare *force majeure* for many of its contracts. In addition, all metal producers in South Africa were asked by the controlling authority of the electrical power grid to limit their electricity usage to 90 percent of their normal usage, thereby reducing ferroalloy production.⁶⁶ The electricity curtailment reportedly could last as long as five years.⁶⁷

The U.S. Defense National Stockpile reduced its shipments of ferromanganese by an amount about equal to 20 percent of U.S. consumption, forcing U.S. consumers to rely more heavily upon imports to satisfy their requirements.⁶⁸ These developments, along with high worldwide demand related to increased steel production during the first half of 2008, resulted in a supply shortage and soaring prices.

Imports of ferrochromium increased by \$650 million (126 percent), primarily due to higher prices. The average unit value of imported ferrochromium rose by 97 percent, but the quantity of imports rose by only 14 percent. The increase in price was related to increased worldwide demand and concerns about the supply of ferrochromium from South Africa due to the electricity restrictions.⁶⁹ U.S. production of stainless steel, the principal use of ferrochromium, was down by 11 percent in 2008. However, the decline occurred during the second half of the year, and imports were not reduced in proportion to the decline in consumption. Further, shipments of ferrochromium from the Defense National Stockpile were reduced by an amount equal to about 14 percent of U.S. consumption, which was replaced by imported material.⁷⁰

Ferronickel was an exception to the pattern of higher prices for ferroalloys in 2008. U.S. imports of ferronickel declined by \$104 million (39 percent). The price of nickel alloys peaked in 2007 and declined in 2008; the average unit value of imported ferronickel declined by 38 percent. In addition, the quantity of ferronickel imports declined by 18 percent. Ferronickel, like ferrochromium, is used primarily in the production of stainless steel. The decline in imports of ferronickel partially offset an increase in the quantity of imports of unwrought nickel, which is used for similar purposes in the production of stainless steel but is not included in this ferroalloy category.

A third ferroalloy used primarily in the production of stainless steel is ferromolybdenum. Unlike ferromanganese, ferrochromium, and ferronickel, there is a U.S. industry producing ferromolybdenum. Reduced U.S. demand for ferromolybdenum, due to lower levels of stainless steel production, affected imports more than domestic shipments, resulting in a 45 percent decline in the quantity of imports. Even though the average unit value of imported

⁶⁴ The quantity of U.S. imports of ferromanganese from South Africa increased by 7 percent in quantity and by an even greater proportion from other countries, particularly China, Ukraine, Korea, and India.

⁶⁵ *Metal Bulletin*, "U.S. Ferromanganese Prices Expected to Test New Highs," March 10, 2008.

⁶⁶ *Metal Bulletin*, "South African FeCr Ops to Produce at 90% Capacity by Thurs," January 30, 2008.

⁶⁷ *Metal Bulletin*, "U.S. Ferromanganese Tags Hold as More Material Hits Market," June 2, 2008.

⁶⁸ Compiled from U.S. Defense National Stockpile Center, *Strategic and Critical Materials Operations Report to Congress*, fiscal years 2004–07.

⁶⁹ The quantity of imports of ferrochromium from South Africa was down by 4 percent, but imports increased from other sources, particularly from Ukraine, Korea, India, and China.

⁷⁰ Compiled from U.S. Defense National Stockpile Center, *Strategic and Critical Materials Operations Report to Congress*, fiscal years 2004–07.

ferromolybdenum increased by 13 percent, the reduction in import value was \$104 million (39 percent).

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Miscellaneous Manufactures¹

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Change in 2008 from 2007:

U.S. trade deficit: Decreased by \$4.9 billion (6 percent) to \$73.0 billion
U.S. exports: Increased by \$1.9 billion (7 percent) to \$27.8 billion
U.S. imports: Decreased by \$3.1 billion (3 percent) to \$100.8 billion

The U.S. trade deficit in miscellaneous manufactures contracted by \$4.9 billion (6 percent) to \$73.0 billion in 2008, as exports rose and imports declined (table MS.1). The largest bilateral trade deficit reductions occurred with France, Canada, India, the United Kingdom, and Italy. The trade deficit with China rose by \$551 million (1 percent) to \$58.6 billion. In particular U.S. imports of precious jewelry, works of art, and furniture decreased, and U.S. exports of works of art, furniture, and prefabricated buildings increased (table MS.2).²

In 2008, the United States maintained a trade surplus in only three commodity groups within miscellaneous manufactures: prefabricated buildings, apparel fasteners, and arms, ammunition, and armored vehicles. The largest trade deficits were in toys and games (\$21.3 billion) and furniture (\$21.1 billion).

U.S. Exports

U.S. exports of miscellaneous manufactures rose by \$1.9 billion (7 percent) to \$27.8 billion in 2008. The increase in exports was driven by growth in exports of works of art and miscellaneous manufactured goods (up by \$1.1 billion), furniture (up by \$538 million), and prefabricated buildings (up \$260 million) (table MS.2).

Most of the increase in U.S. exports of works of art and miscellaneous manufactured goods was attributable to paintings, drawings, and pastels. These exports went to the United Kingdom (increase of \$531 million, or 42 percent, to \$1.8 billion in 2008) and France (increase of \$320 million, or 100 percent, to \$641 million), likely to art auction companies in London and Paris. Art auctions in New York City were adversely affected by the financial crisis, causing certain market participants to increase auction activity in Europe in 2008.³ Exports were strong through August 2008, but declined thereafter through December 2008. The global art market peaked in late 2007, with high prices at auctions. The downturn

¹ The miscellaneous manufactures sector encompasses a variety of industry groups, including luggage, handbags, umbrellas, silverware, jewelry, furniture, lamps, prefabricated buildings, writing instruments, musical instruments, bicycles, toys, games, sporting goods, arms and ammunition, brooms and brushes, hair-grooming articles, and apparel fasteners. For the most part, the manufacturing processes used to make these articles are mature, and imports supply a significant share of the U.S. market.

² Trade statistics for all industry/commodity groups in this sector are presented in app. B, table B.7.

³ *Artprice.com*, "2008 Art Market Trends," April 3, 2009, 8.

TABLE MS.1 Miscellaneous manufactures: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
China	156	185	207	307	367	60	19.6
Canada	3,446	3,918	4,425	5,067	5,449	382	7.5
United Kingdom	1,515	1,703	2,458	2,949	3,362	413	14.0
Mexico	1,344	1,358	1,665	2,031	1,650	-380	-18.7
France	347	458	687	775	1,125	349	45.0
Japan	1,501	1,728	2,034	1,915	1,862	-53	-2.8
Italy	265	305	249	327	335	8	2.3
Taiwan	408	430	380	385	279	-106	-27.6
Germany	520	604	675	685	786	101	14.7
India	90	167	191	191	228	37	19.6
All other	6,631	7,581	9,467	11,322	12,379	1,057	9.3
Total	16,223	18,435	22,438	25,954	27,821	1,867	7.2
EU-27	3,891	4,461	5,684	6,639	7,862	1,222	18.4
OPEC	513	625	718	907	1,183	276	30.4
Latin America	2,618	2,951	3,630	4,278	4,336	58	1.4
CBERA	512	729	804	867	894	27	3.1
Asia	3,651	4,030	4,887	5,293	5,508	215	4.1
Sub-Saharan Africa	132	145	156	192	237	45	23.2
Central and Eastern Europe	69	77	129	254	186	-68	-26.8
U.S. imports of merchandise for consumption:							
China	40,490	46,122	51,068	58,306	58,917	611	1.0
Canada	5,889	5,903	6,013	5,825	5,264	-560	-9.6
United Kingdom	1,844	1,961	2,274	2,895	2,671	-225	-7.8
Mexico	3,506	3,845	3,953	3,800	3,483	-317	-8.3
France	2,609	2,618	3,037	3,937	3,302	-635	-16.1
Japan	1,906	2,474	2,026	1,969	1,835	-134	-6.8
Italy	3,575	3,520	3,464	3,804	3,329	-475	-12.5
Taiwan	2,324	2,337	2,256	2,297	2,405	108	4.7
Germany	1,501	1,536	1,713	1,816	1,890	74	4.1
India	1,958	2,310	3,021	2,915	2,121	-794	-27.2
All other	13,066	13,933	15,274	16,342	15,621	-722	-4.4
Total	78,669	86,559	94,099	103,905	100,837	-3,069	-3.0
EU-27	12,250	12,473	13,602	15,931	14,520	-1,411	-8.9
OPEC	56	59	64	59	52	-7	-11.6
Latin America	5,024	5,434	5,496	5,295	4,835	-460	-8.7
CBERA	36	28	29	25	21	-4	-15.6
Asia	53,240	60,228	65,901	73,454	72,600	-854	-1.2
Sub-Saharan Africa	127	132	185	183	140	-43	-23.3
Central and Eastern Europe	695	822	792	783	799	17	2.1

MS-2

See footnote(s) at end of table.

TABLE MS.1 Miscellaneous manufactures: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
China	-40,334	-45,938	-50,861	-57,999	-58,550	-551	-1.0
Canada	-2,443	-1,985	-1,588	-758	184	942	^(b)
United Kingdom	-329	-259	184	53	691	638	1,195.9
Mexico	-2,162	-2,488	-2,288	-1,769	-1,832	-63	-3.6
France	-2,262	-2,160	-2,350	-3,162	-2,177	985	31.1
Japan	-404	-746	8	-54	27	81	^(b)
Italy	-3,310	-3,216	-3,215	-3,476	-2,994	482	13.9
Taiwan	-1,916	-1,906	-1,875	-1,912	-2,126	-214	-11.2
Germany	-981	-932	-1,038	-1,131	-1,104	27	2.4
India	-1,868	-2,144	-2,830	-2,724	-1,893	831	30.5
All other	-6,435	-6,352	-5,807	-5,021	-3,242	1,779	35.4
Total	-62,445	-68,124	-71,661	-77,951	-73,015	4,936	6.3
EU-27	-8,359	-8,012	-7,918	-9,292	-6,658	2,634	28.3
OPEC	457	566	654	848	1,131	283	33.4
Latin America	-2,406	-2,484	-1,866	-1,017	-499	519	51.0
CBERA	476	700	775	842	873	31	3.7
Asia	-49,589	-56,198	-61,014	-68,161	-67,092	1,069	1.6
Sub-Saharan Africa	5	12	-29	10	97	87	909.3
Central and Eastern Europe	-626	-745	-663	-529	-614	-85	-16.0

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bNot meaningful for purposes of comparison.

TABLE MS.2 Miscellaneous manufactures: Leading changes in U.S. exports and imports, 2004–08^a

Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. EXPORTS:								
Increases:								
Works of art and miscellaneous manufactured goods (MS017)	1,806	2,423	3,837	5,011	6,064	1,053	21.0	
Furniture (MS009)	2,787	3,020	3,354	3,691	4,229	538	14.6	
Prefabricated buildings (MS012)	353	447	476	561	821	260	46.2	
Decreases:								
Toys and games (MS013)	1,523	1,834	2,172	2,948	2,539	-409	-13.9	
Arms, ammunition, and armored vehicles (MS019) ...	2,936	3,060	3,616	4,097	3,939	-158	-3.9	
Apparel fasteners (MS018)	158	145	154	147	127	-20	-13.6	
All other	6,660	7,505	8,829	9,499	10,103	604	6.4	
TOTAL	16,223	18,435	22,438	25,954	27,821	1,867	7.2	
U.S. IMPORTS:								
Increases:								
Toys and games (MS013)	15,052	17,069	17,840	22,778	23,809	1,032	4.5	
Silverware and related articles of precious metal (MS005)	81	85	302	294	849	555	188.9	
Arms, ammunition, and armored vehicles (MS019) ...	1,641	1,718	2,240	2,976	3,280	304	10.2	
Decreases:								
Precious jewelry and related articles (MS006)	7,492	8,359	9,553	9,463	7,322	-2,141	-22.6	
Works of art and miscellaneous manufactured goods (MS017)	9,662	9,943	11,228	13,359	11,849	-1,509	-11.3	
Furniture (MS009)	21,819	24,296	26,078	26,731	25,285	-1,446	-5.4	
All other	22,922	25,089	26,857	28,305	28,442	137	0.5	
TOTAL	78,669	86,559	94,099	103,905	100,837	-3,069	-3.0	

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

in the global economy beginning in September 2008 caused art auctions to fail and art market confidence and art prices to decline.⁴

Much of the increase in exports of furniture and prefabricated buildings was to Canada. The development of the Canadian oil sands projects in northern Canada, where crude petroleum is extracted from sand deposits, likely spurred demand for complementary facilities and worker housing.⁵

U.S. Imports

U.S. imports of miscellaneous manufactures declined by \$3.1 billion (3 percent) to \$100.8 billion in 2008 (table MS.2). However, U.S. imports from China, the leading source, rose by \$611 million, compared with declines in imports from most other trading partners. Declines in U.S. imports of precious jewelry, works of art and miscellaneous manufactured goods, and furniture more than offset the increases in imports of toys and games; silverware and related articles of precious metal; arms, ammunition, and armored vehicles; luggage, handbags, and flat goods; and bicycles and certain parts (table MS.2).

Imports of precious jewelry and related articles declined by \$2.1 billion, as consumers reduced discretionary spending on jewelry due to the economic downturn and concerns about employment.⁶ Rising prices for gold jewelry, caused by an increase in gold prices in 2008, also dampened consumer demand.⁷ Imports of certain higher-value gold jewelry declined, and to some extent, were replaced by imports of some less-costly jewelry, such as gold necklaces and silver jewelry. Importers also made efforts to reduce inventories and adjust product lines to meet consumer demand.⁸

U.S. imports of works of art and miscellaneous manufactured goods declined by \$1.5 billion, or 11 percent. This was primarily due to a decline in U.S. imports of works of art in 2008 as U.S. art auctions began to falter in response to the slowing U.S. economy in the second half of 2008.⁹ Within the works of art and miscellaneous manufactured goods group was a notable decline in Christmas goods, including artificial Christmas trees. U.S. imports of furniture also declined, by \$1.4 billion (5 percent), as the housing market softened and there were fewer new home sales.¹⁰

U.S. imports of other products in this sector increased in 2008. U.S. imports of games and toys, specifically video game machines, rose by \$1.0 billion (5 percent). The increase in video game machines was due to increased acceptance of video game entertainment by more demographic segments of the population,¹¹ at least in part because it offers a less-costly form of entertainment.¹² Online distribution of video games also spurred U.S. imports.¹³

⁴ Ibid., 4–7.

⁵ Firestone Specialty Products, “Canadian Natural Resources Ltd.,” 2008.

⁶ Signet Jewelers Ltd., “Signet Full Year Results As Expected,” March 25, 2009, 8–9.

⁷ World Gold Council, “Gold Demand Trends,” February 2009, 4.

⁸ Zale Corp., “Zale Reports Second Quarter Fiscal 2009 Results,” February 25, 2009.

⁹ Sotheby’s, “Sotheby’s Announces 2008 Fourth Quarter and Full Year Results,” February 26, 2009.

¹⁰ Ethan Allen Interiors, Inc., *Form 10-Q*, February 9, 2009.

¹¹ Flynn, “Nintendo Promises to Ship More of Wii for Holidays,” October 3, 2008.

¹² DFC Intelligence, “DFC Intelligence Forecasts Video Game Market to Reach \$57 Billion in 2009,” June 30, 2008.

¹³ Microsoft Corp., “Xbox 360 Records Its Biggest Year Ever,” January 7, 2009.

U.S. imports of silverware and related articles of precious metals rose by \$555 million (189 percent), with most of the increase in imports accounted for by bars, principally of minted gold bars, and to a lesser extent, of other precious metals, such as platinum and palladium. These imports were likely for resale to investors who believed that gold and other precious metals were a safe haven from uncertainty in the global economy by retaining their value.¹⁴ The prices of gold and other precious metals increased significantly during 2007 and 2008.¹⁵

The increase in U.S. imports of arms, ammunition, and armored vehicles occurred primarily in imports of parts of armored vehicles, parts of artillery weapons, parts of guided missiles, and revolvers and parts related to military efforts in Iraq and Afghanistan.

The increase in U.S. imports of luggage was due to imports of leather cases and travel and sports bags.¹⁶ Imports of bicycles, which constitute the vast majority of sales in the U.S. market,¹⁷ rose, as consumers sought cheaper means of transportation in response to high gasoline prices in the United States.¹⁸

¹⁴ World Gold Council, "Gold Demand Trends," February 2009, 6, and tables 5 and 11.

¹⁵ The monthly price of gold per troy ounce rose from \$631.17 in January 2007 to a high of \$968.43 in March 2008, before declining to \$822.00 in December 2008. World Gold Council, "Gold Price Statistics" undated (accessed April 15, 2009). The monthly price for platinum per troy ounce rose from \$1,031 in January 2007 to a high of \$2,060 in May 2009, before declining to \$850 in December 2009. *Platinum Today*, Interactive Price Charts (accessed April 9, 2009).

¹⁶ Luggage includes trunks, suitcases, attache and briefcases, handbags, other bags for carrying articles, backpacks, travel and sports bags, and other bags.

¹⁷ In 2007, the most recent year for which data are available, U.S. imports accounted for approximately 99.6 percent of the U.S. bicycle market. National Bicycle Dealers Association, "Industry Overview 2008," undated (accessed April 8, 2009).

¹⁸ Bikes Belong Coalition, *Bikes Belong Survey Report*, August 2008.

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Machinery

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Change in 2008 from 2007:

U.S. trade deficit: Decreased by \$3.2 billion (8 percent) to \$34.7 billion

U.S. exports: Increased by \$6.6 billion (7 percent) to \$107.9 billion

U.S. imports: Increased by \$3.4 billion (3 percent) to \$142.6 billion

In 2008, the U.S. merchandise trade deficit in machinery decreased by \$3.2 billion (8 percent) to \$34.7 billion (table MT.1). This decline was a result of expanding demand for U.S. exports in the East Asian and North American markets, the depreciation of the U.S. dollar relative to currencies of major trading partners, and growing export volumes, combined with a modest decrease in imports.

U.S. Exports

In 2008, U.S. exports of machinery increased by \$6.6 billion (7 percent) to \$107.9 billion. The increase in U.S. exports of these products was driven by a number of factors, including a continued depreciation of the U.S. dollar, making U.S. machinery more price competitive abroad, and continued strong global economic expansion during the first half of the year.¹ The leading export growth sectors included farm and garden machinery (up by \$2.3 billion); miscellaneous machinery (up by \$1.8 billion); and electric motors, generators, and related equipment (up by \$1.4 billion) (table MT.2).²

The four major markets that registered the largest percentage increases in U.S. machinery exports in 2008 were Mexico (10 percent), Italy (9 percent), China (9 percent), and Canada (5 percent). Collectively, these four major trading partners accounted for 43 percent of total sector exports in 2008.

U.S. exports of farm and garden machinery rose by \$2.3 billion (25 percent) to \$11.6 billion in 2008. Record high commodity prices for major crops such as soybeans, wheat, and rice contributed to an increase in capital investment in farm machinery and garden equipment.³ In addition, producers in major food-producing countries purchased new capital equipment to enhance agricultural productivity to meet the food needs of populations in both developed and developing countries.⁴

In 2008, U.S. exports of miscellaneous machinery rose by \$1.8 billion (20 percent) to \$10.8 billion. The sharp increase in demand for U.S. exports of miscellaneous machinery is largely attributed to machines for hot-working glass, parts of certain oil and gas field

¹ Lazzaro, "Durable Goods Orders Fall Only 0.5 Percent," May 28, 2008.

² Trade statistics for all industry/commodity groups in this sector are presented in app. B, table B.8.

³ Vogel, "Farm Equipment Exports Boom," November 2008.

⁴ Ibid.

TABLE MT.1 Machinery: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
China	4,699	4,244	5,275	6,098	6,640	542	8.9
Canada	15,550	17,333	19,418	20,182	21,251	1,069	5.3
Mexico	9,754	11,132	12,121	11,627	12,732	1,106	9.5
Japan	4,575	4,526	5,151	4,877	4,251	-626	-12.8
Germany	2,865	3,337	3,788	4,178	4,296	118	2.8
Korea	3,284	3,799	4,703	5,067	4,155	-912	-18.0
United Kingdom	2,589	2,705	2,975	3,194	3,326	133	4.2
Taiwan	4,858	4,255	4,696	5,429	3,799	-1,630	-30.0
Italy	896	913	1,069	1,077	1,176	99	9.2
France	1,704	1,745	1,949	1,848	2,006	158	8.6
All other	24,321	26,417	31,741	37,714	44,238	6,524	17.3
Total	75,096	80,405	92,886	101,289	107,869	6,580	6.5
EU-27	13,209	14,607	16,439	17,594	18,829	1,235	7.0
OPEC	3,138	3,527	4,528	6,263	7,733	1,469	23.5
Latin America	14,728	17,269	19,342	20,263	24,063	3,801	18.8
CBERA	602	839	915	1,030	1,267	238	23.1
Asia	24,365	23,135	27,906	30,127	27,720	-2,407	-8.0
Sub-Saharan Africa	878	891	1,126	1,454	1,846	391	26.9
Central and Eastern Europe	506	642	755	934	1,193	259	27.8
U.S. imports of merchandise for consumption:							
China	17,391	21,056	25,585	28,415	29,954	1,539	5.4
Canada	10,986	11,866	13,124	13,740	13,697	-42	-0.3
Mexico	13,562	15,500	18,305	20,045	20,074	29	0.1
Japan	16,810	18,333	19,455	17,146	17,094	-52	-0.3
Germany	11,816	13,477	14,401	15,131	16,122	991	6.5
Korea	2,747	3,691	3,974	4,673	4,853	180	3.9
United Kingdom	3,241	3,485	3,745	3,876	3,941	65	1.7
Taiwan	3,177	3,214	3,398	3,447	3,388	-59	-1.7
Italy	4,526	4,976	5,263	5,628	5,951	324	5.8
France	2,273	2,629	2,596	2,827	2,819	-8	-0.3
All other	15,430	17,962	21,245	24,203	24,666	463	1.9
Total	101,958	116,187	131,091	139,131	142,560	3,429	2.5
EU-27	29,316	33,464	36,544	39,950	41,610	1,660	4.2
OPEC	67	56	77	93	122	29	30.7
Latin America	15,038	17,337	20,227	22,245	21,974	-271	-1.2
CBERA	20	20	32	30	31	1	3.3
Asia	43,273	49,837	57,007	58,749	60,474	1,725	2.9
Sub-Saharan Africa	195	273	315	423	359	-64	-15.2
Central and Eastern Europe	1,023	1,223	1,358	1,585	1,727	141	8.9

MT-2

See footnote(s) at end of table.

TABLE MT.1 Machinery: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—Continued

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
China	-12,692	-16,812	-20,310	-22,318	-23,314	-996	-4.5
Canada	4,563	5,467	6,293	6,442	7,554	1,112	17.3
Mexico	-3,808	-4,368	-6,185	-8,418	-7,342	1,077	12.8
Japan	-12,234	-13,807	-14,304	-12,269	-12,843	-574	-4.7
Germany	-8,951	-10,140	-10,613	-10,953	-11,826	-873	-8.0
Korea	538	109	729	394	-698	-1,092	^(b)
United Kingdom	-652	-780	-770	-683	-615	68	9.9
Taiwan	1,681	1,041	1,298	1,981	410	-1,571	-79.3
Italy	-3,630	-4,063	-4,194	-4,551	-4,776	-225	-4.9
France	-569	-884	-647	-979	-812	166	17.0
All other	8,891	8,455	10,496	13,511	19,572	6,062	44.9
Total	-26,863	-35,783	-38,205	-37,842	-34,690	3,151	8.3
EU-27	-16,107	-18,857	-20,105	-22,357	-22,782	-425	-1.9
OPEC	3,071	3,472	4,451	6,170	7,611	1,441	23.4
Latin America	-311	-68	-886	-1,983	2,089	4,072	^(b)
CBERA	582	819	884	1,000	1,237	237	23.7
Asia	-18,908	-26,702	-29,101	-28,622	-32,753	-4,132	-14.4
Sub-Saharan Africa	683	618	811	1,031	1,487	456	44.2
Central and Eastern Europe	-517	-581	-603	-651	-533	118	18.1

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bNot meaningful for purposes of comparison.

TABLE MT.2 Machinery: Leading changes in U.S. exports and imports, 2004–08^a

Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. EXPORTS:							
Increases:							
Farm and garden machinery and equipment (MT009)	6,098	6,885	7,533	9,245	11,557	2,312	25.0
Miscellaneous machinery (MT030)	7,434	8,299	9,509	8,982	10,805	1,823	20.3
Electric motors, generators, and related equipment (MT023)	4,673	5,114	5,997	6,685	8,128	1,444	21.6
Air-conditioning equipment and parts (MT002)	5,794	6,340	6,861	7,061	7,830	770	10.9
Decreases:							
Semiconductor manufacturing equipment and robotics (MT019)	13,257	11,435	14,733	17,476	12,385	-5,090	-29.1
Textile machinery (MT013)	897	991	1,009	1,018	880	-138	-13.5
Non-metalworking machine tools (MT018)	1,083	1,110	1,159	1,011	885	-126	-12.4
All other	35,860	40,232	46,084	49,813	55,398	5,585	11.2
TOTAL	75,096	80,405	92,886	101,289	107,869	6,580	6.5
U.S. IMPORTS:							
Increases:							
Miscellaneous machinery (MT030)	8,058	9,343	10,527	9,474	10,284	810	8.5
Farm and garden machinery and equipment (MT009)	6,216	6,900	6,638	6,621	7,394	772	11.7
Industrial thermal-processing equipment and furnaces (MT003)	1,880	2,350	2,853	3,356	4,094	738	22.0
Electrical transformers, static converters, and inductors (MT024)	5,496	5,973	6,989	8,179	8,891	712	8.7
Decreases:							
Semiconductor manufacturing equipment and robotics (MT019)	4,151	4,515	5,612	8,990	7,966	-1,025	-11.4
Printing and related machinery (MT012)	5,802	6,340	6,554	3,376	2,406	-970	-28.7
Air-conditioning equipment and parts (MT002)	8,533	9,531	10,748	11,266	10,859	-406	-3.6
All other	61,823	71,235	81,170	87,868	90,666	2,798	3.2
TOTAL	101,958	116,187	131,091	139,131	142,560	3,429	2.5

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

equipment, wireline/downhole machinery,⁵ and sprayers and dusters. A rise in demand for oil and gas field machines and wireline/downhole machinery was largely the result of increased demand for energy production worldwide during the first half of 2008.

U.S. exports of electric motors, generators, and related equipment increased by \$1.4 billion (22 percent) to \$8.1 billion in 2008. The four primary product groups in this industry sector—fractional horsepower motors, integral horsepower motors and generators, generator sets, and parts and supplies for motors and generators—are used in numerous industrial, commercial, and residential markets. Specifically, fractional horsepower motors are used in various types of machinery applications, such as portable and major household appliances, air-conditioning equipment, and photocopying and printing equipment, which require small horsepower motors.⁶ Additionally, U.S. exports of generators and related equipment increased in response to heightened demand by principal markets such as China, Malaysia, and Canada. Rapid economic growth and regulatory reform in electricity markets resulted in increased exports of these products.

U.S. exports of printing and related machinery increased by \$372 million (25 percent) to \$1.9 billion. Principal types of printing and related machinery exported to leading markets, such as Mexico, were parts and accessories for printing and imaging equipment. The bulk of U.S. exports of this equipment is either sold into the Mexican market as used machinery, or used in the maquiladora program for re-export to the United States.⁷

U.S. Imports

In 2008, U.S. imports of machinery increased by \$3.4 billion (3 percent) to \$142.6 billion. Several factors contributed to this growth, including U.S. GDP growth of 1.1 percent in 2008 and private sector investment in new equipment to boost production.⁸ The three leading suppliers were China (\$30.0 billion), Mexico (\$20.1 billion), and Japan (\$17.1 billion), which collectively accounted for 47 percent of the value of all U.S. machinery imports in 2008.

U.S. imports of miscellaneous machinery rose by \$810 million (9 percent) to \$10.3 billion. The rise in U.S. imports of these products was led by Mexico (up by \$159 million, or 15 percent), China (up by \$154 million, or 12 percent), and Germany (\$137 million, up by 10 percent). Imports of crude petroleum and natural gas field machinery, pneumatic elevators and conveyors, skip hoist equipment, and machinery for working hot glass were some of the leading import categories in this industry sector. U.S. economic growth and increased demand for crude petroleum and natural gas led to increased imports of miscellaneous machinery in 2008.

The second-largest import increase in 2008 was farm and garden machinery and equipment, which rose by \$722 million (12 percent) to \$7.4 billion in 2008. Increases in global

⁵ Wireline equipment technology uses cables to lower equipment into a well and downhole equipment performs operations inside the well.

⁶ *Encyclopedia of American Industries*, "SIC 3621: Motors and Generators," 2005, 5.

⁷ USDOL, IIA, "An Overview of the Maquiladora Program," April 5, 2008. Maquila operations involve the importation of foreign merchandise into Mexico on a temporary basis, where it is assembled, manufactured, or repaired, and then exported, either to the country of origin or to a third country.

⁸ USDOC, BEA, "Gross Domestic Product: Fourth Quarter 2008 (Final)," March 26, 2009.

consumption of food led to an increase in demand for farm and garden machinery in 2008.⁹ Japan continued to be the leading supplier of farm and garden machinery and equipment, accounting for approximately \$1.3 billion (17 percent) of all such imports. Other major U.S. suppliers of farm and garden machinery and equipment were Canada and Germany, which collectively accounted for \$2.1 billion (28 percent) of all such imports. The increase in U.S. imports in this sector was dominated by parts for farm and garden machinery and equipment, which rose by \$447 million (19 percent) to \$2.8 billion; tractors, up by \$170 million (6 percent) to nearly \$3.0 billion; and harvesting and threshing machinery which increased by \$77 million (10 percent) to nearly \$849 million in 2008.

U.S. imports of electrical transformers, static converters, and inductors increased by \$712 million (9 percent) to \$8.9 billion in 2008. U.S. demand for these products was led by increased demand for U.S. electrical power production by industrial and commercial facilities producing and processing goods and services and by residential household applications. China, Mexico, Japan, and Germany collectively accounted for 68 percent of the value of all U.S. imports of these products in 2008. China and Mexico were the dominant U.S. suppliers of electrical transformers, static converters, and inductors, accounting for imports of \$2.5 billion (29 percent) and \$2.1 billion (23 percent), respectively.

In terms of percentage growth, leading U.S. machinery imports in 2008 included metal-rolling mills, industrial thermal-processing equipment, and metal-cutting machine tools. U.S. imports of metal-rolling mills increased by \$166 million (51 percent) to \$488 million in 2008. A strong pricing environment for North American flat-rolled and tubular steel in 2008 led to an increase in demand for imported metal-rolling mill equipment.¹⁰ Additionally, higher than expected demand for steel mill products prompted U.S. steel producers to increase imports of slabs and other semifinished forms used as raw materials for the production of finished steel mill products, which are then used to manufacture durable goods.¹¹

U.S. imports of industrial thermal-processing equipment and furnaces rose by \$738 million (22 percent) to \$4.1 billion in 2008. U.S. imports of heat-treating furnaces, such as ladles and furnaces used by steelmakers in producing high-quality steels, were the largest growth category for this industry sector. In 2008, U.S. imports of metal-cutting machine tools increased by \$646 million (16 percent) to \$4.7 billion, driven in part by economic growth in the U.S. economy through second quarter 2008 and capital investments by machine tool companies in new metal-cutting machine tools for the aerospace and medical industries.¹²

⁹ Vogel, "Farm Equipment Exports Boom," November 2008.

¹⁰ Brook, "Basic Oxygen Furnaces are Works in Progress," 2008, A2.

¹¹ *Metal Center News*, "Imports Trend Up in June by 6.9 Percent," August 2008.

¹² Hatch, "Thread Milling Takes Off," March 24, 2009.

Printing and Related Machinery¹³

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Change in 2008 from 2007:

U.S. trade deficit: Decreased by \$1.3 billion (72 percent) to \$529 million
U.S. exports: Increased by \$372 million (25 percent) to \$1.9 billion
U.S. imports: Decreased by \$970 million (29 percent) to \$2.4 billion

In 2008, the U.S. trade deficit in printing and related machinery decreased, as U.S. imports fell by 29 percent (\$970 million) and U.S. exports increased by 25 percent (\$372 million). The increase in exports was driven by Mexican demand for parts and accessories for multifunction devices (MFDs),¹⁴ while the decrease in imports stemmed from falling U.S. demand for parts associated with single-function devices and MFDs, which are heavily sourced from China and Japan (table MT.3).

U.S. Exports

U.S. exports of printing and related machinery increased by \$372 million (25 percent) to \$1.9 billion in 2008. Mexico, the fifth-largest U.S. trading partner in this sector, accounted for 10 percent (\$183 million) of these exports. U.S. exports of these products to Mexico increased by 80 percent (\$82 million), with much of this growth stemming from a rise in Mexican demand for parts and accessories associated with MFDs; U.S. exports of these parts and accessories increased by 413 percent to \$82.9 million in 2008.¹⁵

During the past 10 years, demand has shifted from single-function office equipment to MFDs.¹⁶ This trend has accelerated within the past five years, as MFDs have become more affordable for consumers. Mexico is the leading manufacturer of MFDs in North America, and the United States is a leading supplier of parts for MFDs to Mexico.¹⁷ The proximity of the two countries, abundance of parts distributors in the border regions within the United

¹³ This industry/commodity group includes offset printing machines, single-function copy machines, and parts for multifunction devices (MFDs); it does not include MFDs.

¹⁴ MFDs are devices that consolidate printing, copying, faxing, and/or scanning capabilities into one machine.

¹⁵ Compiled from official statistics of the U.S. Department of Commerce.

¹⁶ Brewer, "Printers vs. Copiers," March 2009.

¹⁷ When measured in quantity, Mexico was the second-largest exporter of MFDs in North America in 2008, behind the United States. GTIS, Global Trade Atlas Database. However, very little manufacturing of these products occurs in the United States; MFDs exported from the United States tend to be used devices that are resold abroad. Conversely, Mexico's exports of MFDs roughly reflect the amount of manufacturing that occurs in the country for these devices. Harlingen Economic Development Corporation, "Maquiladora Advantages to U.S. and Mexico Economies," undated (accessed April 21, 2009).

TABLE MT.3 Printing and related machinery (MT012): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
Germany	104	100	108	116	117	1	0.5
China	46	63	79	68	74	6	8.6
Japan	94	88	71	78	61	-16	-21.0
Canada	140	149	140	179	208	29	16.3
Mexico	75	96	91	102	183	82	80.2
Netherlands	121	148	136	100	139	39	38.5
Switzerland	30	28	33	32	46	14	42.3
United Kingdom	72	72	71	60	61	1	2.5
Israel	10	10	7	14	20	6	39.3
Brazil	27	52	71	77	125	47	61.1
All other	580	638	718	677	843	165	24.4
Total	1,300	1,443	1,526	1,505	1,877	372	24.8
EU-27	493	535	527	474	507	33	6.9
OPEC	55	58	73	62	89	27	44.6
Latin America	190	275	327	358	609	251	70.0
CBERA	10	21	22	26	44	19	72.4
Asia	319	314	334	337	367	30	8.8
Sub-Saharan Africa	20	27	22	17	23	5	31.7
Central and Eastern Europe	17	21	29	20	28	8	42.6
U.S. imports of merchandise for consumption:							
Germany	905	969	1,056	837	709	-128	-15.3
China	1,350	1,743	1,886	807	442	-364	-45.2
Japan	2,425	2,455	2,237	763	431	-333	-43.6
Canada	149	161	203	80	50	-30	-37.2
Mexico	28	18	15	10	7	-3	-33.6
Netherlands	38	53	80	52	45	-7	-13.7
Switzerland	131	118	185	110	127	17	15.6
United Kingdom	164	165	170	146	99	-47	-32.0
Israel	98	118	172	101	112	11	10.7
Brazil	18	14	7	6	4	-2	-33.5
All other	496	526	544	464	380	-84	-18.0
Total	5,802	6,340	6,554	3,376	2,406	-970	-28.7
EU-27	1,429	1,548	1,674	1,345	1,160	-185	-13.8
OPEC	1	1	(b)	(b)	(b)	(b)	-6.7
Latin America	48	35	25	18	12	-6	-34.3
CBERA	(b)	(b)	1	(b)	(b)	(b)	26.1
Asia	3,944	4,358	4,291	1,718	941	-777	-45.2
Sub-Saharan Africa	(b)	(b)	1	(b)	(b)	(b)	-86.6
Central and Eastern Europe	7	6	8	18	21	4	21.5

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See footnote(s) at end of table.

TABLE MT.3 Printing and related machinery (MT012): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Germany	-801	-869	-948	-721	-592	129	17.9	
China	-1,304	-1,680	-1,806	-739	-368	370	50.1	
Japan	-2,331	-2,367	-2,165	-686	-369	316	46.1	
Canada	-9	-12	-63	100	158	59	59.1	
Mexico	47	79	76	91	176	85	92.9	
Netherlands	83	95	56	48	94	46	94.6	
Switzerland	-101	-90	-152	-78	-81	-3	-4.5	
United Kingdom	-92	-94	-99	-86	-38	48	56.0	
Israel	-88	-108	-165	-86	-92	-5	-5.9	
Brazil	8	38	64	71	121	49	68.8	
All other	84	112	174	214	462	249	116.4	
Total	-4,502	-4,897	-5,029	-1,871	-529	1,343	71.8	
EU-27	-936	-1,013	-1,147	-870	-652	218	25.0	
OPEC	53	57	73	62	89	27	44.7	
Latin America	141	241	302	341	598	257	75.5	
CBERA	10	21	22	26	44	19	72.5	
Asia	-3,625	-4,044	-3,957	-1,381	-574	807	58.4	
Sub-Saharan Africa	20	26	21	17	23	6	34.6	
Central and Eastern Europe	10	15	21	2	7	5	196.0	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

States,¹⁸ and duty-free treatment in Mexico for U.S. parts exports¹⁹ in this sector have facilitated U.S.-Mexico trade in the printing and related machinery industry.

U.S. Imports

U.S. imports of printing and related machinery decreased by \$970 million (29 percent) to \$2.4 billion in 2008, as imports from each of the 10 leading U.S. suppliers declined. The import declines were driven by reduced U.S. demand for parts associated with single-function and multifunction copy machines from China and Japan, in particular. U.S. imports of these parts from Japan decreased by 21 percent to \$128.8 million and from China by 51 percent to \$120 million.²⁰ Imports of printing and related machinery from these two countries, which together represented 36 percent (\$873 million) of total sector imports, fell by 44 percent to \$873 million in 2008 (table MT.3).

The global financial crisis forced key U.S. markets for the printing and imaging industry—the government, hotel industry, law firms, and public schools—to reduce spending on new hardware, which is reflected in the reduction of imports from leading parts suppliers in China and Japan.²¹ The United States is most likely relying on inventories of parts to repair existing photocopy machines, which has reduced the need for these imports. Also, the dollar depreciated against the Japanese yen by 19 percent during 2008, which made Japanese imports relatively more expensive.²²

¹⁸ The majority of copy and printing machine parts distributors are based in California, Texas, and Florida, and many of these companies advertise the Spanish-speaking capabilities of their staff. ENX Mexico & Latin America, “Buyers Guide,” October–December 2008.

¹⁹ Under the maquiladora program, factories in Mexico receive duty-free and tariff-free treatment for imported raw materials from a country that are used for manufacturing a finished product. The assembled product is then exported back to the United States.

²⁰ Compiled from official statistics of the U.S. Department of Commerce.

²¹ Hollis, “Recession Rescue,” December 2008, 23.

²² From December 2007 to December 2008, the value of the yen relative to the dollar increased from Y\$112.449 to Y\$91.275. Board of Governors of the Federal Reserve System, “Japan/U.S. Foreign Exchange Rates,” 2009.

Farm and Garden Machinery and Equipment

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Change in 2008 from 2007:

U.S. trade surplus: Increased by \$1.5 billion (59 percent) to \$4.2 billion

U.S. exports: Increased by \$2.3 billion (25 percent) to \$11.6 billion

U.S. imports: Increased by \$772 million (12 percent) to \$7.4 billion

The increase in the U.S. trade surplus for farm and garden machinery and equipment was driven by growth in U.S. exports (\$2.3 billion) that was three times the growth in U.S. imports (\$772 million). The increased value of U.S. trade for these products in 2008 is largely attributable to a continued effort by crop farmers to improve their productivity in the face of growing world demand for food, livestock feed, and, more recently, biofuels.²³ The farm and garden machinery and equipment industry consists primarily of a few large multinational companies that source products and related components from their worldwide production and distribution centers to serve global markets.²⁴

U.S. Exports

The increased value of U.S. exports of farm and garden machinery and equipment is due to a combination of factors, including high crop prices in the global market,²⁵ the depreciation of the U.S. dollar relative to the currencies of several major U.S. export markets,²⁶ accelerated mechanization of agriculture in several countries,²⁷ and the globalization of the industry's supply chains.

Canada remained the leading market for U.S. exports of farm and garden machinery and equipment in 2008, accounting for \$2.9 billion (25 percent) of all such exports. Other major markets for U.S. exports in 2008 were Australia, Mexico, and Russia,²⁸ which together accounted for nearly \$2.6 billion (22 percent) of all such exports (table MT.4). These four

²³ Vogel, "Farm Equipment Exports Boom," November 2008, 30. Biofuels can be made from agricultural crops such as corn, sugarcane, and grasses. *Science Daily*, "Biofuels: More Than Just Ethanol," April 6, 2007.

²⁴ IBISWorld Inc., *Tractors and Agricultural Machinery Manufacturing*, December 2, 2008, 22–31.

²⁵ Funk, "Weak Crop Prices End Feast in Farm States," April 8, 2009.

²⁶ The U.S. dollar depreciated in 2008 relative to the Australian and Canadian dollars, the euro, and the Russian ruble, but appreciated against the Mexican peso. Board of Governors of the Federal Reserve System, "Foreign Exchange Rates (Annual)," January 2, 2009.

²⁷ Countries that are reportedly to be accelerating the mechanization of their farm industries include Brazil, China, India, Indonesia, Russia, and Thailand. U.S. exports of farm and garden machinery and equipment increased to each of these countries in 2008; together, they accounted for an increase of \$466 million (52 percent). Fontelera, "Optimistic Outlook for Agricultural Machinery," March 3, 2009; compiled from official statistics of the U.S. Department of Commerce.

²⁸ In 2006, the Russian Ministry of Agriculture established and implemented the "Program of Engineering Modification," which requires the government of Russia to assist Russian farmers and agricultural companies in replacing 40 percent of their tractors and 55 percent of their combines. US&FCS and U.S. Department of State, *Doing Business in Russia*, 2008.

TABLE MT.4 Farm and garden machinery and equipment (MT009): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Canada	1,724	1,910	1,947	2,382	2,941	559	23.5
Germany	244	333	395	404	523	119	29.5
Japan	133	131	116	185	157	-29	-15.4
Mexico	635	570	655	753	964	211	27.9
Australia	704	661	636	538	835	297	55.3
France	286	331	341	350	382	32	9.2
Italy	82	87	87	91	102	11	12.0
United Kingdom	221	272	266	285	357	71	25.0
Russia	82	174	207	468	761	293	62.6
China	87	113	115	111	147	36	32.4
All other	1,900	2,304	2,768	3,677	4,388	711	19.3
Total	6,098	6,885	7,533	9,245	11,557	2,312	25.0
EU-27	1,415	1,840	2,068	2,365	2,768	403	17.0
OPEC	159	188	259	381	459	78	20.3
Latin America	1,207	1,177	1,377	1,716	2,105	390	22.7
CBERA	34	46	67	72	71	-1	-1.4
Asia	403	467	473	579	615	36	6.3
Sub-Saharan Africa	180	154	205	294	321	27	9.3
Central and Eastern Europe	75	142	142	179	300	121	67.4
U.S. imports of merchandise for consumption:							
Canada	917	973	869	946	1,114	169	17.8
Germany	688	739	760	746	986	240	32.1
Japan	1,569	1,658	1,581	1,281	1,260	-21	-1.6
Mexico	377	463	506	424	421	-3	-0.8
Australia	13	12	15	14	13	-1	-7.5
France	496	584	496	486	462	-24	-5.0
Italy	593	635	638	658	739	81	12.4
United Kingdom	370	361	311	362	422	59	16.4
Russia	1	1	1	1	^(b)	-1	-86.9
China	226	254	299	434	535	101	23.4
All other	966	1,220	1,161	1,268	1,441	173	13.6
Total	6,216	6,900	6,638	6,621	7,394	772	11.7
EU-27	2,460	2,709	2,580	2,705	3,152	446	16.5
OPEC	1	1	5	3	3	^(b)	13.3
Latin America	532	658	658	574	559	-15	-2.6
CBERA	1	^(b)	^(b)	^(b)	^(b)	^(b)	149.5
Asia	2,145	2,391	2,361	2,238	2,334	96	4.3
Sub-Saharan Africa	10	6	2	2	3	^(b)	12.8
Central and Eastern Europe	37	49	49	61	85	24	39.4

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See footnote(s) at end of table.

TABLE MT.4 Farm and garden machinery and equipment (MT009): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Canada	807	936	1,078	1,437	1,827	390	27.2	
Germany	-443	-406	-366	-343	-463	-120	-35.2	
Japan	-1,436	-1,527	-1,465	-1,095	-1,103	-8	-0.7	
Mexico	258	107	149	329	543	214	65.0	
Australia	691	649	621	523	822	298	57.0	
France	-210	-254	-155	-136	-80	57	41.5	
Italy	-512	-548	-551	-567	-637	-70	-12.4	
United Kingdom	-149	-89	-45	-77	-65	12	15.6	
Russia	81	173	205	467	761	294	63.1	
China	-138	-141	-184	-322	-388	-65	-20.2	
All other	934	1,084	1,607	2,408	2,947	538	22.4	
Total	-117	-15	895	2,624	4,163	1,540	58.7	
EU-27	-1,046	-869	-512	-340	-384	-44	-12.9	
OPEC	159	187	253	378	455	77	20.4	
Latin America	676	519	718	1,142	1,547	405	35.4	
CBERA	33	46	67	72	71	-1	-1.7	
Asia	-1,742	-1,924	-1,888	-1,659	-1,719	-60	-3.6	
Sub-Saharan Africa	170	149	203	291	318	27	9.3	
Central and Eastern Europe	38	93	93	118	215	97	81.8	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

major markets also accounted for the majority of the product group's export growth in 2008, which together increased by \$1.4 billion (59 percent). The 2008 growth in U.S. exports was dominated by tractors, which increased by \$913 million (34 percent) to \$3.6 billion;²⁹ harvesting and threshing machinery, which rose by \$469 million (22 percent) to \$2.6 billion;³⁰ irrigation equipment and sprayers, which increased by \$394 million (65 percent) to \$1 billion;³¹ and sector parts, which rose by \$273 million (9 percent) to \$3.3 billion.³²

U.S. Imports

Japan continued to be the leading supplier of imported farm and garden machinery and equipment in 2008, accounting for nearly \$1.3 billion (17 percent) of all such U.S. imports. However, imports from Japan decreased by \$21 million in 2008, continuing a multiyear downward trend.³³ Other major sources of U.S. imports of farm and garden machinery and equipment in 2008 were Canada and Germany, together accounting for \$2.1 billion (28 percent) of all such imports and \$409 million of import growth. Although China accounted for a comparatively small amount of U.S. imports in 2008 (\$535 million, or 7 percent of all such imports), imports from China have grown steadily for the past five years, recording the third-largest absolute increase (\$101 million) in 2008.

In 2008, growth in U.S. imports was dominated by parts for farm and garden machinery and equipment (increased by 19 percent to \$2.8 billion), which is illustrative of the globalization of this industry's supply chains. The largest increase in parts was for tractors.³⁴ U.S. imports of tractors also increased, by 6 percent to nearly \$3.0 billion. Harvesting and threshing machinery imports increased by 10 percent to nearly \$849 million.

²⁹ Australia, Canada, and Russia dominated the growth in U.S. tractor exports; exports to these countries increased by 45 percent to \$456 million.

³⁰ U.S. exports of harvesting and threshing machinery increased by the largest amount to Canada; such exports increased by 35 percent to \$851.3 million. Australia and Russia followed; exports to these countries increased by 50 percent to \$342 million.

³¹ Australia, Brazil, Canada, and United Arab Emirates dominated the growth in U.S. exports of irrigation equipment and sprayers; exports to these countries increased by 123 percent to \$375 million.

³² U.S. exports of farm and garden machinery and equipment parts increased by the largest amount to Mexico; such exports increased by 28 percent to \$621 million. Australia, Brazil, Canada, and Germany followed, collectively accounting for an increase of 14 percent to \$1.5 billion. Major U.S. farm and garden machinery and equipment manufacturers have distribution centers in Australia and manufacturing and distribution centers in Brazil, Canada, Germany, and Mexico.

³³ U.S. imports from Japan in this sector declined each year since 2005. Japan's U.S. import market share has declined steadily from 25 percent in 2004 to 17 percent in 2008.

³⁴ U.S. imports of parts for tractors increased by 8 percent to \$1.4 billion in 2008. The majority of these parts were sourced from China, Germany, Italy, and Japan, which collectively accounted for \$859 million, or 62 percent, of total parts imports.

Miscellaneous Machinery³⁵

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Change in 2008 from 2007:

U.S. trade balance: Changed by \$1.0 billion, from \$492 million deficit to a \$521 million surplus

U.S. exports: Increased by \$1.8 billion (20 percent) to \$10.8 billion

U.S. imports: Increased by \$810 million (9 percent) to \$10.3 billion

The U.S. trade balance in Miscellaneous Machinery changed by \$1.0 billion, from a deficit of \$492 million in 2007 to a \$521 million surplus in 2008 (table MT.5), primarily reflecting increased exports of machinery for working hot glass and certain oil and gas field machinery. An increase in imports of certain oil and gas field machinery, other machinery, and elevators partially offset the rise in exports.

U.S. Exports

In 2008, the increase in U.S. exports of \$1.8 billion (20 percent) (table MT.5) is principally attributable to a rise in exports of machines for hot-working glass, parts of certain crude petroleum and natural gas field handling machinery, and wireline/downhole machinery.³⁶ The leading markets that accounted for much of the increase were Japan (up by \$213 or 80 percent), Brazil (up by \$208 million, or 11 percent),³⁷ Mexico (up by \$200 million, or 25 percent), Taiwan (up by \$187 million, or 80 percent), and Canada (up by \$141 million, or 9 percent).

U.S. exports of machinery for hot-working glass rose by \$626 million (149 percent) to \$1 billion in 2008. U.S. exports of such machinery totaled \$219 million to Taiwan and \$214 million to Japan, both likely for liquid-crystal display (LCD) glass production upgrades in those countries by a U.S. manufacturer in order to support its customers' efforts to meet growing demand for their LCD televisions.³⁸

U.S. exports of crude petroleum and natural gas field handling and wireline/downhole machinery rose by \$519 million (28 percent) to almost \$2.4 billion in 2008. The increase in

³⁵ This industry/commodity group includes isotopic separation equipment; producer or water gas generators; calendaring machinery; dusters and sprayers excluding those for agriculture; pulley tackle and hoists; other lifting and loading machinery; leather tanning and working machinery; glassware and electric lamp assembly machinery; tobacco-working machinery; other miscellaneous machinery, gaskets and seals, and machinery parts not elsewhere specified in HTS chap. 84; and other miscellaneous electrical machinery.

³⁶ Crude petroleum and natural gas handling machinery is used to lift, load, and unload oil and gas both on land and at sea, such as in loading crude petroleum into, or unloading oil from, ships or refining facilities. In the crude petroleum and natural gas industry, wireline equipment technology uses cables to lower equipment into the well, and downhole equipment is used to perform operations inside the well.

³⁷ Included in the "all other" category in table MT.5.

³⁸ Corning, Inc., "Corning Expands Generation 8 Capacity in Japan," February 7, 2007; Corning, Inc., "Corning to Bring Generation 8 Capability to Taiwan," April 25, 2007.

TABLE MT.5 Miscellaneous machinery (MT030): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Canada	1,330	1,451	1,759	1,603	1,745	141	8.8
Mexico	833	886	876	798	998	200	25.1
China	471	413	606	608	526	-82	-13.5
Germany	297	354	403	348	404	56	16.2
Japan	378	421	537	267	480	213	79.7
United Kingdom	268	309	353	450	430	-20	-4.5
Korea	314	290	354	360	454	94	26.2
Italy	89	81	89	99	108	9	8.8
Taiwan	482	629	462	234	421	187	79.7
Netherlands	178	215	291	224	215	-9	-3.8
All other	2,792	3,249	3,779	3,990	5,023	1,034	25.9
Total	7,434	8,299	9,509	8,982	10,805	1,823	20.3
EU-27	1,386	1,610	1,778	1,709	1,907	198	11.6
OPEC	612	608	751	902	1,174	272	30.2
Latin America	1,566	1,699	1,770	1,686	2,360	674	40.0
CBERA	59	87	87	88	130	43	48.4
Asia	2,301	2,533	2,877	2,394	2,848	454	19.0
Sub-Saharan Africa	134	156	195	230	385	156	67.8
Central and Eastern Europe	50	79	54	81	115	34	42.6
U.S. imports of merchandise for consumption:							
Canada	1,583	1,864	2,032	1,939	1,938	-1	^(b)
Mexico	590	679	815	1,074	1,233	159	14.8
China	661	895	1,202	1,293	1,447	154	11.9
Germany	1,370	1,599	1,580	1,359	1,496	137	10.1
Japan	1,143	1,288	1,506	763	836	73	9.5
United Kingdom	347	366	442	410	406	-5	-1.2
Korea	106	151	143	120	214	94	78.5
Italy	545	602	601	515	499	-16	-3.1
Taiwan	202	191	224	161	179	17	10.6
Netherlands	196	235	244	234	331	97	41.5
All other	1,314	1,472	1,737	1,604	1,705	101	6.3
Total	8,058	9,343	10,527	9,474	10,284	810	8.5
EU-27	3,228	3,668	3,854	3,482	3,785	304	8.7
OPEC	4	4	4	9	8	-1	-9.5
Latin America	623	722	862	1,132	1,310	178	15.7
CBERA	^(c)	2	3	2	3	1	51.8
Asia	2,257	2,702	3,333	2,508	2,858	350	14.0
Sub-Saharan Africa	14	19	16	22	24	2	9.0
Central and Eastern Europe	61	68	65	80	77	-3	-3.7

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See footnote(s) at end of table.

TABLE MT.5 Miscellaneous machinery (MT030): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Canada	-254	-413	-273	-336	-194	142	42.3	
Mexico	243	207	61	-276	-234	42	15.1	
China	-190	-482	-596	-685	-921	-236	-34.5	
Germany	-1,073	-1,244	-1,178	-1,011	-1,091	-81	-8.0	
Japan	-764	-867	-969	-496	-356	140	28.2	
United Kingdom	-79	-58	-89	40	24	-15	-38.6	
Korea	207	139	211	240	239	(^c)	-0.1	
Italy	-456	-522	-512	-416	-392	25	5.9	
Taiwan	280	438	238	73	243	170	232.6	
Netherlands	-18	-19	47	-10	-115	-105	-1,085.3	
All other	1,478	1,776	2,043	2,386	3,318	933	39.1	
Total	-624	-1,044	-1,017	-492	521	1,013	(^d)	
EU-27	-1,842	-2,058	-2,077	-1,773	-1,878	-105	-5.9	
OPEC	608	604	747	893	1,166	273	30.5	
Latin America	942	977	908	554	1,051	496	89.5	
CBERA	59	85	83	86	128	42	48.3	
Asia	44	-169	-457	-114	-10	104	91.4	
Sub-Saharan Africa	119	137	180	208	362	154	73.9	
Central and Eastern Europe	-11	11	-11	1	38	37	4,461.0	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than 0.05 percent.

^cLess than \$500,000.

^dNot meaningful for purposes of comparison.

U.S. exports of this machinery was related to the global increase in capital expenditures for crude petroleum and natural gas exploration and production, which rose by an estimated 21 percent in 2008, driven by the rise in crude petroleum and natural gas prices.³⁹ Leading markets for this equipment included Venezuela, Korea,⁴⁰ Brazil,⁴¹ the United Arab Emirates, and Mexico. Exports of oil and gas machinery accounted for 22 percent of total U.S. exports of miscellaneous machinery in 2008, up slightly from 21 percent in 2007.

U.S. Imports

The major products contributing to the \$810-million (9 percent) rise in imports of miscellaneous machinery in 2008 were other lifting, handling, loading or unloading machinery;⁴² crude petroleum and natural gas field machinery; and other machinery. Imports of other lifting, handling, loading or unloading machinery rose by \$221 million (6 percent). Increased imports came principally from Korea, Germany, the Netherlands, and China; imports from Canada and Norway declined. Important products in this category included factory material handling systems, elevators, and conveyors. Imports of other lifting, handling, loading or unloading machinery are frequently related to one-time, specific projects, such as equipment for a new factory or mining project or cable cars for skiing facilities. Imports of elevators and parts, also included in this product group, are more closely related to trends in building construction and maintenance and replacement operations, and smaller conveyor systems are tied to warehousing and smaller production facilities.

Crude petroleum and natural gas field machinery imports increased by \$159 million (60 percent) and were supplied primarily by Canada, China, Mexico, and France. Capital expenditures for crude petroleum and natural gas exploration and production in the United States rose in 2007 and the first half of 2008, as high prices for crude petroleum and natural gas resulted in increased exploration and production activity.⁴³

³⁹ Crandaell and West, "Global E&P expenditures to Contract 12%," February 2009.

⁴⁰ Korea is a large importer of crude petroleum and natural gas, and needs equipment for offloading crude petroleum and natural gas from ships to facilities onshore. USDOE, EIA, "South Korea," June 2007.

⁴¹ Brazil is the second-largest crude petroleum producer in South America behind Venezuela. There was an increase in crude petroleum and natural gas exploration and production activity in Brazil in 2007 and 2008. USDOE, EIA, "Brazil," October 2008.

⁴² This category includes elevators and conveyors, cable cars, and other material handling machinery.

⁴³ Crandaell and West, "Global E&P Expenditures to Contract 12%," February 2009.

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Transportation Equipment

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Change in 2008 from 2007:

U.S. trade deficit: Decreased by \$28.7 billion (47 percent) to \$31.8 billion

U.S. exports: Increased by \$7.0 billion (3 percent) to \$256.4 billion

U.S. imports: Decreased by \$21.7 billion (7 percent) to \$288.2 billion

A decrease in U.S. imports and an increase in U.S. exports of transportation equipment in 2008 resulted in a \$28.7 billion (47 percent) decrease in the U.S. trade deficit (table TE.1). U.S. imports fell by \$21.7 billion (7 percent), principally due to decreased demand for motor vehicles resulting from a constriction of credit and the faltering U.S. economy. In addition, the rise in gasoline prices to more than \$4.00 a gallon in July 2008 caused a significant fall in vehicle use and miles driven.

Canada, Japan, Mexico, and Germany continued to be the four largest import sources, accounting for 72 percent of U.S. imports in 2008; however, imports from all four countries fell in 2008. The 18 percent decline in imports of transportation equipment from Canada moved the longstanding deficit with Canada to a \$347-million surplus. Canada and Mexico continued as the largest export markets for U.S. transportation equipment, accounting for a combined 33 percent of sector exports in 2008, despite a decline in exports to Canada of \$5.5 billion, or 8 percent.

U.S. Exports

Trends in U.S. exports varied among product groups, with the largest absolute increases in exports of construction and mining equipment (up by \$5.1 billion, or 22 percent), motor vehicles (up by \$4.2 billion, or 8 percent), and aircraft engines and gas turbines (up by \$2.9 billion, or 11 percent) (table TE.2).¹ Dump trucks intended for off-road use and parts for offshore petroleum and gas platforms accounted for 20 percent of construction equipment exports, the leading product group among U.S. exports of transportation equipment. Exports of construction and mining equipment rose because of increased global mining activity. In terms of mining exploration alone, spending was at an all-time high in 2008 before slowing in the fourth quarter.² U.S. exports of motor vehicles rose in 2008 in large part because of the success of U.S.-built, German-brand vehicles in Germany. Exports of aircraft engines and gas turbines rose due to maintenance needs of in-service aircraft.

¹ Trade statistics for all industry/commodity groups in this sector are presented in app. B, table B.9.

² *Engineering and Mining Journal*, "E&MJ's Annual Survey of Global Mining Investment," January/February 2009, 24–29.

TABLE TE.1 Transportation equipment: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Canada	53,694	59,821	64,407	69,291	63,809	-5,482	-7.9
Japan	8,120	8,630	9,611	10,556	10,655	99	0.9
Mexico	16,368	17,370	19,936	21,143	21,365	223	1.1
Germany	6,576	6,902	11,162	13,289	16,162	2,873	21.6
United Kingdom	6,774	7,379	8,447	10,363	11,046	684	6.6
China	3,893	6,508	9,015	11,065	9,647	-1,418	-12.8
France	6,760	6,947	7,689	9,221	8,334	-887	-9.6
Korea	3,066	3,567	5,030	5,198	4,295	-903	-17.4
Brazil	3,792	3,980	5,637	7,209	9,056	1,847	25.6
Australia	4,034	4,262	5,354	5,435	6,515	1,080	19.9
All other	45,058	57,364	72,038	86,653	95,528	8,875	10.2
Total	158,135	182,731	218,326	249,421	256,413	6,992	2.8
EU-27	35,812	37,320	45,091	55,438	58,945	3,506	6.3
OPEC	6,018	12,048	17,664	18,489	23,241	4,752	25.7
Latin America	25,221	28,282	34,819	39,262	43,467	4,205	10.7
CBERA	866	1,022	1,373	1,511	1,878	367	24.3
Asia	25,666	31,135	39,527	48,327	42,955	-5,372	-11.1
Sub-Saharan Africa	2,896	4,040	4,587	5,356	6,735	1,379	25.7
Central and Eastern Europe	993	860	1,570	2,642	2,967	325	12.3
U.S. imports of merchandise for consumption:							
Canada	74,189	78,374	76,768	77,758	63,462	-14,296	-18.4
Japan	57,126	62,745	71,493	69,851	65,691	-4,161	-6.0
Mexico	40,496	42,032	49,028	50,954	47,996	-2,958	-5.8
Germany	29,313	32,191	31,273	32,899	31,216	-1,683	-5.1
United Kingdom	10,662	12,506	12,402	11,364	10,995	-369	-3.2
China	4,865	6,476	8,640	10,155	10,806	651	6.4
France	8,079	7,451	9,462	11,254	11,389	135	1.2
Korea	12,271	12,533	13,258	12,558	11,297	-1,261	-10.0
Brazil	4,860	4,751	4,460	4,110	4,879	769	18.7
Australia	885	751	710	621	1,448	828	133.4
All other	21,874	23,072	26,486	28,398	29,055	656	2.3
Total	264,620	282,881	303,979	309,924	288,235	-21,688	-7.0
EU-27	62,448	66,934	69,998	73,105	70,038	-3,067	-4.2
OPEC	174	204	176	95	55	-40	-42.1
Latin America	46,056	47,667	54,522	56,131	53,786	-2,345	-4.2
CBERA	17	14	10	18	20	2	12.2
Asia	78,609	86,622	98,847	98,682	94,228	-4,453	-4.5
Sub-Saharan Africa	651	391	588	669	2,052	1,383	206.7
Central and Eastern Europe	1,963	1,708	2,283	2,685	2,437	-248	-9.3

TE-2

See footnote(s) at end of table.

TABLE TE.1 Transportation equipment: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Canada	-20,496	-18,553	-12,361	-8,468	347	8,814	^(b) 7.2	
Japan	-49,006	-54,115	-61,882	-59,296	-55,036	4,260	10.7	
Mexico	-24,128	-24,661	-29,091	-29,811	-26,631	3,181	23.2	
Germany	-22,737	-25,288	-20,112	-19,610	-15,054	4,556	^(b) 4.9	
United Kingdom	-3,888	-5,127	-3,954	-1,001	51	1,052	^(b) 34.8	
China	-972	32	375	910	-1,159	-2,069	^(b) 5.2	
France	-1,320	-504	-1,773	-2,033	-3,056	-1,023	-50.3	
Korea	-9,204	-8,965	-8,228	-7,361	-7,002	358	4.9	
Brazil	-1,068	-771	1,177	3,099	4,177	1,078	34.8	
Australia	3,149	3,512	4,644	4,814	5,066	252	5.2	
All other	23,184	34,292	45,552	58,254	66,473	8,219	14.1	
Total	-106,485	-100,150	-85,654	-60,503	-31,823	28,680	47.4	
EU-27	-26,636	-29,614	-24,908	-17,667	-11,093	6,574	37.2	
OPEC	5,844	11,844	17,488	18,393	23,186	4,793	26.1	
Latin America	-20,835	-19,385	-19,703	-16,868	-10,318	6,550	38.8	
CBERA	850	1,007	1,363	1,494	1,858	364	24.4	
Asia	-52,943	-55,487	-59,319	-50,355	-51,274	-918	-1.8	
Sub-Saharan Africa	2,245	3,649	3,999	4,687	4,683	-4	-0.1	
Central and Eastern Europe	-970	-848	-713	-43	530	573	^(b) 1.8	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bNot meaningful for purposes of comparison.

TABLE TE.2 Transportation equipment: Leading changes in U.S. exports and imports, 2004–08^a

Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. EXPORTS:							
Increases:							
Construction and mining equipment (TE004)	11,794	15,584	18,590	23,371	28,500	5,129	21.9
Motor vehicles (TE009)	30,473	35,312	44,437	52,739	56,898	4,159	7.9
Aircraft engines and gas turbines (TE001)	17,706	20,771	21,631	25,780	28,638	2,858	11.1
Powersport vehicles (TE011)	1,848	2,221	2,535	3,375	4,185	810	24.0
Decreases:							
Aircraft, spacecraft, and related equipment (TE013) . .	40,076	47,981	64,374	73,406	69,516	-3,890	-5.3
Certain motor-vehicle parts (TE010)	30,785	31,524	33,346	34,052	30,985	-3,067	-9.0
Primary cells and batteries and electric storage batteries (TE006)	1,977	2,272	2,801	2,948	2,716	-231	-7.8
All other	23,474	27,067	30,611	33,750	34,973	1,224	3.6
TOTAL	158,135	182,731	218,326	249,421	256,413	6,992	2.8
U.S. IMPORTS:							
Increases:							
Aircraft engines and gas turbines (TE001)	9,642	11,243	12,816	14,898	16,444	1,546	10.4
Motors and engines, except internal combustion, aircraft, or electric (TE015)	1,066	1,360	1,594	2,195	3,370	1,175	53.5
Primary cells and batteries and electric storage batteries (TE006)	2,620	2,841	3,075	3,255	3,628	372	11.4
Decreases:							
Motor vehicles (TE009)	142,861	146,308	159,537	158,895	142,541	-16,354	-10.3
Certain motor-vehicle parts (TE010)	46,493	50,998	53,307	55,619	49,190	-6,429	-11.6
Internal combustion piston engines, other than for aircraft (TE002)	18,682	21,035	20,617	19,930	18,738	-1,191	-6.0
Aircraft, spacecraft, and related equipment (TE013) . .	16,485	16,475	17,557	21,835	21,539	-296	-1.4
All other	26,771	32,621	35,475	33,297	32,785	-511	-1.5
TOTAL	264,620	282,881	303,979	309,924	288,235	-21,688	-7.0

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

The industries with the largest absolute decreases in exports were aircraft, spacecraft, and related equipment (down by \$3.9 billion, or 5 percent) and certain motor vehicle parts (down by \$3.1 billion, or 9 percent). U.S. exports of aircraft, spacecraft, and related equipment declined because demand for air travel declined as economies around the world contracted.³ Airlines took some aircraft out of service because of the reduced demand and cancelled deliveries and orders for new aircraft. Exports of certain motor-vehicle parts declined because lower demand in the United States for motor vehicles led to decreased production of automobiles and light trucks in Canada, thus reducing demand for parts.

U.S. Imports

Changes in U.S. imports among product groups were mixed, with the largest absolute decreases in motor vehicles (down by \$16.4 billion, or 10 percent), certain motor-vehicle parts (down by \$6.4 billion, or 12 percent), and internal-combustion piston engines, other than for aircraft (down by \$1.2 billion, or 6 percent). The 7 percent decline in U.S. imports of transportation equipment can be attributed principally to decreased demand for motor vehicles and their parts as a result of the weakening U.S. economy.

The largest increases in imports of transportation equipment were in aircraft engines and gas turbines (up by \$1.5 billion, or 10 percent) and motors and engines, except internal combustion, aircraft, or electric (up by \$1.2 billion, or 54 percent). Imports of aircraft engines and gas turbines rose because of the need to service those civil aircraft that continue to operate. Imports of motors and engines, except internal combustion, aircraft, or electric, rose, principally due to demand for motor and engine parts such as wind turbine blades. U.S. imports of these parts were driven by the increased demand for wind turbines used in wind energy generation, which has expanded significantly in the United States.

³ Kaur, "Airlines' \$12b Loss in 2008," March 3, 2009.

Certain Motors and Engines⁴

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Change in 2008 from 2007:

U.S. trade deficit: Increased by \$965 million (97 percent) to \$2.0 billion

U.S. exports: Increased by \$210 million (18 percent) to \$1.4 billion

U.S. imports: Increased by \$1.2 billion (54 percent) to \$3.4 billion

The U.S. trade deficit in certain motors and engines continued to increase in 2008 as the growth in U.S. imports far outpaced that of U.S. exports. These motors and engines are used for numerous power applications in a variety of industries, including automotive, aircraft, industrial equipment, and power generation. Greater U.S. demand for wind turbine components, such as blades, led the hike in U.S. imports, as new installed U.S. wind energy capacity rose by an estimated 43 percent in 2008.⁵ Wind turbine producers in the United States often source components from manufacturers in countries with established wind energy industries, such as Brazil, Germany, and Denmark.

U.S. Exports

U.S. exports of certain motors and engines increased by nearly 18 percent in 2008 to \$1.4 billion (table TE.3). Canada, the United Kingdom, China, and Germany were the leading U.S. markets in 2008, accounting for a combined 42 percent of total U.S. exports of these products. U.S. exports of hydraulic power engines and motors (except those for marine propulsion) represented 37 percent of product-group exports in 2008. A number of the goods in this sector are considered to be associated with renewable energy technologies, an area in which demand is expanding.⁶

U.S. Imports

U.S. imports of certain motors and engines rose by \$1.2 billion (54 percent) to \$3.4 billion in 2008 with the growth largely registered in parts for engines other than hydrojet engines for marine propulsion, which includes wind turbine parts such as blades. U.S. imports of

⁴ This industry/commodity group includes hydraulic and pneumatic engines and motors and their parts (except internal combustion, aircraft, and or electric), hydrojet engines for marine propulsion, and other miscellaneous engines and parts.

⁵ American Wind Energy Association, "2008: Another Record Year for New Wind Installations," undated (accessed April 1, 2009).

⁶ OECD, *Environmental and Energy Products*, 2006.

TABLE TE.3 Motors and engines, except internal combustion, aircraft, or electric (TE015): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
Canada	220	275	286	260	282	23	8.7
Germany	27	30	48	70	93	23	33.0
Brazil	30	18	24	56	61	5	9.4
United Kingdom	33	41	57	54	115	61	112.5
Japan	33	47	33	52	53	(^b)	0.8
China	32	39	134	90	97	7	7.2
Mexico	39	54	68	53	64	11	21.6
Denmark	2	1	2	2	3	1	86.4
Italy	7	11	14	17	19	2	9.4
Spain	4	5	9	14	28	13	92.0
All other	241	315	448	530	594	64	12.0
Total	668	837	1,124	1,198	1,409	210	17.5
EU-27	163	194	253	302	409	107	35.5
OPEC	23	37	80	75	91	16	21.3
Latin America	104	127	165	214	264	50	23.3
CBERA	11	10	12	13	21	8	65.8
Asia	115	157	276	288	306	18	6.2
Sub-Saharan Africa	7	9	13	17	20	2	14.2
Central and Eastern Europe	12	11	7	9	9	-1	-6.1
U.S. imports of merchandise for consumption:							
Canada	193	236	283	353	439	86	24.2
Germany	193	242	274	353	537	184	52.1
Brazil	7	9	26	62	458	396	637.5
United Kingdom	103	171	180	202	269	67	33.2
Japan	150	196	224	225	241	16	7.1
China	29	48	68	107	178	71	66.2
Mexico	17	28	47	132	157	25	18.6
Denmark	31	38	33	123	182	59	47.9
Italy	74	85	91	115	148	33	28.5
Spain	3	3	14	30	120	91	303.7
All other	266	305	354	492	641	149	30.2
Total	1,066	1,360	1,594	2,195	3,370	1,175	53.5
EU-27	590	749	826	1,073	1,563	490	45.7
OPEC	(^b)	(^b)	(^b)	1	1	-1	-50.6
Latin America	26	39	75	197	618	422	214.4
CBERA	(^b)	(^b)	(^b)	(^b)	(^b)	(^b)	58.9
Asia	210	285	353	462	651	189	41.0
Sub-Saharan Africa	(^b)	1	1	1	1	(^b)	66.2
Central and Eastern Europe	11	22	32	38	46	8	22.0

See footnote(s) at end of table.

TABLE TE.3 Motors and engines, except internal combustion, aircraft, or electric (TE015): U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—*Continued*

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
Canada	26	39	3	-93	-156	-63	-67.5	
Germany	-166	-212	-226	-283	-444	-161	-56.8	
Brazil	23	9	-2	-6	-397	-391	-6,026.4	
United Kingdom	-70	-130	-123	-148	-154	-6	-4.1	
Japan	-117	-148	-191	-173	-189	-16	-9.1	
China	3	-9	66	-17	-82	-65	-375.8	
Mexico	22	26	21	-79	-92	-13	-16.5	
Denmark	-29	-37	-31	-121	-178	-57	-47.3	
Italy	-67	-73	-77	-98	-129	-31	-31.8	
Spain	1	2	-6	-15	-93	-77	-501.2	
All other	-25	10	94	38	-47	-85	(^c)	
Total	-399	-523	-470	-997	-1,962	-965	-96.8	
EU-27	-427	-555	-572	-771	-1,154	-383	-49.7	
OPEC	22	37	79	74	90	17	22.5	
Latin America	78	88	90	17	-355	-372	(^c)	
CBERA	11	10	12	13	21	8	65.9	
Asia	-95	-128	-77	-173	-345	-172	-98.9	
Sub-Saharan Africa	7	8	12	17	19	2	12.0	
Central and Eastern Europe	(^b)	-11	-25	-29	-37	-9	-31.1	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

^cNot meaningful for purposes of comparison.

these parts increased by 112 percent in 2008 to \$1.8 billion, with Brazil emerging as the largest U.S. supplier with 25 percent of U.S. imports.⁷ This import growth was largely driven by the increased demand for parts of wind turbines used in wind energy generation, which expanded significantly in the United States resulting from new production investments, establishment of renewable portfolio standards in many states, and a more stable tax policy.⁸ Brazil and other leading import sources, such as Germany, Canada, and Denmark, are major world production centers for wind turbines and their components.⁹

⁷ General Electric (United States) has subcontracted its wind turbine blade manufacturing for its North American customers to Tecsis (Brazil). Delphi Group and Garrard Hassan Canada Inc., *Opportunities for Canadian Stakeholders*, September 5, 2007.

⁸ David, "Growth in Wind Turbine Manufacturing and Trade," March 2009.

⁹ Delphi Group and Garrard Hassan Canada Inc., *Opportunities for Canadian Stakeholders*, September 5, 2007.

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Textiles, Apparel, and Footwear

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Textiles and Apparel¹

Change in 2008 from 2007:

U.S. trade deficit: Decreased by \$3.6 billion (4 percent) to \$86.5 billion

U.S. exports: Increased by \$271 million (2 percent) to \$17.8 billion

U.S. imports: Decreased by \$3.3 billion (3 percent) to \$104.3 billion

In 2008, the U.S. trade deficit in textiles and apparel narrowed to \$86.5 billion, due to a decrease in U.S. imports and a slight increase in U.S. exports (table TX.1). Much of the \$3.3 billion decline in imports reflects the downturn in the U.S. economy and decreased spending by consumers.² In 2008, apparel accounted for three-fourths of sector imports, of which shirts and blouses comprised almost one-quarter (\$24.9 billion) (table TX.2).³ Fabrics and fibers and yarns led U.S. exports of textiles and apparel in 2008, together accounting for 61 percent of the total sector exports.

The decrease in the trade deficit in textiles and apparel in 2008 resulted principally from a decline in U.S. imports from Mexico, Canada, the EU, and Asia. The trade deficit with Mexico in this sector decreased by \$526 million to \$2.2 billion; with the EU by \$553 million to \$3.7 billion; and with Asia by \$550 million to \$71.6 billion. The trade surplus with Canada, which has existed since 2006, increased by \$710 million (157 percent) to \$1.2 billion, and contributed to the overall decrease in the U.S. deficit.⁴

¹ This industry/commodity group includes the products of North American Industry Classification System (NAICS) numbers 313 (textile mills—i.e., firms that prepare and spin fiber, knit or weave fabric, and finish the textile), 314 (textile product mills—i.e., establishments that manufacture textile products—except apparel from purchased fabrics), and 315 (apparel manufacturing—i.e., establishments that cut and sew fabric to make garments or that knit and then cut and sew the fabric into a garment).

² Industry sources report “demand has shrunk across the income spectrum, from the high-end luxury retailers (a niche that was virtually immune in the early stages of the slowdown) to moderate apparel brands.” Standard & Poor’s, *Industry Surveys*, February 19, 2009, 1.

³ Trade statistics for all industry/commodity groups in this sector are presented in app. B, table B.10.

⁴ Most of the decline in U.S. imports from Canada is likely attributable to sales lost to China in several product groupings, including certain men’s or boys’ suits classified in HTS 6203, sweaters and other knit articles in HTS 6110, and women’s or girls’ suits, ensembles, etc. in HTS 6204.

TABLE TX.1 Textiles and apparel: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. exports of domestic merchandise:							
China	501	629	731	844	940	96	11.3
Mexico	4,730	4,705	4,551	3,947	3,718	-230	-5.8
Canada	3,275	3,471	3,561	3,531	3,645	115	3.2
India	68	78	101	101	114	13	12.7
Vietnam	19	21	33	44	33	-11	-24.4
Indonesia	77	79	91	99	133	34	35.0
Honduras	1,547	1,459	1,416	1,518	1,562	44	2.9
Bangladesh	9	11	12	14	21	7	46.8
Pakistan	15	24	27	37	50	13	36.2
Thailand	83	80	85	113	118	6	5.0
All other	7,340	7,307	7,479	7,287	7,471	184	2.5
Total	17,663	17,864	18,088	17,535	17,805	271	1.5
EU-27	1,582	1,749	1,899	2,064	2,121	57	2.8
OPEC	220	232	343	303	400	97	31.9
Latin America	9,916	9,549	9,247	8,371	7,997	-374	-4.5
CBERA	352	374	360	244	198	-46	-18.8
Asia	2,171	2,353	2,522	2,652	2,872	220	8.3
Sub-Saharan Africa	139	134	141	167	222	55	33.2
Central and Eastern Europe	42	42	53	63	70	7	11.0
U.S. imports of merchandise for consumption:							
China	18,902	26,937	31,284	36,162	36,368	207	0.6
Mexico	8,826	8,305	7,497	6,712	5,957	-755	-11.3
Canada	3,834	3,633	3,395	3,080	2,484	-595	-19.3
India	4,106	5,194	5,568	5,611	5,583	-28	-0.5
Vietnam	2,644	2,807	3,326	4,503	5,392	889	19.7
Indonesia	2,714	3,230	4,073	4,413	4,460	47	1.1
Honduras	2,754	2,701	2,535	2,613	2,697	84	3.2
Bangladesh	2,092	2,486	3,025	3,216	3,566	350	10.9
Pakistan	2,671	3,042	3,397	3,308	3,225	-83	-2.5
Thailand	2,646	2,609	2,623	2,571	2,532	-39	-1.5
All other	42,855	39,542	37,840	35,489	32,063	-3,426	-9.7
Total	94,045	100,485	104,563	107,678	104,329	-3,349	-3.1
EU-27	6,291	6,095	5,988	6,287	5,791	-497	-7.9
OPEC	526	465	391	323	238	-86	-26.5
Latin America	21,058	20,274	18,721	17,237	15,938	-1,299	-7.5
CBERA	449	496	530	509	440	-69	-13.5
Asia	54,783	63,395	69,796	74,846	74,516	-330	-0.4
Sub-Saharan Africa	1,802	1,504	1,339	1,334	1,184	-150	-11.3
Central and Eastern Europe	565	488	500	488	485	-4	-0.7

TX-2

See footnote(s) at end of table.

TABLE TX.1 Textiles and apparel: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—Continued

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
China	-18,401	-26,308	-30,553	-35,317	-35,429	-111	-0.3	
Mexico	-4,097	-3,600	-2,946	-2,765	-2,239	526	19.0	
Canada	-559	-162	166	451	1,161	710	157.3	
India	-4,039	-5,117	-5,467	-5,510	-5,470	41	0.7	
Vietnam	-2,625	-2,786	-3,293	-4,459	-5,359	-900	-20.2	
Indonesia	-2,636	-3,151	-3,982	-4,314	-4,327	-13	-0.3	
Honduras	-1,207	-1,243	-1,118	-1,095	-1,135	-40	-3.7	
Bangladesh	-2,083	-2,474	-3,013	-3,202	-3,545	-343	-10.7	
Pakistan	-2,656	-3,018	-3,371	-3,271	-3,175	97	3.0	
Thailand	-2,564	-2,528	-2,537	-2,458	-2,414	45	1.8	
All other	-35,515	-32,235	-30,361	-28,202	-24,592	3,610	12.8	
Total	-76,382	-82,621	-86,476	-90,143	-86,523	3,620	4.0	
EU-27	-4,710	-4,347	-4,089	-4,223	-3,670	554	13.1	
OPEC	-306	-233	-48	-20	162	182	^(b)	
Latin America	-11,141	-10,724	-9,475	-8,866	-7,940	925	10.4	
CBERA	-97	-123	-170	-265	-242	23	8.6	
Asia	-52,612	-61,042	-67,273	-72,194	-71,644	550	0.8	
Sub-Saharan Africa	-1,663	-1,370	-1,198	-1,167	-961	206	17.6	
Central and Eastern Europe	-523	-446	-447	-425	-414	11	2.5	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bNot meaningful for purposes of comparison.

TABLE TX.2 Textiles and apparel: Leading changes in U.S. exports and imports, 2004–08^a

Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
						Absolute	Percent
<i>Million dollars</i>							
U.S. EXPORTS:							
Increases:							
Fibers and yarns, except raw cotton and raw wool (TX001)	3,192	3,328	3,780	4,041	4,344	303	7.5
Other fabrics (TX002F)	1,027	1,240	1,392	1,303	1,445	143	11.0
Miscellaneous textile products (TX006)	1,701	1,825	2,037	2,174	2,310	136	6.3
Carpets and rugs (TX003)	763	881	960	983	1,061	79	8.0
Glass fiber fabrics (TX002E)	146	147	178	211	248	37	17.6
Decreases:							
Broadwoven fabrics (TX002A)	2,754	2,478	2,210	1,822	1,630	-192	-10.5
Knit fabrics (TX002B)	1,624	1,778	1,611	1,659	1,534	-124	-7.5
Robes, nightwear, and underwear (TX005I)	700	479	394	203	109	-93	-46.1
Coated and other fabrics (TX002D)	1,098	1,097	1,119	1,213	1,143	-70	-5.8
Specialty fabrics (TX002C)	579	545	506	459	442	-17	-3.8
All other	4,080	4,067	3,901	3,468	3,537	69	2.0
TOTAL	17,663	17,864	18,088	17,535	17,805	271	1.5
U.S. IMPORTS:							
Increases:							
Gloves, including gloves for sports (TX005M)	2,533	2,757	2,989	3,160	3,658	498	15.7
Women's and girls' dresses (TX005H)	1,524	1,465	1,841	2,900	3,176	275	9.5
Miscellaneous textile products (TX006)	4,319	4,651	5,104	5,502	5,575	73	1.3
Robes, nightwear, and underwear (TX005I)	5,246	5,418	5,478	5,380	5,444	64	1.2
Hosiery (TX005J)	1,316	1,366	1,459	1,521	1,565	44	2.9
Decreases:							
Shirts and blouses (TX005E)	22,474	23,664	25,073	26,035	24,876	-1,159	-4.5
Women's and girls' trousers (TX005D)	9,327	9,664	9,889	9,872	9,305	-567	-5.7
Women's and girls' suits, skirts, and coats (TX005G)	5,866	6,941	6,663	6,346	5,851	-495	-7.8
Fabrics (TX002)	6,227	6,352	6,202	6,343	5,891	-452	-7.1
Home furnishings (TX004)	6,107	7,448	8,249	8,724	8,377	-347	-4.0
All other	29,107	30,760	31,616	31,893	30,610	-1,283	-4.0
TOTAL	94,045	100,485	104,563	107,678	104,329	-3,349	-3.1

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

U.S. Exports

U.S. exports of textiles and apparel increased by \$271 million (2 percent) to \$17.8 billion in 2008.⁵ Fabrics and fibers and yarn led the U.S. export increase and were used abroad primarily in making finished apparel products. In 2008, Latin America was the largest U.S. regional export market, accounting for close to one-half (\$8.0 billion) of U.S. sector exports. Mexico and Canada are the largest individual country markets for U.S.-made textiles and apparel due to their relative proximity, which reduces shipping and transit time, and due to duty-free treatment under NAFTA.

Honduras was again the third-largest U.S. export market for textiles and apparel in 2008. U.S. exports of textiles and apparel to Honduras rose by \$44 million (3 percent). Most of this increase resulted from a 34 percent rise in U.S. exports of yarn to Honduras in 2008, as apparel producers in Honduras continued to take advantage of preferential access to the U.S. market under DR-CAFTA for apparel made from U.S. yarn.

U.S. Imports

For the first time in recent years, U.S. imports of textiles and apparel decreased, by \$3.3 billion (3.1 percent) to \$104.3 billion in 2008 (table TX.1). Asian countries accounted for \$74.5 billion (71 percent) of U.S. sector imports in 2008; such imports declined by \$330 million that year.

China remained by far the largest supplier to the U.S. market, accounting for 35 percent of sector imports, up slightly from 34 percent in 2007. U.S. imports of textiles and apparel from China continued to grow, albeit more slowly than in previous years, by less than 1 percent, to \$36.4 billion in 2008. China's competitive advantages include an abundant, skilled labor force capable of producing complex garments and factories that benefit from lower costs (e.g., taxes, utility rates, etc.) than plants operating in the United States.⁶

Much of the growth in imports from China was accounted for by cotton apparel—especially cotton knit shirts and blouses and cotton trousers and slacks—and wool apparel, especially wool coats. The slower growth rate in 2008, however, is attributed to the downturn in the U.S. economy and to the erosion of China's low-cost advantages as the yuan appreciated⁷ and production costs climbed.⁸

U.S. imports of textiles and apparel from Vietnam rose by 20 percent to \$5.4 billion. For the second consecutive year, Vietnam has accounted for the largest percentage increase of any apparel exporter to the United States. The increase in U.S. imports from Vietnam is largely attributable to Vietnam's accession to the WTO in January 2007 and the subsequent lifting of U.S. quotas on Vietnamese textile and apparel articles.⁹ Vietnam's leading exports to the

⁵ The small increase in U.S. exports in 2008 can likely be attributed to business initiatives by certain U.S. apparel companies to take advantage of preferential treatment for imported apparel under DR-CAFTA provisions as the DR-CAFTA went into effect in 2006.

⁶ Standard & Poor's *Industry Surveys*, February 19, 2009, 19.

⁷ The yuan appreciated monthly against the U.S. dollar from 7.1058 yuan to 6.8258 yuan to the dollar in October 2008. See IMF, "China, P.R.: Mainland - Exchange Rates," December 2008, 306–307.

⁸ Standard & Poor's *Industry Surveys*, February 19, 2009, 19.

⁹ *Just-style*, "Vietnam Soars to U.S.'s Second Largest Apparel Supplier," September 11, 2008.

United States included cotton knit shirts and blouses, cotton trousers and slacks and coats, knit shirts and blouses, and trousers and slacks of manmade fibers.

U.S. imports of textiles and apparel from Mexico, the second-leading individual-country supplier to the U.S. market, decreased for the fourth consecutive year, falling by 11 percent to just under \$6.0 billion. Industry representatives in Mexico assert that preferential treatment under NAFTA is no longer a sufficient incentive to prompt U.S. apparel companies to source from Mexico. Some sources attribute Mexico's declining share of U.S. apparel imports, which reportedly fell by 70 percent from 2000 to 2008, to increasing wages and electricity rates that are reportedly among the most expensive in the world.¹⁰ Mexico's principal competitors in the U.S. market include China, Vietnam, Cambodia, Bangladesh, and India.¹¹

¹⁰ Perez, "XXXII Congress of the Mexican Apparel Association," October 29, 2008. Electricity accounts for 30 percent of production costs in the textile industry. Cisneros, "Business: With the Textile Industry in Tatters, A Move Up the Clothing Value Chain Eludes," January 2009, 13.

¹¹ Perez, "XXXII Congress of the Mexican Apparel Association," October 29, 2008.

Change in 2008 from 2007:

U.S. trade deficit: Increased by \$86 million (1 percent) to \$18.8 billion

U.S. exports: Increased by \$95 million (16 percent) to \$673 million

U.S. imports: Increased by \$181 million (1 percent) to \$19.5 billion

In 2008, the U.S. trade deficit in footwear increased slightly as imports, which accounted for 99 percent of the U.S. footwear market, continued to grow, albeit at a slower pace than in previous years (table TX.3).¹³ China continued to be the largest supplier of footwear to the U.S. market. Since the normalization of trade relations with Vietnam in 2001,¹⁴ and following that country's accession to the WTO in January 2007,¹⁵ the growth of U.S. footwear imports from Vietnam has accelerated, and in 2008, Vietnam emerged as the second-leading supplier of footwear to the United States.

Consumer spending on footwear rose by less than 0.5 percent in 2008,¹⁶ a slower rate than in previous years, which likely is attributable to the downturn in the U.S. economy. Nevertheless, some industry sources report that the footwear sector may be less affected by the weak U.S. economy than other sectors because shoes are a necessity as well as a luxury, and footwear firms may be "changing their product offerings and marketing strategies to fit the economic climate."¹⁷ Furthermore, some industry representatives noted a softer downward trend in the "sport use" athletic footwear market than the U.S. economy as a whole.¹⁸

U.S. Exports

The value of U.S. exports of footwear increased by \$95 million (16 percent) to \$673 million in 2008 (table TX.3). Just over one-half of these exports were of footwear parts, especially

¹² This industry/commodity group includes the products of NAICS number 3162 (Footwear Manufacturing—i.e., establishments primarily engaged in manufacturing footwear, except orthopedic extension footwear).

¹³ According to the American Apparel and Footwear Association (AAFA), domestic shoe production now represents only 1 percent of shoe purchases in the United States. Nate Herman (director of international trade, AAFA), e-mail message to Commission staff, March 23, 2009. The production of protective or safety footwear (most of which features steel safety toes) accounts for most of the limited number of shoes still produced domestically. Standard & Poor's, *Industry Surveys*, February 19, 2009, 12.

¹⁴ Office of the USTR, "USTR and Vietnamese Prime Minister Meet," June 24, 2008.

¹⁵ *Just-style.com*, "Vietnam Soars to U.S.'s Second Largest Apparel Supplier," September 11, 2008.

¹⁶ USDOC, BEA, "Table 2.45U: Personal Consumption Expenditures," March 2, 2009.

¹⁷ *Footwear News*, "U.S. Shoe Brands Walk All Over Credit Crunch," January/February 2009, 45.

¹⁸ NPD Group Inc., "The NPD Group Reports Downturn in Sales," December 18, 2008.

TABLE TX.3 Footwear: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. exports of domestic merchandise:								
China	31	41	57	38	35	-2	-6.0	
Vietnam	24	31	34	25	26	1	3.5	
Italy	6	9	8	8	6	-2	-22.1	
Brazil	3	1	2	3	4	1	45.7	
Indonesia	9	12	10	11	8	-3	-25.5	
Mexico	60	46	47	44	79	35	80.7	
Thailand	4	5	4	3	3	-1	-25.5	
India	4	8	7	4	6	2	52.1	
Spain	2	1	2	1	3	1	98.6	
Canada	59	65	73	78	86	8	10.7	
All other	248	288	329	364	418	54	14.8	
Total	450	507	573	578	673	95	16.4	
EU-27	66	65	60	65	68	3	4.3	
OPEC	16	21	32	32	45	13	39.8	
Latin America	127	134	140	146	194	49	33.3	
CBERA	16	15	24	25	29	5	18.4	
Asia	157	196	238	214	238	24	11.3	
Sub-Saharan Africa	13	17	21	28	32	3	11.9	
Central and Eastern Europe	4	2	1	1	3	1	96.1	
U.S. imports of merchandise for consumption:								
China	11,348	12,654	13,795	14,090	14,444	355	2.5	
Vietnam	473	717	952	1,032	1,212	180	17.5	
Italy	1,250	1,137	1,110	1,200	1,127	-74	-6.1	
Brazil	1,081	1,019	896	758	518	-240	-31.7	
Indonesia	493	510	471	383	408	25	6.6	
Mexico	242	247	274	248	255	7	3.0	
Thailand	287	292	293	257	244	-13	-5.2	
India	125	139	155	164	188	25	15.1	
Spain	225	192	198	210	170	-40	-19.1	
Canada	77	94	79	76	77	1	1.9	
All other	896	833	815	854	809	-46	-5.3	
Total	16,498	17,834	19,038	19,270	19,451	181	0.9	
EU-27	1,904	1,738	1,700	1,776	1,586	-190	-10.7	
OPEC	1	2	1	1	1	(^b)	-21.6	
Latin America	1,484	1,432	1,317	1,148	931	-217	-18.9	
CBERA	2	(^b)	(^b)	(^b)	1	(^b)	103.7	
Asia	12,963	14,495	15,852	16,180	16,766	586	3.6	
Sub-Saharan Africa	2	3	4	5	2	-3	-64.0	
Central and Eastern Europe	192	198	214	181	131	-50	-27.5	

8-XI

See footnote(s) at end of table.

TABLE TX.3 Footwear: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 2004–08^a—Continued

Item	2004	2005	2006	2007	2008	Change, 2008 from 2007		
						Absolute	Percent	
	<i>Million dollars</i>							
U.S. merchandise trade balance:								
China	-11,317	-12,613	-13,738	-14,052	-14,409	-357	-2.5	
Vietnam	-449	-685	-917	-1,007	-1,186	-179	-17.8	
Italy	-1,244	-1,128	-1,102	-1,192	-1,120	72	6.0	
Brazil	-1,078	-1,018	-894	-755	-514	242	32.0	
Indonesia	-484	-498	-461	-371	-399	-28	-7.5	
Mexico	-183	-201	-227	-204	-176	28	13.6	
Thailand	-283	-287	-289	-253	-241	12	4.9	
India	-122	-131	-148	-160	-182	-23	-14.2	
Spain	-223	-191	-197	-209	-167	41	19.9	
Canada	-18	-29	-6	2	9	7	329.3	
All other	-649	-545	-486	-491	-391	99	20.3	
Total	-16,048	-17,327	-18,465	-18,692	-18,778	-86	-0.5	
EU-27	-1,838	-1,673	-1,640	-1,711	-1,518	193	11.3	
OPEC	16	19	31	31	45	13	41.4	
Latin America	-1,357	-1,299	-1,176	-1,002	-737	266	26.5	
CBERA	14	14	23	25	29	4	17.5	
Asia	-12,806	-14,299	-15,614	-15,966	-16,528	-562	-3.5	
Sub-Saharan Africa	11	15	17	23	30	7	29.5	
Central and Eastern Europe	-187	-196	-212	-179	-128	51	28.5	

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

Note: Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus U.S. exports) in these products in 2008.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bLess than \$500,000.

removable insoles, rather than entire footwear products.¹⁹ U.S. footwear export statistics also may reflect footwear items imported into the United States, repackaged, and then re-exported to other markets.²⁰ Industry sources report that U.S. exports of footwear were limited and comprised primarily luxury leather shoes and high-end footwear.²¹

U.S. Imports

China remained the leading supplier by far of footwear to the U.S. market, accounting for almost three-fourths of U.S. footwear imports by value in 2008. U.S. imports of footwear from China rose by \$355 million (3 percent) to \$14.4 billion. Despite its dominance, in 2008, China's footwear industry continued to face competitive pressures including the appreciation of the yuan against the U.S. dollar²² and rising labor and raw material costs, which have led to slower export growth in recent years.²³

Other suppliers of footwear to the United States included Vietnam and Italy (each accounting for 6 percent of imports), Brazil (3 percent), and Indonesia (2 percent). Vietnam increased its footwear exports to the U.S. market by almost 18 percent to \$1.2 billion in 2008, displacing Italy as the second-leading supplier of footwear to the United States. As with the textiles and apparel sector, U.S. imports of footwear from Vietnam grew rapidly since the normalization of trade relations in 2001 and further accelerated after Vietnam's accession to the WTO in 2007. Vietnam has become one of the world's leading footwear producers, ranking third in Asia after China and India. Sport shoes are the leading footwear export item from Vietnam.²⁴ Despite its rapid growth, Vietnam's footwear industry faces competitive challenges, such as reliance upon imported materials,²⁵ lack of design and marketing expertise,²⁶ and recent labor unrest, as footwear workers went on strike for higher pay amid the country's rising inflation.²⁷

¹⁹ Insoles are footwear parts such as "air pockets" (special cushions to absorb the thrust of the foot as it hits the ground) that are manufactured in the United States and shipped and inserted into shoes such as Air Jordans that are produced abroad. Peter Mangione (president, Footwear Retailers and Distributors Association), telephone interview by Commission staff, March 26, 2009.

²⁰ Peter Mangione (president, Footwear Retailers and Distributors Association), telephone interview by Commission staff, March 26, 2009.

²¹ World Footwear, "Sourcing & Supply Chain: The Changing Face of Chinese Footwear," January/February 2009, 11. New Balance is one of the few remaining U.S. footwear companies that continues to make some of its shoes domestically (25 percent of its domestic sales); it also exports a small share of its shoes primarily to Japan (where U.S.-made shoes carry a certain cachet) and Canada (where certain customers buy selected shoes made in the United States only). Herb Spivak (executive vice president of operations, New Balance), telephone interview by Commission staff, March 26, 2009.

²² According to one industry source, the "currency re-adjustments have affected the attraction of the export market for Chinese manufacturers," as has the Chinese government's decision to revoke the rebate of the export tax. *World Footwear*, "Sourcing & Supply Chain: The Changing Face of Chinese Footwear," January/February 2009, 11.

²³ *PR-inside.com*, "New Insight into Trend of China Shoes Industry," August 11, 2008.

²⁴ *Business-in-Asia.com*, "Vietnam Shoe Exports Expect Increase in 2008," undated (accessed March 25, 2009).

²⁵ Industry sources report that footwear producers in Vietnam "currently have to import 80–90 percent of their materials from China, Taiwan, and Korea." Vietnam Leather and Footwear Association, "Industry Garment, Shoe Makers to Face Big Challenge of Goods Origin," December 23, 2008.

²⁶ *Business-in-Asia.com*, "Vietnam Shoe Exports Expect Increase in 2008," undated (accessed March 25, 2009).

²⁷ *Just-style.com*, "Vietnam: Footwear Workers Strike for Higher Pay," August 4, 2008.

U.S. imports from Italy, which had been the second-leading supplier of footwear imports to the U.S. market, fell by \$74 million (6 percent) to \$1.1 billion in 2008. Because Italy supplies primarily high-end leather shoes to the U.S. market,²⁸ the dip in its sales to the United States is likely attributable to the rising prices of Italian shoes, as production costs increased,²⁹ and to reduced spending on luxury, high-end goods by U.S. consumers in the slow economy.

²⁸ One Italian industry source reports “95 percent of Italy’s shoe production is concentrated in the sector of women’s luxury footwear.” *Italtrade.com*, “Luxury Footwear? Made in Italy!” undated (accessed March 31, 2009).

²⁹ *Footwear News*, “Struggling to Stay,” September 8, 2008, 11.

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APPENDIX A
BENEFICIARIES OF U.S. TRADE
PREFERENCE PROGRAMS

TABLE A.1 Designated beneficiaries of U.S. trade preference programs, 2004-08

Beneficiary	African Growth and Opportunity Act	Andean Trade Preference Act	Caribbean Basin Initiative ^a	Generalized System of Preferences ^b
Afghanistan				XX
Albania				X
Algeria				X
Angola	X			XX
Anguilla				X
Antigua and Barbuda			X	
Argentina				X
Armenia				X
Aruba			X	
Bahamas			X	
Bangladesh				XX
Barbados			X	
Belize			X	X
Benin	X			XX
Bhutan				XX
Bolivia		X		X
Bosnia and Herzegovina				X
Botswana	X			X
Brazil				X
British Indian Ocean Territory				X
British Virgin Islands			X	X
Burkina Faso	X			XX
Burundi	X			XX
Cambodia				XX
Cameroon	X			X
Cape Verde	X			XX
Central African Republic				XX
Chad	X			XX
Christmas Island				X
Cocos (Keeling) Islands				X
Colombia		X		X
Comoros	X			XX
Congo (DROC-Kinshasa)	X			XX
Congo (ROC-Brazzaville)	X			X
Cook Islands				X
Costa Rica			X	X
Côte d'Ivoire				X
Croatia				X
Djibouti	X			XX
Dominica			X	X
East Timor				XX
Ecuador		X		X
Egypt				X
Equatorial Guinea				XX
Eritrea				X
Ethiopia	X			XX
Falkland Islands				X
Fiji				X
Gabon	X			X
The Gambia	X			XX
Georgia				X
Ghana	X			X
Gibraltar				X
Grenada			X	X
Guinea	X			XX
Guinea-Bissau	X			XX

See footnote(s) at end of table.

TABLE A.1 Designated beneficiaries of U.S. trade preference programs, 2004-08—*Continued*

Beneficiary	African Growth and Opportunity Act	Andean Trade Preference Act	Caribbean Basin Initiative ^a	Generalized System of Preferences ^b
Guyana			X	X
Haiti			X	XX
Heard Island and McDonald Islands				X
India				X
Indonesia				X
Iraq				X
Jamaica			X	X
Jordan				X
Kazakhstan				X
Kenya	X			X
Kiribati				XX
Kyrgyzstan				X
Lebanon				X
Lesotho	X			XX
Liberia	X			XX
Macedonia (FYROM)				X
Madagascar	X			XX
Malawi	X			XX
Mali	X			XX
Mauritania	X			XX
Mauritius	X			X
Moldova				X
Mongolia				X
Montserrat			X	X
Mozambique	X			XX
Namibia	X			X
Nepal				XX
Netherlands Antilles			X	
Niger	X			XX
Nigeria	X			X
Niue				X
Norfolk Island				X
Oman				X
Pakistan				X
Panama			X	X
Papua New Guinea				X
Paraguay				X
Peru		X		X
Philippines				X
Pitcairn Islands				X
Russia				X
Rwanda	X			XX
Saint Helena				X
Saint Kitts and Nevis			X	X
Saint Lucia			X	X
Saint Vincent and Grenadines			X	X
Samoa				XX
São Tomé and Príncipe	X			XX
Senegal	X			X
Seychelles	X			X
Sierra Leone	X			XX
Solomon Islands				XX
Somalia				XX
South Africa	X			X
Sri Lanka				X

See footnote(s) at end of table.

TABLE A.1 Designated beneficiaries of U.S. trade preference programs, 2004-08—*Continued*

Beneficiary	African Growth and Opportunity Act	Andean Trade Preference Act	Caribbean Basin Initiative ^a	Generalized System of Preferences ^b
Suriname				X
Swaziland	X			XX
Tanzania	X			X
Thailand				X
Togo	X			XX
Tokelau				X
Tonga				X
Trinidad and Tobago			X	X
Tunisia				X
Turkey				X
Turks and Caicos Islands				X
Tuvalu				XX
Uganda	X			XX
Ukraine				X
Uruguay				X
Uzbekistan				X
Vanuatu				XX
Venezuela				X
Wallis and Futuna				X
West Bank, Gaza Strip, and Qualifying Industrial Zones ..				X
Western Sahara				X
Yemen				XX
Zambia	X			XX
Zimbabwe				X

Source: Compiled from official statistics of the U.S. Department of Commerce; U.S. International Trade Commission, "General Notes (GN)," Harmonized Tariff Schedule of the United States, 2008 Supplement 1, GN 11-14, 19-21, 25-26, 166, and 167-168; available at <http://hotdocs.usitc.gov/docs/tata/hts/bychapter/0810gntoc.htm> (accessed April 13, 2009).

Note: Costa Rica, Oman, and Peru have since lost their GSP eligibility by entering into free trade agreements with the United States effective early 2009. Peru maintains its Andean Trade Preference Act eligibility despite its free trade agreement with the United States.

^a Partners of the Dominican Republic-Central America Free Trade Agreement with the United States (DR-CAFTA) were declared "formerly eligible beneficiaries" of the Caribbean Basin Initiative after DR-CAFTA entered into force for the Dominican Republic on March 1, 2007; El Salvador on March 1, 2006; Guatemala on July 1, 2006; and Honduras and Nicaragua on April 1, 2006.

^b Generalized System of Preferences (GSP) beneficiaries that are also eligible for additional benefits as least-developed beneficiary countries (GSP-LDBCs) are indicated by "XX."

APPENDIX B
U.S. TRADE BY INDUSTRY/COMMODITY
GROUP

TABLE B.1 Agricultural products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
AG001	Certain miscellaneous animals and meats:							
	Exports	1,460	1,821	2,055	2,158	2,497	339	15.7
	Imports	1,972	2,128	2,234	2,399	2,279	-120	-5.0
	Trade balance	-512	-307	-179	-240	218	459	(^c)
AG002	Cattle and beef:							
	Exports	605	1,041	1,655	2,156	3,085	929	43.1
	Imports	3,909	4,410	4,443	4,844	4,524	-319	-6.6
	Trade balance	-3,304	-3,369	-2,788	-2,688	-1,439	1,248	46.5
AG003	Swine and pork:							
	Exports	1,866	2,246	2,422	2,709	4,277	1,568	57.9
	Imports	1,335	1,314	1,205	1,224	1,021	-203	-16.6
	Trade balance	531	931	1,216	1,485	3,256	1,771	119.3
AG004	Sheep and meat of sheep:							
	Exports	14	17	30	21	35	14	63.9
	Imports	400	462	425	456	446	-11	-2.4
	Trade balance	-386	-446	-395	-435	-411	24	5.6
AG005	Poultry:							
	Exports	2,280	2,795	2,588	3,655	4,607	952	26.0
	Imports	169	169	194	242	256	14	5.7
	Trade balance	2,112	2,625	2,395	3,413	4,351	938	27.5
AG006	Fresh or frozen fish:							
	Exports	2,357	2,602	2,672	2,706	2,576	-129	-4.8
	Imports	3,520	3,963	4,555	4,922	5,021	98	2.0
	Trade balance	-1,162	-1,361	-1,884	-2,217	-2,444	-228	-10.3
AG007	Canned fish:							
	Exports	214	223	224	239	268	30	12.5
	Imports	843	889	953	950	1,130	180	19.0
	Trade balance	-629	-666	-729	-711	-862	-151	-21.2
AG008	Cured and other fish:							
	Exports	164	170	181	178	187	9	4.8
	Imports	333	371	382	394	456	62	15.8
	Trade balance	-168	-201	-201	-216	-269	-54	-24.9
AG009	Shellfish:							
	Exports	798	883	961	949	1,013	65	6.8
	Imports	6,472	6,696	7,288	7,246	7,379	133	1.8
	Trade balance	-5,674	-5,813	-6,327	-6,297	-6,366	-69	-1.1
AG010	Dairy produce:							

See footnote(s) at end of table.

TABLE B.1 Agricultural products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Exports	1,066	1,195	1,387	2,358	3,188	829	35.2
	Imports	1,911	2,102	2,018	2,212	2,516	304	13.7
	Trade balance	-845	-907	-630	146	672	526	360.1
AG011	Eggs:							
	Exports	196	227	235	293	297	4	1.5
	Imports	33	21	31	43	47	4	9.5
	Trade balance	163	205	204	250	250	(^d)	0.1
AG012	Sugar and other sweeteners:							
	Exports	435	538	754	1,074	931	-144	-13.4
	Imports	979	1,323	1,868	1,391	1,748	356	25.6
	Trade balance	-543	-785	-1,114	-317	-817	-500	-157.8
AG012A	Sugar:							
	Exports	86	122	188	230	175	-56	-24.2
	Imports	585	908	1,351	859	1,117	258	30.0
	Trade balance	-499	-786	-1,164	-629	-943	-314	-49.9
AG012B	High fructose corn sweetener:							
	Exports	69	78	146	220	254	34	15.6
	Imports	43	41	48	57	82	25	44.3
	Trade balance	25	37	99	163	172	9	5.5
AG013	Animal feeds:							
	Exports	4,160	4,535	5,065	6,144	8,467	2,323	37.8
	Imports	873	789	905	1,084	1,375	291	26.9
	Trade balance	3,288	3,746	4,160	5,060	7,092	2,032	40.2
AG014	Live plants:							
	Exports	148	170	188	189	198	9	4.7
	Imports	569	558	564	588	540	-48	-8.1
	Trade balance	-421	-388	-376	-399	-342	57	14.2
AG015	Seeds:							
	Exports	1,066	940	893	1,051	1,348	298	28.3
	Imports	460	525	624	692	786	94	13.6
	Trade balance	606	415	269	358	562	203	56.8
AG016	Cut flowers:							
	Exports	27	25	27	37	42	5	12.3
	Imports	706	709	768	831	804	-28	-3.3
	Trade balance	-679	-684	-741	-794	-762	32	4.1
AG017	Miscellaneous vegetable substances:							
	Exports	558	554	602	697	786	89	12.7

See footnote(s) at end of table.

TABLE B.1 Agricultural products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Imports	921	1,038	1,193	1,256	1,407	152	12.1
	Trade balance	-363	-484	-592	-559	-622	-63	-11.3
AG018	Fresh, chilled, or frozen vegetables:							
	Exports	1,449	1,621	1,766	1,902	2,070	167	8.8
	Imports	3,650	3,871	4,310	4,701	5,003	302	6.4
	Trade balance	-2,201	-2,250	-2,544	-2,799	-2,933	-135	-4.8
AG019	Prepared or preserved vegetables, mushrooms, and olives:							
	Exports	1,417	1,548	1,708	1,943	2,523	581	29.9
	Imports	2,044	2,147	2,290	2,550	2,813	262	10.3
	Trade balance	-626	-599	-583	-607	-289	318	52.4
AG020	Edible nuts:							
	Exports	2,242	2,925	3,092	3,311	3,742	431	13.0
	Imports	1,079	1,121	1,101	1,184	1,351	168	14.2
	Trade balance	1,163	1,804	1,990	2,128	2,391	263	12.4
AG021	Tropical fruit:							
	Exports	63	71	80	62	77	15	24.0
	Imports	1,772	2,035	2,219	2,530	2,761	230	9.1
	Trade balance	-1,709	-1,964	-2,140	-2,468	-2,684	-215	-8.7
AG022	Citrus fruit:							
	Exports	691	664	744	749	874	125	16.7
	Imports	444	519	602	723	689	-34	-4.7
	Trade balance	248	145	142	26	185	159	607.4
AG023	Deciduous fruit:							
	Exports	813	995	1,065	1,233	1,422	189	15.4
	Imports	358	324	393	462	448	-15	-3.2
	Trade balance	455	670	672	770	974	204	26.5
AG024	Other fresh fruit:							
	Exports	854	1,021	1,052	1,170	1,346	177	15.1
	Imports	1,396	1,684	1,826	2,035	2,121	86	4.2
	Trade balance	-542	-663	-774	-866	-775	90	10.4

B-5

See footnote(s) at end of table.

TABLE B.1 Agricultural products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
AG025	Dried fruit other than tropical:							
	Exports	394	382	418	481	589	108	22.5
	Imports	142	150	153	182	191	10	5.3
	Trade balance	251	232	266	299	398	98	32.9
AG026	Frozen fruit:							
	Exports	84	90	110	132	143	12	9.0
	Imports	225	286	356	415	444	29	7.0
	Trade balance	-141	-196	-246	-283	-300	-17	-6.0
AG027	Prepared or preserved fruit:							
	Exports	237	235	288	324	387	63	19.4
	Imports	768	858	985	1,116	1,263	148	13.2
	Trade balance	-531	-623	-697	-791	-876	-85	-10.7
AG028	Coffee and tea:							
	Exports	349	450	559	657	807	150	22.7
	Imports	2,560	3,309	3,694	4,173	4,855	683	16.4
	Trade balance	-2,211	-2,859	-3,135	-3,515	-4,048	-533	-15.2
AG029	Spices:							
	Exports	82	80	86	94	110	17	17.6
	Imports	625	503	543	677	819	142	20.9
	Trade balance	-543	-423	-457	-583	-709	-125	-21.5
AG030	Cereals:							
	Exports	12,683	11,096	13,341	20,860	28,625	7,765	37.2
	Imports	699	657	963	1,425	2,496	1,071	75.2
	Trade balance	11,984	10,439	12,378	19,435	26,129	6,694	34.4
AG031	Milled grains, malts, and starches:							
	Exports	610	668	858	1,179	840	-339	-28.8
	Imports	518	490	550	721	1,077	356	49.3
	Trade balance	92	177	308	458	-237	-695	(^c)
AG032	Oilseeds:							
	Exports	6,911	6,527	7,172	10,346	15,853	5,507	53.2
	Imports	335	335	387	572	1,002	430	75.2
	Trade balance	6,576	6,192	6,786	9,774	14,851	5,077	51.9
AG033	Animal or vegetable fats and oils:							
	Exports	1,965	1,808	2,010	2,981	4,475	1,494	50.1
	Imports	2,193	2,294	2,753	3,358	5,261	1,902	56.6
	Trade balance	-228	-486	-743	-377	-786	-408	-108.1
AG034	Pasta, cereals, and other bakery goods:							

See footnote(s) at end of table.

TABLE B.1 Agricultural products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Exports	1,381	1,575	1,771	2,015	2,398	383	19.0
	Imports	2,719	3,016	3,335	3,690	4,011	322	8.7
	Trade balance	-1,338	-1,442	-1,563	-1,675	-1,614	61	3.7
AG035	Sauces, condiments, and soups:							
	Exports	842	869	947	1,014	1,178	163	16.1
	Imports	743	790	850	937	1,027	91	9.7
	Trade balance	99	80	97	78	150	72	93.0
AG036	Infant formulas, malt extracts, and other edible preparations:							
	Exports	2,868	3,149	3,422	3,458	4,002	544	15.7
	Imports	1,211	1,345	1,528	1,556	1,621	65	4.2
	Trade balance	1,657	1,804	1,894	1,902	2,381	479	25.2
AG037	Cocoa, chocolate, and confectionery:							
	Exports	946	991	1,066	1,206	1,396	190	15.8
	Imports	3,627	3,927	3,846	3,882	4,534	652	16.8
	Trade balance	-2,681	-2,936	-2,781	-2,676	-3,138	-462	-17.3
AG038	Fruit and vegetable juices:							
	Exports	660	731	862	979	1,061	82	8.4
	Imports	835	1,029	1,145	1,738	1,925	187	10.7
	Trade balance	-176	-298	-283	-759	-864	-104	-13.7
AG039	Nonalcoholic beverages, excluding fruit and vegetable juices:							
	Exports	407	478	554	643	819	176	27.4
	Imports	1,158	1,329	1,769	2,012	1,875	-137	-6.8
	Trade balance	-752	-851	-1,214	-1,369	-1,056	314	22.9
AG040	Malt beverages:							
	Exports	164	201	209	246	275	29	12.0
	Imports	2,752	3,081	3,563	3,602	3,648	45	1.3
	Trade balance	-2,588	-2,879	-3,353	-3,357	-3,372	-16	-0.5
AG041	Wine and certain other fermented beverages:							
	Exports	793	658	842	910	964	54	5.9
	Imports	3,445	3,797	4,176	4,658	4,655	-3	-0.1
	Trade balance	-2,652	-3,139	-3,333	-3,749	-3,691	57	1.5

See footnote(s) at end of table.

TABLE B.1 Agricultural products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
AG042	Distilled spirits:							
	Exports	727	763	893	1,035	1,102	67	6.4
	Imports	3,734	4,106	4,527	5,081	5,061	-20	-0.4
	Trade balance	-3,007	-3,343	-3,634	-4,046	-3,959	87	2.1
AG043	Unmanufactured tobacco:							
	Exports	1,044	983	1,141	1,208	1,238	30	2.5
	Imports	702	652	751	840	804	-36	-4.3
	Trade balance	342	332	390	369	435	66	17.9
AG044	Cigars and certain other manufactured tobacco:							
	Exports	272	98	107	109	118	9	8.4
	Imports	333	346	392	416	465	49	11.8
	Trade balance	-62	-248	-285	-307	-347	-40	-13.0
AG045	Cigarettes:							
	Exports	1,294	1,200	1,214	1,012	705	-308	-30.4
	Imports	231	194	190	170	165	-5	-3.2
	Trade balance	1,063	1,006	1,024	843	540	-302	-35.9
AG046	Hides, skins, and leather:							
	Exports	2,730	2,580	2,755	2,932	2,607	-325	-11.1
	Imports	886	896	841	810	688	-122	-15.1
	Trade balance	1,844	1,684	1,915	2,122	1,919	-202	-9.5
AG047	Furskins:							
	Exports	191	195	246	266	300	33	12.5
	Imports	106	97	116	124	129	5	4.4
	Trade balance	85	98	130	142	170	28	19.5
AG048	Wool and other animal hair:							
	Exports	27	34	31	35	24	-12	-33.0
	Imports	45	41	41	35	37	1	4.2
	Trade balance	-18	-7	-10	(^d)	-13	-13	(^e)
AG049	Cotton, not carded or combed:							
	Exports	4,222	3,920	4,501	4,578	4,829	251	5.5
	Imports	16	14	13	8	5	-3	-40.8
	Trade balance	4,206	3,906	4,487	4,571	4,825	254	5.6

See footnote(s) at end of table.

TABLE B.1 Agricultural products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
AG050	Ethyl alcohol for nonbeverage purposes:							
	Exports	81	109	76	357	374	17	4.8
	Imports	259	337	1,600	978	1,260	282	28.8
	Trade balance	-179	-228	-1,524	-621	-886	-264	-42.6

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bThis coding system is used by the U.S. International Trade Commission to identify major groupings and subgroupings of import and export items for trade monitoring purposes.

^cNot meaningful for purposes of comparison.

^dLess than \$500,000.

TABLE B.2 Chemicals and related products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
CH001	Major primary olefins:							
	Exports	474	451	611	801	685	-116	-14.5
	Imports	5,908	7,774	8,062	9,472	12,812	3,340	35.3
	Trade balance	-5,434	-7,324	-7,451	-8,671	-12,127	-3,456	-39.9
CH002	Other olefins:							
	Exports	430	420	556	463	615	152	32.9
	Imports	158	261	442	448	506	57	12.8
	Trade balance	272	159	114	15	110	95	646.8
CH003	Primary aromatics:							
	Exports	782	548	375	392	478	86	21.9
	Imports	2,202	2,802	3,101	3,454	4,004	550	15.9
	Trade balance	-1,420	-2,254	-2,726	-3,062	-3,527	-464	-15.2
CH004	Organic commodity chemicals:							
	Exports	4,631	4,295	4,360	5,787	4,845	-942	-16.3
	Imports	1,997	2,398	2,736	3,141	3,691	550	17.5
	Trade balance	2,635	1,897	1,625	2,647	1,155	-1,492	-56.4
CH005	Organic specialty chemicals:							
	Exports	6,731	6,999	8,089	8,628	8,805	176	2.0
	Imports	6,852	7,744	7,981	8,422	9,324	902	10.7
	Trade balance	-121	-744	108	206	-520	-726	(°)
CH006	Certain organic chemicals:							
	Exports	11,283	11,991	14,263	15,796	16,360	564	3.6
	Imports	5,811	7,263	7,103	7,441	9,184	1,743	23.4
	Trade balance	5,472	4,729	7,159	8,355	7,176	-1,179	-14.1
CH007	Miscellaneous inorganic chemicals:							
	Exports	5,608	7,003	8,737	10,169	11,674	1,505	14.8
	Imports	5,714	6,626	7,310	8,308	9,279	971	11.7
	Trade balance	-106	377	1,426	1,861	2,395	534	28.7
CH008	Inorganic acids:							
	Exports	267	296	323	318	852	534	167.7
	Imports	337	362	415	426	907	481	112.8
	Trade balance	-70	-66	-91	-108	-55	53	49.3
CH009	Chlor-alkali chemicals:							
	Exports	953	1,269	1,479	1,536	2,044	508	33.1
	Imports	252	452	460	398	646	248	62.4
	Trade balance	701	817	1,020	1,138	1,398	260	22.8
CH010	Fertilizers:							

See footnote(s) at end of table.

TABLE B.2 Chemicals and related products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Exports	2,718	3,005	3,014	3,470	7,171	3,701	106.7
	Imports	5,510	7,439	7,525	9,507	16,485	6,978	73.4
	Trade balance	-2,792	-4,434	-4,512	-6,037	-9,314	-3,277	-54.3
CH011	Paints, inks, and related items, and certain components thereof:							
	Exports	4,200	4,509	4,988	5,456	5,914	458	8.4
	Imports	2,241	2,598	2,825	2,958	2,748	-210	-7.1
	Trade balance	1,959	1,911	2,164	2,498	3,166	668	26.8
CH012	Synthetic organic pigments:							
	Exports	376	400	405	401	452	51	12.7
	Imports	368	396	411	452	477	25	5.6
	Trade balance	8	5	-6	-51	-26	25	49.7
CH013	Synthetic dyes and azoic couplers:							
	Exports	287	283	304	325	321	-4	-1.2
	Imports	415	407	389	337	367	30	8.9
	Trade balance	-128	-125	-85	-13	-47	-34	-265.6
CH014	Synthetic tanning agents:							
	Exports	35	28	29	24	21	-3	-13.0
	Imports	8	8	7	7	9	2	23.7
	Trade balance	27	21	22	17	12	-5	-28.3
CH015	Natural tanning and dyeing materials:							
	Exports	44	77	67	75	78	3	3.4
	Imports	70	74	76	85	109	24	28.8
	Trade balance	-26	3	-9	-10	-32	-22	-226.5
CH016	Photographic chemicals and preparations:							
	Exports	435	460	512	538	693	155	28.8
	Imports	409	446	476	424	451	26	6.2
	Trade balance	26	14	36	114	243	128	112.4
CH017	Pesticide products and formulations:							
	Exports	2,674	2,708	3,105	3,537	3,773	235	6.7
	Imports	1,589	1,898	1,882	1,899	2,354	455	24.0
	Trade balance	1,085	811	1,223	1,638	1,419	-220	-13.4

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See footnote(s) at end of table.

TABLE B.2 Chemicals and related products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
CH018	Adhesives and glues:							
	Exports	702	807	911	1,087	1,119	33	3.0
	Imports	305	333	338	377	358	-20	-5.2
	Trade balance	397	473	573	710	762	52	7.3
CH019	Medicinal chemicals:							
	Exports	27,098	29,296	32,460	37,041	42,146	5,105	13.8
	Imports	52,677	56,104	65,218	71,777	79,943	8,166	11.4
	Trade balance	-25,578	-26,808	-32,758	-34,735	-37,797	-3,062	-8.8
CH020	Essential oils and other flavoring materials:							
	Exports	1,462	1,420	1,525	1,674	1,813	140	8.3
	Imports	2,540	3,019	3,089	3,062	3,400	338	11.0
	Trade balance	-1,078	-1,598	-1,564	-1,388	-1,587	-198	-14.3
CH021	Perfumes, cosmetics, and toiletries:							
	Exports	3,900	4,418	5,018	5,601	6,271	670	12.0
	Imports	3,652	4,099	4,374	4,924	5,221	298	6.0
	Trade balance	248	319	643	678	1,050	373	55.0
CH022	Soaps, detergents, and surface-active agents:							
	Exports	2,929	3,192	3,608	3,899	4,660	761	19.5
	Imports	1,568	1,680	1,835	1,874	2,025	151	8.1
	Trade balance	1,361	1,511	1,773	2,025	2,635	610	30.1
CH023	Miscellaneous chemicals and specialties:							
	Exports	3,444	3,708	4,249	5,259	7,854	2,594	49.3
	Imports	2,497	2,907	3,249	3,799	5,315	1,516	39.9
	Trade balance	947	801	1,000	1,461	2,539	1,078	73.8
CH024	Explosives, propellant powders, and related items:							
	Exports	472	476	542	580	602	22	3.7
	Imports	402	459	534	563	535	-27	-4.9
	Trade balance	70	16	8	18	67	49	278.4
CH025	Polyethylene resins in primary forms:							
	Exports	3,698	4,448	5,103	6,312	7,578	1,266	20.1
	Imports	2,505	3,227	3,712	3,510	3,932	422	12.0
	Trade balance	1,192	1,221	1,391	2,801	3,646	844	30.1

See footnote(s) at end of table.

TABLE B.2 Chemicals and related products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
CH026	Polypropylene resins in primary forms:							
	Exports	1,767	2,202	2,648	3,551	3,563	12	0.3
	Imports	359	415	395	463	379	-83	-18.0
	Trade balance	1,408	1,787	2,253	3,088	3,183	95	3.1
CH027	Polyvinyl chloride resins in primary forms:							
	Exports	1,044	1,112	1,323	1,628	2,213	585	35.9
	Imports	383	593	546	381	362	-19	-5.1
	Trade balance	661	519	777	1,247	1,851	604	48.5
CH028	Styrene polymers in primary forms:							
	Exports	929	1,039	1,322	1,413	1,401	-12	-0.9
	Imports	833	1,153	1,102	914	938	24	2.7
	Trade balance	96	-114	220	499	463	-36	-7.3
CH029	Saturated polyester resins:							
	Exports	1,014	1,059	1,159	1,295	1,188	-107	-8.2
	Imports	728	1,199	1,329	1,322	1,302	-21	-1.6
	Trade balance	285	-141	-170	-27	-113	-86	-314.8
CH030	Other plastics in primary forms:							
	Exports	9,106	10,531	11,746	12,860	13,430	570	4.4
	Imports	3,488	4,050	4,244	4,362	4,620	257	5.9
	Trade balance	5,618	6,481	7,502	8,498	8,810	313	3.7
CH031	Synthetic rubber:							
	Exports	2,175	2,664	3,120	3,536	3,674	138	3.9
	Imports	1,093	1,532	1,520	1,510	1,924	414	27.4
	Trade balance	1,082	1,132	1,600	2,026	1,750	-276	-13.6
CH032	Tires and tubes:							
	Exports	2,658	2,926	3,164	3,709	4,279	569	15.3
	Imports	6,321	7,786	8,743	9,462	9,811	350	3.7
	Trade balance	-3,663	-4,860	-5,579	-5,752	-5,533	219	3.8
CH033	Miscellaneous plastic products:							
	Exports	14,307	15,826	17,570	19,218	20,189	970	5.0
	Imports	17,342	19,994	21,738	22,235	22,726	490	2.2
	Trade balance	-3,035	-4,167	-4,168	-3,017	-2,537	480	15.9
CH034	Miscellaneous rubber products:							
	Exports	2,623	2,743	3,055	2,917	2,912	-5	-0.2
	Imports	3,568	3,884	4,074	4,358	4,342	-16	-0.4
	Trade balance	-945	-1,141	-1,019	-1,441	-1,430	11	0.7
CH035	Gelatin:							

See footnote(s) at end of table.

TABLE B.2 Chemicals and related products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Exports	89	88	76	68	69	1	2.0
	Imports	113	116	138	143	150	7	4.8
	Trade balance	-24	-28	-62	-75	-81	-6	-7.3
CH036	Natural rubber:							
	Exports	37	34	33	44	44	-1	-2.2
	Imports	1,466	1,552	2,029	2,119	2,857	738	34.8
	Trade balance	-1,429	-1,517	-1,996	-2,074	-2,813	-739	-35.6

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bThis coding system is used by the U.S. International Trade Commission to identify major groupings and subgroupings of import and export items for trade monitoring purposes.

^cNot meaningful for purposes of comparison.

TABLE B.3 Electronic products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
EL001	Office machines:							
	Exports	682	751	911	1,295	1,221	-73	-5.7
	Imports	1,732	1,793	1,877	2,145	1,876	-270	-12.6
	Trade balance	-1,050	-1,041	-966	-851	-654	196	23.1
EL002	Telecommunications equipment:							
	Exports	13,958	14,183	14,779	16,882	17,151	269	1.6
	Imports	39,341	49,220	53,318	60,699	64,331	3,633	6.0
	Trade balance	-25,382	-35,038	-38,539	-43,817	-47,180	-3,363	-7.7
EL003	Consumer electronics:							
	Exports	3,391	3,536	4,231	4,626	4,466	-160	-3.5
	Imports	41,938	48,577	54,831	57,581	55,257	-2,325	-4.0
	Trade balance	-38,546	-45,041	-50,600	-52,956	-50,791	2,165	4.1
EL003A	Television receivers and video monitors:							
	Exports	874	857	1,101	1,268	1,186	-82	-6.5
	Imports	17,509	22,712	28,628	33,267	34,757	1,490	4.5
	Trade balance	-16,636	-21,854	-27,527	-31,999	-33,571	-1,572	-4.9
EL004	Blank and prerecorded media:							
	Exports	4,282	4,618	4,449	4,139	4,365	227	5.5
	Imports	5,333	5,747	5,748	5,550	4,873	-676	-12.2
	Trade balance	-1,051	-1,129	-1,300	-1,411	-508	903	64.0
EL005	Navigational instruments and remote control apparatus:							
	Exports	3,082	3,217	3,786	4,437	4,105	-332	-7.5
	Imports	2,761	3,241	3,996	5,590	5,794	204	3.7
	Trade balance	321	-23	-210	-1,153	-1,690	-536	-46.5
EL006	Radio and television broadcasting equipment:							
	Exports	1,335	1,544	1,535	1,204	1,194	-11	-0.9
	Imports	4,309	3,830	3,527	2,684	3,050	366	13.7
	Trade balance	-2,974	-2,286	-1,991	-1,479	-1,857	-377	-25.5
EL007	Electric sound and visual signaling apparatus:							
	Exports	1,098	1,092	1,205	1,320	1,389	69	5.3
	Imports	2,145	2,409	2,647	2,776	2,717	-59	-2.1
	Trade balance	-1,047	-1,317	-1,443	-1,456	-1,328	128	8.8

See footnote(s) at end of table.

TABLE B.3 Electronic products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
EL008	Electrical capacitors and resistors:							
	Exports	1,664	1,286	1,825	1,548	1,330	-217	-14.1
	Imports	2,035	2,177	2,721	2,453	2,296	-157	-6.4
	Trade balance	-371	-891	-896	-905	-966	-61	-6.7
EL009	Printed circuits:							
	Exports	1,836	1,781	1,864	1,531	1,389	-142	-9.3
	Imports	2,113	2,123	2,215	2,228	2,082	-145	-6.5
	Trade balance	-277	-342	-351	-697	-693	3	0.5
EL010	Circuit apparatus exceeding 1000V:							
	Exports	507	509	539	597	683	86	14.4
	Imports	309	401	442	460	568	108	23.5
	Trade balance	197	109	97	137	115	-22	-15.9
EL011	Circuit apparatus not exceeding 1000V:							
	Exports	5,138	5,327	6,124	6,517	6,427	-90	-1.4
	Imports	6,259	6,818	7,369	7,777	7,763	-15	-0.2
	Trade balance	-1,120	-1,491	-1,245	-1,261	-1,335	-75	-5.9
EL012	Circuit apparatus assemblies:							
	Exports	1,193	1,447	2,250	2,458	2,560	102	4.1
	Imports	3,341	3,941	4,496	5,026	5,327	302	6.0
	Trade balance	-2,148	-2,493	-2,246	-2,568	-2,768	-200	-7.8
EL013	Parts of circuit apparatus:							
	Exports	2,201	2,348	2,530	2,630	2,406	-224	-8.5
	Imports	1,526	1,730	1,992	2,145	1,911	-234	-10.9
	Trade balance	675	619	538	485	495	10	2.1
EL014	Electron tubes:							
	Exports	1,173	791	465	297	276	-21	-7.2
	Imports	869	759	560	374	340	-34	-9.1
	Trade balance	304	32	-96	-77	-64	13	16.6
EL015	Semiconductors and integrated circuits:							
	Exports	35,130	34,195	37,227	35,487	35,809	323	0.9
	Imports	26,256	25,425	27,022	26,259	25,298	-961	-3.7
	Trade balance	8,874	8,770	10,205	9,227	10,511	1,284	13.9
EL016	Miscellaneous electrical equipment:							
	Exports	1,968	2,419	2,537	2,341	2,141	-201	-8.6
	Imports	3,313	3,333	3,738	3,653	3,857	204	5.6
	Trade balance	-1,345	-914	-1,201	-1,311	-1,716	-405	-30.9
EL017	Computers, peripherals, and parts:							

See footnote(s) at end of table.

TABLE B.3 Electronic products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Exports	27,350	28,862	29,969	28,051	26,554	-1,498	-5.3
	Imports	89,264	93,950	102,468	106,789	102,338	-4,451	-4.2
	Trade balance	-61,914	-65,087	-72,499	-78,738	-75,785	2,953	3.8
EL018	Photographic film and paper:							
	Exports	2,182	2,091	2,336	2,353	2,237	-116	-4.9
	Imports	1,951	1,845	1,657	1,541	1,340	-201	-13.0
	Trade balance	231	246	679	812	897	85	10.5
EL019	Optical fibers, optical fiber bundles and cables:							
	Exports	383	459	568	634	842	207	32.7
	Imports	310	408	554	543	639	96	17.7
	Trade balance	74	51	14	92	203	111	121.1
EL020	Optical goods, including ophthalmic goods:							
	Exports	3,992	4,664	5,041	5,166	4,963	-203	-3.9
	Imports	5,386	5,626	6,294	7,137	7,978	841	11.8
	Trade balance	-1,395	-962	-1,253	-1,971	-3,016	-1,045	-53.0
EL021	Photographic cameras and equipment:							
	Exports	1,197	1,175	1,177	1,423	1,610	187	13.1
	Imports	2,382	1,880	1,612	1,614	1,261	-353	-21.9
	Trade balance	-1,185	-704	-435	-191	349	540	(^c)
EL022	Medical goods:							
	Exports	18,548	21,114	23,443	25,446	28,415	2,969	11.7
	Imports	19,324	20,947	22,573	24,878	27,531	2,653	10.7
	Trade balance	-776	166	871	569	884	316	55.5
EL023	Watches and clocks:							
	Exports	271	255	304	391	416	25	6.4
	Imports	3,634	3,795	3,964	4,168	4,175	7	0.2
	Trade balance	-3,363	-3,539	-3,660	-3,777	-3,758	18	0.5
EL024	Drawing, drafting, and calculating instruments:							
	Exports	397	485	619	766	665	-101	-13.1
	Imports	264	335	293	263	256	-7	-2.8
	Trade balance	133	151	326	503	410	-93	-18.5

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See footnote(s) at end of table.

TABLE B.3 Electronic products: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
EL025	Measuring, testing, and controlling instruments:							
	Exports	16,603	17,399	19,669	20,963	22,195	1,232	5.9
	Imports	14,367	15,359	16,573	18,678	18,764	86	0.5
	Trade balance	2,237	2,040	3,096	2,286	3,431	1,146	50.1

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bThis coding system is used by the U.S. International Trade Commission to identify major groupings and subgroupings of import and export items for trade monitoring purposes.

^cNot meaningful for purposes of comparison.

TABLE B.4 Energy-related products : U.S. trade for industry/commodity groups and subgroups, 2004–08^a

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
EP001	Electrical energy:							
	Exports	829	1,039	1,052	991	1,386	395	39.9
	Imports	1,261	2,479	2,518	2,713	3,641	927	34.2
	Trade balance	-432	-1,440	-1,466	-1,722	-2,254	-532	-30.9
EP002	Nuclear materials:							
	Exports	1,575	1,562	1,822	2,424	2,141	-283	-11.7
	Imports	2,625	3,175	3,910	5,273	5,435	162	3.1
	Trade balance	-1,050	-1,613	-2,088	-2,848	-3,294	-445	-15.6
EP003	Coal, coke, and related chemical products:							
	Exports	3,556	4,318	5,179	5,877	10,255	4,379	74.5
	Imports	5,555	6,316	6,930	6,880	9,102	2,222	32.3
	Trade balance	-1,998	-1,998	-1,751	-1,003	1,154	2,157	(^c)
EP004	Crude petroleum:							
	Exports	265	627	852	993	2,296	1,303	131.1
	Imports	100,338	137,331	171,243	186,476	274,950	88,474	47.4
	Trade balance	-100,073	-136,704	-170,391	-185,482	-272,654	-87,172	-47.0
EP005	Petroleum products:							
	Exports	12,651	18,302	26,407	31,484	58,765	27,282	86.7
	Imports	51,579	77,684	89,448	98,577	126,441	27,864	28.3
	Trade balance	-38,928	-59,382	-63,042	-67,094	-67,675	-582	-0.9
EP006	Natural gas and components:							
	Exports	2,906	4,045	3,688	4,905	6,893	1,988	40.5
	Imports	34,195	46,211	45,118	44,910	52,757	7,847	17.5
	Trade balance	-31,289	-42,166	-41,430	-40,005	-45,864	-5,859	-14.6

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bThis coding system is used by the U.S. International Trade Commission to identify major groupings and subgroupings of import and export items for trade monitoring purposes.

^cNot meaningful for purposes of comparison.

TABLE B.5 Forest products : U.S. trade for industry/commodity groups and subgroups, 2004–08^a

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
FP001	Logs and rough wood products:							
	Exports	1,708	1,741	1,744	2,061	2,116	55	2.7
	Imports	658	782	832	746	567	-179	-24.0
	Trade balance	1,051	959	913	1,314	1,549	234	17.8
FP002	Lumber:							
	Exports	1,930	2,026	2,275	2,124	1,889	-235	-11.1
	Imports	8,808	9,005	8,335	6,508	4,404	-2,104	-32.3
	Trade balance	-6,879	-6,978	-6,060	-4,384	-2,515	1,869	42.6
FP003	Moldings, millwork, and joinery:							
	Exports	551	585	633	664	728	64	9.7
	Imports	4,184	4,433	4,750	3,894	3,040	-853	-21.9
	Trade balance	-3,633	-3,848	-4,116	-3,230	-2,312	917	28.4
FP004	Wood veneer and wood panels:							
	Exports	1,037	1,028	1,128	1,174	1,171	-3	-0.2
	Imports	7,115	7,218	6,623	5,169	3,941	-1,228	-23.8
	Trade balance	-6,078	-6,190	-5,495	-3,995	-2,770	1,226	30.7
FP005	Wooden containers:							
	Exports	145	176	210	212	266	53	25.1
	Imports	635	698	737	754	722	-32	-4.2
	Trade balance	-490	-522	-527	-541	-456	85	15.7
FP006	Tools and tool handles of wood:							
	Exports	51	37	46	50	73	22	44.5
	Imports	151	171	173	182	191	10	5.4
	Trade balance	-99	-133	-127	-131	-119	13	9.5
FP007	Miscellaneous articles of wood:							
	Exports	188	218	224	228	251	23	10.2
	Imports	1,359	1,465	1,462	1,402	1,276	-126	-9.0
	Trade balance	-1,171	-1,246	-1,239	-1,174	-1,025	149	12.7
FP008	Cork and rattan:							
	Exports	57	70	90	62	71	9	13.9
	Imports	643	673	678	698	705	6	0.9
	Trade balance	-586	-602	-587	-636	-634	2	0.4
FP009	Wood pulp and wastepaper:							
	Exports	4,521	5,081	5,749	6,916	7,809	894	12.9
	Imports	2,953	3,074	3,194	3,750	4,023	272	7.3
	Trade balance	1,567	2,006	2,554	3,165	3,787	621	19.6
FP010	Paper boxes and bags:							

See footnote(s) at end of table.

TABLE B.5 Forest products : U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Exports	1,490	1,492	1,625	1,598	1,616	18	1.1
	Imports	1,357	1,492	1,710	1,801	1,793	-8	-0.4
	Trade balance	133	1	-85	-203	-177	26	12.6
FP011	Industrial papers and paperboards:							
	Exports	5,733	6,287	6,788	7,518	8,281	763	10.1
	Imports	4,240	4,388	4,713	4,895	5,252	357	7.3
	Trade balance	1,492	1,900	2,075	2,623	3,028	406	15.5
FP011A	Paperboard:							
	Exports	3,993	4,432	4,769	5,356	5,889	534	10.0
	Imports	2,063	2,021	2,320	2,337	2,461	124	5.3
	Trade balance	1,930	2,411	2,449	3,018	3,428	410	13.6
FP011B	Tissue and tissue products:							
	Exports	1,166	1,240	1,363	1,454	1,621	166	11.4
	Imports	1,544	1,695	1,724	1,834	2,018	185	10.1
	Trade balance	-377	-455	-361	-379	-398	-18	-4.8
FP011C	Industrial paper:							
	Exports	573	615	656	708	771	63	8.9
	Imports	634	672	669	724	773	49	6.8
	Trade balance	-60	-57	-13	-16	-3	14	84.0
FP012	Newsprint:							
	Exports	322	383	355	410	605	195	47.5
	Imports	2,975	3,074	3,074	2,384	2,365	-19	-0.8
	Trade balance	-2,653	-2,691	-2,719	-1,973	-1,759	214	10.8
FP013	Printing and writing papers:							
	Exports	692	811	902	1,135	1,190	55	4.8
	Imports	5,564	5,972	6,149	5,754	5,672	-82	-1.4
	Trade balance	-4,872	-5,162	-5,247	-4,619	-4,482	137	3.0
FP014	Certain specialty papers:							
	Exports	1,232	1,304	1,360	1,529	1,611	82	5.4
	Imports	817	859	1,033	1,062	957	-105	-9.9
	Trade balance	415	445	327	467	654	187	40.0

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See footnote(s) at end of table.

TABLE B.5 Forest products : U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
FP015	Miscellaneous paper products:							
	Exports	1,551	1,663	1,811	1,755	1,860	105	6.0
	Imports	1,900	2,041	2,113	2,336	2,335	-1	-0.1
	Trade balance	-350	-378	-302	-581	-475	106	18.3
FP016	Printed matter:							
	Exports	4,431	4,906	5,217	5,652	5,825	173	3.1
	Imports	4,230	4,660	4,842	5,227	5,048	-179	-3.4
	Trade balance	200	246	375	425	777	352	82.8

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bThis coding system is used by the U.S. International Trade Commission to identify major groupings and subgroupings of import and export items for trade monitoring purposes.

TABLE B.6 Minerals and metals: U.S. trade for industry/commodity groups and subgroups, 2004–08^a

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
MM001	Clays and related mineral products:							
	Exports	1,069	1,127	1,236	1,263	1,280	17	1.4
	Imports	210	231	281	282	294	12	4.4
	Trade balance	859	896	955	982	986	5	0.5
MM002	Fluorspar and miscellaneous mineral substances:							
	Exports	36	40	37	43	50	7	16.9
	Imports	167	192	202	198	393	195	98.5
	Trade balance	-131	-151	-165	-155	-342	-188	-121.2
MM003	Iron ores and concentrates:							
	Exports	334	584	636	718	1,244	526	73.2
	Imports	370	532	610	543	917	375	69.0
	Trade balance	-36	52	25	176	327	151	86.2
MM004	Copper ores and concentrates:							
	Exports	134	363	770	1,041	1,731	690	66.4
	Imports	25	(^c)	(^c)	(^c)	1	1	562.5
	Trade balance	109	362	770	1,040	1,730	689	66.3
MM005	Lead ores, concentrates, and residues:							
	Exports	215	230	362	619	372	-247	-40.0
	Imports	(^c)	(^c)	(^c)	(^c)	(^c)	(^c)	-93.4
	Trade balance	215	230	362	619	372	-247	-39.9
MM005A	Lead ores and concentrates:							
	Exports	207	224	347	606	370	-235	-38.9
	Imports	0	0	(^c)	(^c)	(^c)	(^c)	46.3
	Trade balance	207	224	347	606	370	-235	-38.9
MM006	Zinc ores, concentrates, and residues:							
	Exports	426	490	1,076	1,204	616	-589	-48.9
	Imports	109	129	229	203	91	-112	-55.4
	Trade balance	317	361	846	1,002	525	-477	-47.6
MM006A	Zinc ores and concentrates:							
	Exports	417	483	1,068	1,191	610	-581	-48.7
	Imports	99	117	183	170	73	-97	-57.0
	Trade balance	319	366	885	1,021	537	-484	-47.4
MM007	Certain ores, concentrates, ash, and residues:							
	Exports	507	1,643	1,687	1,917	2,073	155	8.1
	Imports	962	1,537	1,364	1,818	2,403	586	32.2
	Trade balance	-454	107	324	100	-331	-430	(^d)
MM007A	Molybdenum ores and concentrates:							

See footnote(s) at end of table.

TABLE B.6 Minerals and metals: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Exports	358	1,447	1,457	1,637	1,814	178	10.8
	Imports	268	746	395	553	512	-41	-7.4
	Trade balance	90	701	1,062	1,084	1,303	219	20.2
MM008	Precious metal ores and concentrates:							
	Exports	40	27	49	66	251	186	283.4
	Imports	21	20	14	10	18	8	87.5
	Trade balance	19	7	35	56	233	177	317.5
MM008A	Gold ores and concentrates:							
	Exports	16	16	40	49	66	16	32.5
	Imports	19	19	13	8	16	8	94.7
	Trade balance	-3	-3	27	41	50	8	20.4
MM008B	Silver ores and concentrates:							
	Exports	2	2	4	9	99	90	964.3
	Imports	2	(^c)	0	(^c)	(^c)	(^c)	-79.7
	Trade balance	(^c)	2	4	9	99	90	1,000.7
MM009	Cement, stone, and related products:							
	Exports	1,648	1,853	2,399	2,512	2,554	42	1.7
	Imports	5,897	7,144	8,151	7,637	6,499	-1,138	-14.9
	Trade balance	-4,248	-5,291	-5,753	-5,125	-3,945	1,179	23.0
MM009A	Cement:							
	Exports	63	68	114	126	106	-20	-15.9
	Imports	1,139	1,563	1,842	1,324	789	-535	-40.4
	Trade balance	-1,076	-1,494	-1,728	-1,198	-682	515	43.0
MM010	Industrial ceramics:							
	Exports	625	702	784	981	998	17	1.8
	Imports	672	749	880	919	1,037	118	12.9
	Trade balance	-48	-47	-96	62	-39	-101	(^d)
MM011	Ceramic bricks and similar articles:							
	Exports	46	39	43	52	47	-5	-9.4
	Imports	50	67	94	72	68	-4	-6.0
	Trade balance	-4	-27	-51	-21	-21	(^c)	-2.3
MM012	Ceramic floor and wall tiles:							
	Exports	27	31	37	42	44	2	4.0
	Imports	1,631	1,800	1,919	1,638	1,378	-260	-15.9
	Trade balance	-1,604	-1,768	-1,881	-1,597	-1,335	262	16.4
MM013	Ceramic household articles:							
	Exports	107	104	99	118	119	1	1.0

See footnote(s) at end of table.

TABLE B.6 Minerals and metals: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Imports	1,683	1,687	1,737	1,734	1,538	-196	-11.3
	Trade balance	-1,577	-1,583	-1,638	-1,616	-1,418	197	12.2
MM014	Flat glass:							
	Exports	1,882	1,987	2,204	2,413	2,432	18	0.8
	Imports	1,959	2,041	2,143	2,120	1,879	-240	-11.3
	Trade balance	-77	-53	61	294	552	259	88.2
MM015	Glass containers:							
	Exports	185	180	180	237	262	25	10.7
	Imports	659	700	794	902	970	67	7.4
	Trade balance	-474	-520	-614	-666	-707	-42	-6.3
MM016	Household glassware:							
	Exports	183	183	205	220	236	16	7.2
	Imports	947	908	895	919	823	-96	-10.4
	Trade balance	-764	-725	-689	-698	-586	112	16.0
MM017	Miscellaneous glass products:							
	Exports	812	702	866	813	828	15	1.8
	Imports	822	806	916	974	990	16	1.7
	Trade balance	-10	-104	-51	-161	-162	-2	-1.0
MM018	Fiberglass insulation products:							
	Exports	92	93	73	98	121	23	24.0
	Imports	214	249	272	133	118	-15	-11.5
	Trade balance	-122	-156	-198	-35	4	39	(^d)
MM019	Natural and synthetic gemstones:							
	Exports	1,129	2,765	4,087	5,572	6,248	676	12.1
	Imports	15,690	17,352	18,452	20,239	21,072	832	4.1
	Trade balance	-14,562	-14,587	-14,366	-14,667	-14,823	-156	-1.1
MM020	Precious metals and non-numismatic coins:							
	Exports	6,204	7,522	13,360	19,289	26,534	7,245	37.6
	Imports	9,055	10,029	14,232	16,022	18,750	2,728	17.0
	Trade balance	-2,851	-2,507	-872	3,267	7,784	4,517	138.3
MM020A	Unrefined and refined gold:							
	Exports	3,465	4,636	7,171	11,509	16,276	4,767	41.4
	Imports	3,680	4,112	5,029	3,934	5,454	1,520	38.6
	Trade balance	-215	524	2,142	7,575	10,821	3,247	42.9
MM021	Primary iron products:							
	Exports	10	12	12	8	19	12	152.5
	Imports	1,898	2,033	2,227	2,236	3,856	1,620	72.4

See footnote(s) at end of table.

TABLE B.6 Minerals and metals: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Trade balance	-1,887	-2,021	-2,215	-2,229	-3,837	-1,608	-72.2
MM022	Ferroalloys:							
	Exports	81	162	146	206	220	14	6.9
	Imports	1,885	1,834	1,954	2,788	4,310	1,522	54.6
	Trade balance	-1,805	-1,673	-1,807	-2,582	-4,090	-1,508	-58.4
MM023	Iron and steel waste and scrap:							
	Exports	2,923	3,451	4,256	6,910	10,384	3,474	50.3
	Imports	1,244	921	1,255	1,051	1,456	405	38.5
	Trade balance	1,680	2,529	3,001	5,859	8,928	3,069	52.4
MM024	Abrasive and ferrous products:							
	Exports	543	597	621	684	700	16	2.3
	Imports	889	984	1,048	1,083	1,084	(^c)	(^e)
	Trade balance	-346	-387	-427	-399	-384	15	3.9
MM024A	Abrasive products:							
	Exports	345	390	417	436	424	-12	-2.7
	Imports	631	658	712	736	716	-20	-2.7
	Trade balance	-286	-268	-295	-300	-292	8	2.7
MM025	Steel mill products:							
	Exports	7,015	9,331	10,479	12,535	16,737	4,202	33.5
	Imports	21,559	23,534	31,500	29,204	36,870	7,666	26.2
	Trade balance	-14,544	-14,203	-21,020	-16,670	-20,133	-3,463	-20.8
MM025A	Ingots, blooms, billets, and slabs of carbon and alloy steels:							
	Exports	169	171	163	359	633	273	76.1
	Imports	2,700	2,944	3,836	3,050	4,231	1,181	38.7
	Trade balance	-2,531	-2,774	-3,673	-2,691	-3,598	-907	-33.7
MM025B	Plates, sheets, and strips of carbon and alloy steel:							
	Exports	2,853	4,045	4,137	4,484	6,164	1,680	37.5
	Imports	7,406	6,962	10,510	7,133	8,701	1,568	22.0
	Trade balance	-4,554	-2,917	-6,373	-2,650	-2,538	112	4.2

See footnote(s) at end of table.

TABLE B.6 Minerals and metals: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
MM025C	Bars, rods, and light shapes of carbon and alloy steels:							
	Exports	697	837	999	1,162	1,706	544	46.9
	Imports	3,769	3,327	4,043	3,164	3,588	424	13.4
	Trade balance	-3,072	-2,490	-3,044	-2,002	-1,881	121	6.0
MM025D	Angles, shapes, and sections of carbon and alloy steels:							
	Exports	372	467	603	862	1,086	224	26.0
	Imports	448	512	769	781	885	104	13.3
	Trade balance	-76	-45	-166	81	201	120	148.1
MM025E	Wire of carbon and alloy steels:							
	Exports	275	226	243	240	293	53	22.1
	Imports	731	743	782	721	840	119	16.5
	Trade balance	-456	-517	-540	-481	-547	-66	-13.7
MM025F	Ingots, blooms, billets, and slabs of stainless steel:							
	Exports	46	41	60	98	139	41	41.3
	Imports	388	407	411	628	546	-83	-13.1
	Trade balance	-342	-366	-351	-530	-406	123	23.3
MM025G	Plates, sheets, and strips of stainless steels:							
	Exports	632	853	919	1,292	1,360	68	5.3
	Imports	1,139	1,206	1,768	2,380	1,976	-403	-17.0
	Trade balance	-507	-354	-849	-1,088	-616	471	43.3
MM025H	Bars, rods, and light shapes of stainless steels:							
	Exports	131	165	252	297	323	26	8.7
	Imports	378	572	588	793	814	20	2.5
	Trade balance	-247	-407	-336	-497	-491	6	1.1
MM025I	Angles, shapes, and sections of stainless steels:							
	Exports	7	12	15	20	19	-1	-6.3
	Imports	16	18	31	37	31	-6	-17.5
	Trade balance	-9	-6	-16	-17	-12	5	30.3
MM025J	Wire of stainless steels:							
	Exports	56	44	52	62	71	9	15.3
	Imports	143	174	209	273	245	-28	-10.2
	Trade balance	-87	-130	-157	-211	-173	37	17.7

See footnote(s) at end of table.

TABLE B.6 Minerals and metals: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
MM025K	Rails and accessories of carbon and alloy steels:							
	Exports	104	134	169	222	339	117	52.9
	Imports	221	286	374	397	436	39	9.8
	Trade balance	-117	-152	-205	-175	-97	78	44.6
MM025L	Pipes and tubes of carbon and alloy steels:							
	Exports	1,360	1,904	2,347	2,607	3,604	998	38.3
	Imports	3,483	5,259	6,953	8,194	12,933	4,739	57.8
	Trade balance	-2,123	-3,354	-4,605	-5,587	-9,328	-3,742	-67.0
MM025M	Pipes and tubes of stainless steels:							
	Exports	160	232	282	367	416	49	13.3
	Imports	465	657	821	1,180	1,102	-78	-6.6
	Trade balance	-305	-425	-538	-813	-686	127	15.6
MM025N	Tool steels:							
	Exports	153	200	239	431	544	113	26.1
	Imports	271	466	405	397	464	67	16.9
	Trade balance	-118	-266	-166	34	80	45	133.1
MM026	Steel pipe and tube fittings and certain cast products:							
	Exports	900	1,017	1,277	1,393	1,657	264	18.9
	Imports	838	1,052	1,307	1,650	1,928	278	16.9
	Trade balance	62	-35	-30	-257	-272	-14	-5.6
MM027	Fabricated structurals:							
	Exports	203	278	376	379	590	211	55.6
	Imports	508	776	1,176	1,620	2,140	520	32.1
	Trade balance	-305	-498	-800	-1,241	-1,550	-309	-24.9
MM028	Metal construction components:							
	Exports	675	773	970	1,087	1,306	218	20.1
	Imports	1,501	1,692	2,074	2,613	2,767	154	5.9
	Trade balance	-826	-918	-1,104	-1,526	-1,461	64	4.2
MM029	Metallic containers:							
	Exports	716	904	1,088	1,291	1,461	171	13.2
	Imports	760	828	898	1,036	1,165	129	12.5
	Trade balance	-44	76	190	254	296	42	16.4

See footnote(s) at end of table.

TABLE B.6 Minerals and metals: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
MM030	Wire products of base metal:							
	Exports	853	966	1,104	1,144	1,282	139	12.1
	Imports	2,191	2,473	2,538	2,571	2,811	240	9.3
	Trade balance	-1,338	-1,507	-1,434	-1,427	-1,529	-101	-7.1
MM031	Miscellaneous products of base metal:							
	Exports	5,255	5,893	6,865	7,411	7,644	233	3.1
	Imports	10,163	11,619	12,852	13,433	12,915	-518	-3.9
	Trade balance	-4,908	-5,726	-5,987	-6,021	-5,271	751	12.5
MM032	Industrial fasteners of base metal:							
	Exports	1,672	1,894	2,218	2,358	2,457	100	4.2
	Imports	2,977	3,443	3,684	3,755	4,098	343	9.1
	Trade balance	-1,305	-1,548	-1,466	-1,398	-1,641	-243	-17.4
MM033	Cooking and kitchen ware:							
	Exports	198	204	225	290	277	-13	-4.5
	Imports	2,170	2,431	2,581	2,621	2,505	-116	-4.4
	Trade balance	-1,972	-2,227	-2,355	-2,331	-2,228	103	4.4
MM034	Metal and ceramic sanitary ware:							
	Exports	159	162	180	210	221	11	5.3
	Imports	1,062	1,230	1,371	1,432	1,370	-62	-4.3
	Trade balance	-903	-1,069	-1,190	-1,222	-1,149	73	6.0
MM035	Construction castings and other cast-iron articles:							
	Exports	30	39	48	49	68	18	37.6
	Imports	180	217	223	241	241	(^c)	(^c)
	Trade balance	-151	-177	-175	-192	-173	19	9.7
MM036	Copper and related articles:							
	Exports	3,006	3,405	6,052	6,684	6,691	7	0.1
	Imports	5,565	7,766	13,803	12,577	11,153	-1,424	-11.3
	Trade balance	-2,559	-4,360	-7,751	-5,893	-4,462	1,431	24.3
MM036A	Unrefined and refined copper:							
	Exports	339	157	255	216	246	30	13.7
	Imports	2,411	3,659	7,093	6,770	6,038	-732	-10.8
	Trade balance	-2,071	-3,501	-6,838	-6,553	-5,792	761	11.6
MM036B	Copper alloy plate, sheet, and strip:							
	Exports	198	275	284	309	333	23	7.6
	Imports	176	168	252	242	198	-45	-18.5
	Trade balance	22	107	32	67	135	68	102.1
MM037	Unwrought aluminum:							

See footnote(s) at end of table.

TABLE B.6 Minerals and metals: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Exports	1,397	2,087	3,508	4,083	4,355	272	6.7
	Imports	6,837	8,153	10,317	9,462	9,168	-295	-3.1
	Trade balance	-5,440	-6,067	-6,809	-5,380	-4,813	567	10.5
MM037A	Primary and secondary aluminum:							
	Exports	608	716	1,004	1,011	996	-15	-1.5
	Imports	6,001	7,199	9,114	8,309	7,853	-456	-5.5
	Trade balance	-5,393	-6,483	-8,110	-7,298	-6,857	441	6.0
MM038	Aluminum mill products:							
	Exports	3,171	3,757	4,592	4,779	5,232	453	9.5
	Imports	3,512	4,696	5,768	5,609	5,112	-497	-8.9
	Trade balance	-342	-938	-1,176	-831	120	951	(^d)
MM038A	Aluminum bars, rods, and profiles:							
	Exports	304	417	553	568	592	24	4.3
	Imports	581	774	1,049	985	825	-161	-16.3
	Trade balance	-277	-357	-496	-417	-232	185	44.3
MM038B	Aluminum wire:							
	Exports	97	115	148	179	207	28	15.8
	Imports	359	432	571	598	574	-25	-4.1
	Trade balance	-263	-316	-423	-419	-366	53	12.6
MM038C	Aluminum plate, sheet, and strip:							
	Exports	2,077	2,489	3,025	3,161	3,431	270	8.6
	Imports	1,817	2,568	3,079	2,919	2,590	-329	-11.3
	Trade balance	260	-79	-54	241	841	600	248.3
MM038D	Aluminum foil:							
	Exports	403	442	538	547	577	30	5.5
	Imports	565	715	822	810	809	-1	-0.1
	Trade balance	-163	-273	-284	-263	-232	31	11.8
MM038E	Aluminum tubes, pipes, and fittings:							
	Exports	237	247	287	287	385	97	33.9
	Imports	171	181	216	254	271	18	7.0
	Trade balance	66	66	71	34	113	79	236.4
MM039	Lead and related articles:							
	Exports	108	110	137	246	340	94	38.1
	Imports	203	335	451	734	850	116	15.8
	Trade balance	-95	-226	-315	-488	-510	-23	-4.6
MM039A	Refined lead:							
	Exports	38	35	52	68	101	33	48.6

See footnote(s) at end of table.

TABLE B.6 Minerals and metals: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Imports	128	242	322	391	330	-62	-15.7
	Trade balance	-90	-207	-270	-323	-228	95	29.3
MM040	Zinc and related articles:							
	Exports	139	148	246	315	272	-43	-13.7
	Imports	1,135	1,139	2,524	2,807	1,765	-1,042	-37.1
	Trade balance	-996	-991	-2,278	-2,492	-1,494	999	40.1
MM040A	Unwrought zinc:							
	Exports	5	1	4	6	3	-3	-49.2
	Imports	947	920	2,181	2,402	1,479	-923	-38.4
	Trade balance	-941	-918	-2,177	-2,395	-1,476	920	38.4
MM041	Certain base metals and chemical elements:							
	Exports	1,913	2,882	3,792	4,119	4,453	335	8.1
	Imports	3,825	4,417	5,924	7,959	7,253	-706	-8.9
	Trade balance	-1,912	-1,535	-2,131	-3,840	-2,800	1,040	27.1
MM041A	Titanium ingot:							
	Exports	14	33	41	44	20	-25	-55.8
	Imports	15	39	59	54	37	-17	-31.3
	Trade balance	(^c)	-6	-18	-9	-17	-8	-85.0
MM042	Nonpowered handtools:							
	Exports	2,361	2,508	2,880	3,165	3,570	405	12.8
	Imports	4,136	4,226	4,770	4,919	4,886	-34	-0.7
	Trade balance	-1,776	-1,717	-1,889	-1,754	-1,316	438	25.0
MM043	Certain cutlery, sewing implements, and related products:							
	Exports	553	592	592	597	671	74	12.3
	Imports	1,133	1,243	1,358	1,470	1,491	21	1.4
	Trade balance	-580	-651	-765	-873	-820	53	6.1
MM044	Table flatware and related products:							
	Exports	24	37	35	37	51	15	40.3
	Imports	518	563	572	624	556	-67	-10.8
	Trade balance	-494	-526	-536	-587	-505	82	14.0

See footnote(s) at end of table.

TABLE B.6 Minerals and metals: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
MM045	Certain builders' hardware:							
	Exports	982	1,035	1,052	1,063	1,054	-8	-0.8
	Imports	3,063	3,593	4,155	4,346	4,004	-342	-7.9
	Trade balance	-2,080	-2,558	-3,103	-3,284	-2,950	334	10.2

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bThis coding system is used by the U.S. International Trade Commission to identify major groupings and subgroupings of import and export items for trade monitoring purposes.

^cLess than \$500,000.

^dNot meaningful for purposes of comparison.

^eLess than 0.05 percent.

TABLE B.7 Miscellaneous manufactures: U.S. trade for industry/commodity groups and subgroups, 2004–08^a

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
MS001	Luggage, handbags, and flat goods:							
	Exports	315	384	466	434	462	29	6.6
	Imports	5,585	6,151	6,834	7,535	7,833	298	4.0
	Trade balance	-5,270	-5,767	-6,368	-7,101	-7,370	-270	-3.8
MS001A	Luggage:							
	Exports	195	204	268	279	318	39	14.0
	Imports	3,044	3,259	3,758	4,062	4,338	277	6.8
	Trade balance	-2,849	-3,056	-3,490	-3,782	-4,020	-238	-6.3
MS001B	Handbags:							
	Exports	87	149	161	116	100	-16	-13.5
	Imports	1,926	2,220	2,366	2,676	2,680	4	0.1
	Trade balance	-1,839	-2,071	-2,204	-2,560	-2,580	-20	-0.8
MS001C	Flat goods:							
	Exports	26	23	29	29	34	6	20.0
	Imports	532	580	616	712	734	22	3.1
	Trade balance	-506	-557	-588	-684	-700	-16	-2.4
MS002	Certain other leather goods:							
	Exports	124	221	235	156	153	-3	-1.8
	Imports	384	408	464	502	466	-36	-7.1
	Trade balance	-260	-186	-229	-346	-313	33	9.6
MS003	Musical instruments and accessories:							
	Exports	456	516	561	590	660	70	11.9
	Imports	1,503	1,531	1,413	1,383	1,447	64	4.6
	Trade balance	-1,047	-1,014	-852	-793	-787	6	0.7
MS004	Umbrellas, whips, riding crops, and canes:							
	Exports	8	10	12	13	16	3	22.2
	Imports	341	371	386	420	443	22	5.3
	Trade balance	-333	-361	-374	-407	-426	-19	-4.8
MS005	Silverware and related articles of precious metal:							
	Exports	180	184	167	180	380	201	111.6
	Imports	81	85	302	294	849	555	188.9
	Trade balance	99	98	-136	-114	-468	-354	-310.6
MS006	Precious jewelry and related articles:							

See footnote(s) at end of table.

TABLE B.7 Miscellaneous manufactures: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Exports	2,270	2,721	3,694	4,193	4,266	73	1.7
	Imports	7,492	8,359	9,553	9,463	7,322	-2,141	-22.6
	Trade balance	-5,222	-5,638	-5,858	-5,271	-3,057	2,214	42.0
MS007	Costume jewelry and related articles:							
	Exports	109	126	166	161	187	26	16.2
	Imports	947	1,214	1,317	1,410	1,400	-10	-0.7
	Trade balance	-838	-1,088	-1,151	-1,249	-1,213	37	2.9
MS008	Bicycles and certain parts:							
	Exports	266	288	300	361	363	2	0.5
	Imports	1,260	1,434	1,342	1,454	1,732	278	19.1
	Trade balance	-994	-1,146	-1,041	-1,093	-1,370	-277	-25.3
MS009	Furniture:							
	Exports	2,787	3,020	3,354	3,691	4,229	538	14.6
	Imports	21,819	24,296	26,078	26,731	25,285	-1,446	-5.4
	Trade balance	-19,031	-21,276	-22,724	-23,041	-21,057	1,984	8.6
MS010	Writing instruments and related articles:							
	Exports	228	210	209	203	191	-12	-5.7
	Imports	1,215	1,225	1,335	1,455	1,296	-159	-10.9
	Trade balance	-986	-1,015	-1,125	-1,252	-1,105	148	11.8
MS011	Lamps and lighting fittings:							
	Exports	677	742	825	945	1,073	128	13.6
	Imports	5,319	5,831	6,180	6,211	5,988	-224	-3.6
	Trade balance	-4,641	-5,089	-5,356	-5,266	-4,914	352	6.7
MS012	Prefabricated buildings:							
	Exports	353	447	476	561	821	260	46.2
	Imports	403	427	417	408	335	-73	-17.8
	Trade balance	-50	21	59	153	486	332	217.0
MS013	Toys and games:							
	Exports	1,523	1,834	2,172	2,948	2,539	-409	-13.9
	Imports	15,052	17,069	17,840	22,778	23,809	1,032	4.5
	Trade balance	-13,529	-15,235	-15,668	-19,830	-21,271	-1,441	-7.3

See footnote(s) at end of table.

TABLE B.7 Miscellaneous manufactures: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
MS014	Sporting goods:							
	Exports	1,670	1,735	1,813	1,882	1,972	90	4.8
	Imports	4,581	4,978	5,600	5,847	5,817	-29	-0.5
	Trade balance	-2,911	-3,243	-3,787	-3,965	-3,845	120	3.0
MS015	Smokers' articles:							
	Exports	99	96	96	100	97	-3	-2.8
	Imports	191	204	211	225	191	-34	-15.2
	Trade balance	-93	-107	-115	-126	-94	31	25.0
MS016	Brooms, brushes, and hair grooming articles:							
	Exports	258	272	283	282	282	-1	-0.3
	Imports	1,112	1,236	1,275	1,363	1,404	40	3.0
	Trade balance	-854	-964	-992	-1,081	-1,122	-41	-3.8
MS016A	Brooms and brushes:							
	Exports	239	253	265	263	261	-2	-0.7
	Imports	945	1,049	1,070	1,137	1,180	43	3.8
	Trade balance	-707	-796	-804	-874	-919	-45	-5.2
MS016B	Hair grooming articles, non-electric (except brushes):							
	Exports	19	18	18	19	20	1	4.6
	Imports	166	187	205	226	223	-3	-1.4
	Trade balance	-147	-168	-187	-207	-203	4	1.9
MS017	Works of art and miscellaneous manufactured goods:							
	Exports	1,806	2,423	3,837	5,011	6,064	1,053	21.0
	Imports	9,662	9,943	11,228	13,359	11,849	-1,509	-11.3
	Trade balance	-7,857	-7,520	-7,392	-8,347	-5,785	2,562	30.7
MS018	Apparel fasteners:							
	Exports	158	145	154	147	127	-20	-13.6
	Imports	81	80	83	90	89	-1	-1.1
	Trade balance	77	65	71	57	38	-19	-33.4
MS019	Arms, ammunition, and armored vehicles:							
	Exports	2,936	3,060	3,616	4,097	3,939	-158	-3.9
	Imports	1,641	1,718	2,240	2,976	3,280	304	10.2
	Trade balance	1,295	1,342	1,376	1,121	659	-462	-41.2
MS019A	Small arms and ammunition:							
	Exports	777	823	905	1,204	1,116	-88	-7.3
	Imports	1,059	1,071	1,389	1,776	1,884	108	6.1
	Trade balance	-281	-249	-484	-572	-768	-196	-34.2

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

TABLE B.7 Miscellaneous manufactures: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bThis coding system is used by the U.S. International Trade Commission to identify major groupings and subgroupings of import and export items for trade monitoring purposes.

TABLE B.8 Machinery: U.S. trade for industry/commodity groups and subgroups, 2004–08^a

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
MT001	Pumps for liquids:							
	Exports	2,725	2,963	3,565	4,174	4,937	763	18.3
	Imports	2,673	3,302	3,952	4,452	4,934	483	10.8
	Trade balance	51	-339	-386	-277	3	280	(^c)
MT002	Air-conditioning equipment and parts:							
	Exports	5,794	6,340	6,861	7,061	7,830	770	10.9
	Imports	8,533	9,531	10,748	11,266	10,859	-406	-3.6
	Trade balance	-2,739	-3,192	-3,886	-4,205	-3,029	1,176	28.0
MT003	Industrial thermal-processing equipment and furnaces:							
	Exports	2,789	3,220	3,540	3,731	4,493	762	20.4
	Imports	1,880	2,350	2,853	3,356	4,094	738	22.0
	Trade balance	910	870	687	375	399	24	6.5
MT004	Household appliances, including commercial applications:							
	Exports	5,193	5,733	6,515	6,915	7,298	383	5.5
	Imports	12,489	14,464	16,574	17,904	18,350	447	2.5
	Trade balance	-7,296	-8,731	-10,059	-10,989	-11,053	-64	-0.6
MT004A	Major household appliances and parts:							
	Exports	1,773	1,991	2,309	2,409	2,487	78	3.3
	Imports	3,440	4,360	5,684	6,383	6,440	57	0.9
	Trade balance	-1,667	-2,369	-3,375	-3,975	-3,953	21	0.5
MT005	Centrifuges and filtering and purifying equipment:							
	Exports	3,277	3,505	4,060	4,788	5,290	502	10.5
	Imports	3,088	3,192	3,871	4,755	5,259	504	10.6
	Trade balance	189	313	189	33	31	-3	-7.9
MT006	Wrapping, packaging, and can-sealing machinery:							
	Exports	707	727	777	787	863	76	9.6
	Imports	1,725	1,811	1,966	2,206	2,282	76	3.5
	Trade balance	-1,018	-1,084	-1,188	-1,419	-1,419	(^d)	(^e)

See footnote(s) at end of table.

TABLE B.8 Machinery: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
MT007	Scales and weighing machinery:							
	Exports	155	148	155	174	192	18	10.2
	Imports	525	577	604	639	594	-45	-7.0
	Trade balance	-370	-429	-450	-465	-403	62	13.4
MT008	Mineral processing machinery:							
	Exports	669	811	1,064	1,220	1,489	269	22.1
	Imports	797	1,034	1,164	1,277	1,213	-64	-5.0
	Trade balance	-128	-223	-100	-57	276	334	(^c)
MT009	Farm and garden machinery and equipment:							
	Exports	6,098	6,885	7,533	9,245	11,557	2,312	25.0
	Imports	6,216	6,900	6,638	6,621	7,394	772	11.7
	Trade balance	-117	-15	895	2,624	4,163	1,540	58.7
MT010	Industrial food-processing and related machinery:							
	Exports	601	710	644	797	947	150	18.8
	Imports	758	839	853	949	882	-67	-7.0
	Trade balance	-157	-129	-209	-151	66	217	(^c)
MT011	Pulp, paper, and paperboard machinery:							
	Exports	662	660	712	769	829	59	7.7
	Imports	938	948	1,086	1,271	1,200	-70	-5.5
	Trade balance	-276	-289	-374	-501	-371	130	25.9
MT012	Printing and related machinery:							
	Exports	1,300	1,443	1,526	1,505	1,877	372	24.8
	Imports	5,802	6,340	6,554	3,376	2,406	-970	-28.7
	Trade balance	-4,502	-4,897	-5,029	-1,871	-529	1,343	71.8
MT013	Textile machinery:							
	Exports	897	991	1,009	1,018	880	-138	-13.5
	Imports	1,410	1,561	1,264	1,290	1,313	23	1.8
	Trade balance	-513	-569	-255	-272	-433	-161	-58.9
MT014	Metal rolling mills:							
	Exports	243	314	351	394	516	122	30.9
	Imports	150	207	352	322	488	166	51.4
	Trade balance	93	107	-1	72	28	-44	-60.7

See footnote(s) at end of table.

TABLE B.8 Machinery: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
MT015	Metal cutting machine tools:							
	Exports	1,475	1,732	2,205	2,026	2,313	288	14.2
	Imports	2,977	3,618	4,092	4,009	4,654	646	16.1
	Trade balance	-1,502	-1,886	-1,887	-1,983	-2,341	-358	-18.1
MT016	Machine tool accessories:							
	Exports	275	305	304	403	435	32	8.0
	Imports	447	515	514	588	644	56	9.6
	Trade balance	-172	-210	-210	-185	-210	-24	-13.2
MT017	Metal forming machine tools:							
	Exports	733	851	957	1,015	1,164	149	14.7
	Imports	1,019	1,196	1,335	1,315	1,368	53	4.1
	Trade balance	-286	-345	-378	-300	-204	96	31.9
MT018	Non-metalworking machine tools:							
	Exports	1,083	1,110	1,159	1,011	885	-126	-12.4
	Imports	1,626	1,694	1,776	1,861	1,674	-187	-10.0
	Trade balance	-543	-584	-617	-850	-789	61	7.2
MT019	Semiconductor manufacturing equipment and robotics:							
	Exports	13,257	11,435	14,733	17,476	12,385	-5,090	-29.1
	Imports	4,151	4,515	5,612	8,990	7,966	-1,025	-11.4
	Trade balance	9,107	6,919	9,121	8,485	4,420	-4,065	-47.9
MT019A	Semiconductor manufacturing equipment:							
	Exports	12,790	10,971	14,232	16,974	11,901	-5,074	-29.9
	Imports	3,586	3,857	4,902	8,397	7,370	-1,027	-12.2
	Trade balance	9,204	7,113	9,330	8,578	4,531	-4,047	-47.2
MT020	Taps, cocks, valves, and similar devices:							
	Exports	3,685	4,235	5,010	5,757	6,427	669	11.6
	Imports	6,738	7,589	8,942	9,628	9,760	132	1.4
	Trade balance	-3,054	-3,354	-3,932	-3,871	-3,333	537	13.9
MT021	Mechanical power transmission equipment:							
	Exports	1,197	1,398	1,639	1,847	2,023	176	9.5
	Imports	2,638	3,252	3,439	3,850	4,320	471	12.2
	Trade balance	-1,441	-1,854	-1,800	-2,003	-2,297	-294	-14.7

See footnote(s) at end of table.

TABLE B.8 Machinery: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
MT022	Boilers, turbines, and related machinery:							
	Exports	909	1,124	1,130	1,235	1,522	287	23.2
	Imports	839	1,098	1,001	1,542	1,773	231	15.0
	Trade balance	70	26	129	-306	-250	56	18.3
MT023	Electric motors, generators, and related equipment:							
	Exports	4,673	5,114	5,997	6,685	8,128	1,444	21.6
	Imports	7,020	8,533	10,305	12,358	12,888	530	4.3
	Trade balance	-2,346	-3,420	-4,309	-5,673	-4,760	914	16.1
MT024	Electrical transformers, static converters, and inductors:							
	Exports	1,805	1,895	2,380	2,743	2,835	92	3.4
	Imports	5,496	5,973	6,989	8,179	8,891	712	8.7
	Trade balance	-3,692	-4,078	-4,608	-5,436	-6,056	-620	-11.4
MT025	Portable electric handtools:							
	Exports	180	185	165	153	139	-14	-9.0
	Imports	2,122	2,424	2,478	2,473	2,349	-124	-5.0
	Trade balance	-1,942	-2,239	-2,313	-2,320	-2,210	110	4.7
MT026	Nonelectrically powered handtools:							
	Exports	907	1,264	1,148	1,085	1,105	20	1.8
	Imports	1,235	1,396	1,513	1,433	1,355	-78	-5.4
	Trade balance	-328	-132	-365	-347	-250	98	28.2
MT027	Electric lamps (bulbs) and portable electric lights:							
	Exports	786	859	823	812	807	-5	-0.6
	Imports	2,094	2,202	2,375	2,879	2,745	-134	-4.7
	Trade balance	-1,309	-1,342	-1,552	-2,068	-1,938	130	6.3
MT028	Welding and soldering equipment:							
	Exports	818	872	1,165	932	1,087	156	16.7
	Imports	1,088	1,054	1,353	950	951	(^d)	(^e)
	Trade balance	-270	-182	-189	-19	136	155	(^c)

See footnote(s) at end of table.

TABLE B.8 Machinery: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
MT029	Nonautomotive insulated electrical wire and related products:							
	Exports	2,936	3,202	4,110	4,586	4,733	147	3.2
	Imports	3,903	4,693	6,071	6,640	6,463	-176	-2.7
	Trade balance	-966	-1,491	-1,961	-2,054	-1,730	324	15.8
MT030	Miscellaneous machinery:							
	Exports	7,434	8,299	9,509	8,982	10,805	1,823	20.3
	Imports	8,058	9,343	10,527	9,474	10,284	810	8.5
	Trade balance	-624	-1,044	-1,017	-492	521	1,013	(^c)
MT031	Molds and molding machinery:							
	Exports	1,833	2,074	2,136	1,965	2,076	111	5.6
	Imports	3,525	4,035	4,290	3,280	3,205	-74	-2.3
	Trade balance	-1,691	-1,960	-2,153	-1,315	-1,130	185	14.1

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bThis coding system is used by the U.S. International Trade Commission to identify major groupings and subgroupings of import and export items for trade monitoring purposes.

^cNot meaningful for purposes of comparison.

^dLess than \$500,000.

^eLess than 0.05 percent.

TABLE B.9 Transportation equipment: U.S. trade for industry/commodity groups and subgroups, 2004–08^a

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
TE001	Aircraft engines and gas turbines:							
	Exports	17,706	20,771	21,631	25,780	28,638	2,858	11.1
	Imports	9,642	11,243	12,816	14,898	16,444	1,546	10.4
	Trade balance	8,064	9,528	8,815	10,882	12,194	1,312	12.1
TE002	Internal combustion piston engines, other than for aircraft:							
	Exports	13,444	14,969	15,930	17,039	16,984	-55	-0.3
	Imports	18,682	21,035	20,617	19,930	18,738	-1,191	-6.0
	Trade balance	-5,238	-6,065	-4,688	-2,891	-1,754	1,136	39.3
TE003	Forklift trucks and similar industrial vehicles:							
	Exports	1,324	1,760	2,172	2,939	3,333	394	13.4
	Imports	1,853	2,435	2,717	2,581	2,442	-139	-5.4
	Trade balance	-528	-675	-545	358	891	533	148.7
TE004	Construction and mining equipment:							
	Exports	11,794	15,584	18,590	23,371	28,500	5,129	21.9
	Imports	8,959	11,780	13,670	12,069	11,829	-240	-2.0
	Trade balance	2,835	3,804	4,920	11,302	16,671	5,369	47.5
TE005	Ball and rollers bearings:							
	Exports	1,494	1,638	1,841	1,992	2,223	230	11.6
	Imports	2,052	2,351	2,429	2,492	2,800	308	12.3
	Trade balance	-558	-712	-589	-500	-577	-77	-15.5
TE006	Primary cells and batteries and electric storage batteries:							
	Exports	1,977	2,272	2,801	2,948	2,716	-231	-7.8
	Imports	2,620	2,841	3,075	3,255	3,628	372	11.4
	Trade balance	-642	-570	-274	-308	-912	-604	-196.3
TE007	Ignition, starting, lighting, and other electrical equipment:							
	Exports	1,773	1,844	1,880	2,040	2,115	75	3.7
	Imports	4,371	4,813	5,122	5,546	5,319	-227	-4.1
	Trade balance	-2,598	-2,969	-3,242	-3,506	-3,204	302	8.6

See footnote(s) at end of table.

TABLE B.9 Transportation equipment: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
TE008	Rail locomotive and rolling stock:							
	Exports	1,649	2,124	2,600	2,663	2,935	272	10.2
	Imports	1,282	1,516	1,742	1,668	1,803	135	8.1
	Trade balance	368	607	858	995	1,132	137	13.8
TE009	Motor vehicles:							
	Exports	30,473	35,312	44,437	52,739	56,898	4,159	7.9
	Imports	142,861	146,308	159,537	158,895	142,541	-16,354	-10.3
	Trade balance	-112,388	-110,996	-115,100	-106,155	-85,642	20,513	19.3
TE010	Certain motor-vehicle parts:							
	Exports	30,785	31,524	33,346	34,052	30,985	-3,067	-9.0
	Imports	46,493	50,998	53,307	55,619	49,190	-6,429	-11.6
	Trade balance	-15,707	-19,474	-19,961	-21,567	-18,205	3,362	15.6
TE011	Powersport vehicles:							
	Exports	1,848	2,221	2,535	3,375	4,185	810	24.0
	Imports	5,140	5,781	5,870	5,208	5,343	135	2.6
	Trade balance	-3,292	-3,560	-3,335	-1,833	-1,157	676	36.9
TE011A	Motorcycles and mopeds:							
	Exports	917	983	1,252	1,589	1,875	286	18.0
	Imports	3,809	4,277	4,449	3,903	3,921	18	0.5
	Trade balance	-2,891	-3,293	-3,197	-2,314	-2,046	268	11.6
TE012	Trailers, semi-trailers, and parts:							
	Exports	1,462	1,945	2,464	2,781	2,820	39	1.4
	Imports	1,226	1,595	1,778	1,648	1,387	-261	-15.8
	Trade balance	236	350	686	1,133	1,432	299	26.4
TE013	Aircraft, spacecraft, and related equipment:							
	Exports	40,076	47,981	64,374	73,406	69,516	-3,890	-5.3
	Imports	16,485	16,475	17,557	21,835	21,539	-296	-1.4
	Trade balance	23,592	31,506	46,817	51,571	47,977	-3,594	-7.0
TE014	Ships, tugs, pleasure boats, and similar vessels:							
	Exports	1,659	1,950	2,601	3,096	3,155	59	1.9
	Imports	1,888	2,350	2,146	2,084	1,862	-222	-10.6
	Trade balance	-229	-400	454	1,013	1,293	280	27.7

See footnote(s) at end of table.

TABLE B.9 Transportation equipment: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
TE015	Motors and engines, except internal combustion, aircraft, or electric:							
	Exports	668	837	1,124	1,198	1,409	210	17.5
	Imports	1,066	1,360	1,594	2,195	3,370	1,175	53.5
	Trade balance	-399	-523	-470	-997	-1,962	-965	-96.8

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bThis coding system is used by the U.S. International Trade Commission to identify major groupings and subgroupings of import and export items for trade monitoring purposes.

TABLE B.10 Textiles, apparel, and footwear: U.S. trade for industry/commodity groups and subgroups, 2004–08^a

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
TX001	Fibers and yarns, except raw cotton and raw wool:							
	Exports	3,192	3,328	3,780	4,041	4,344	303	7.5
	Imports	3,160	3,538	3,582	3,632	3,552	-80	-2.2
	Trade balance	32	-211	198	409	792	383	93.7
TX002	Fabrics:							
	Exports	7,228	7,285	7,015	6,666	6,443	-223	-3.4
	Imports	6,227	6,352	6,202	6,343	5,891	-452	-7.1
	Trade balance	1,001	934	813	323	552	229	70.9
TX002A	Broadwoven fabrics:							
	Exports	2,754	2,478	2,210	1,822	1,630	-192	-10.5
	Imports	3,154	2,989	2,833	2,870	2,600	-270	-9.4
	Trade balance	-400	-511	-623	-1,048	-970	78	7.4
TX002B	Knit fabrics:							
	Exports	1,624	1,778	1,611	1,659	1,534	-124	-7.5
	Imports	979	1,026	965	876	779	-96	-11.0
	Trade balance	645	752	646	783	755	-28	-3.6
TX002C	Specialty fabrics:							
	Exports	579	545	506	459	442	-17	-3.8
	Imports	465	541	550	553	500	-54	-9.7
	Trade balance	114	5	-44	-94	-58	36	38.6
TX002D	Coated and other fabrics:							
	Exports	1,098	1,097	1,119	1,213	1,143	-70	-5.8
	Imports	891	967	1,021	1,078	1,042	-36	-3.4
	Trade balance	207	130	99	134	101	-33	-24.9
TX002E	Glass fiber fabrics:							
	Exports	146	147	178	211	248	37	17.6
	Imports	108	119	133	160	194	34	21.5
	Trade balance	38	28	44	52	54	3	5.5
TX002F	Other fabrics:							
	Exports	1,027	1,240	1,392	1,303	1,445	143	11.0
	Imports	630	710	701	806	776	-30	-3.8
	Trade balance	397	530	691	496	670	173	34.9

See footnote(s) at end of table.

TABLE B.10 Textiles, apparel, and footwear: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
<i>Million dollars</i>								
TX003	Carpets and rugs:							
	Exports	763	881	960	983	1,061	79	8.0
	Imports	1,829	1,993	2,127	2,111	1,902	-208	-9.9
	Trade balance	-1,066	-1,112	-1,167	-1,128	-841	287	25.4
TX004	Home furnishings:							
	Exports	365	417	442	465	456	-9	-1.9
	Imports	6,107	7,448	8,249	8,724	8,377	-347	-4.0
	Trade balance	-5,742	-7,031	-7,808	-8,260	-7,921	339	4.1
TX004A	Blankets:							
	Exports	31	31	30	25	29	4	15.1
	Imports	459	514	606	614	597	-18	-2.9
	Trade balance	-428	-483	-576	-589	-567	22	3.7
TX004B	Pillowcases and sheets:							
	Exports	81	91	83	74	65	-9	-12.3
	Imports	1,353	1,904	2,204	2,352	2,261	-90	-3.8
	Trade balance	-1,271	-1,813	-2,121	-2,278	-2,197	81	3.6
TX004C	Table/kitchen linens and towels:							
	Exports	71	70	73	72	59	-14	-18.9
	Imports	1,646	1,864	1,951	2,114	2,123	8	0.4
	Trade balance	-1,574	-1,794	-1,879	-2,042	-2,064	-22	-1.1
TX004D	Curtains:							
	Exports	39	49	58	71	82	11	15.7
	Imports	858	1,017	1,088	1,094	1,029	-65	-6.0
	Trade balance	-819	-968	-1,030	-1,023	-947	76	7.4
TX004E	Bedspreads and other furnishing articles:							
	Exports	49	59	65	73	66	-7	-9.7
	Imports	1,144	1,284	1,424	1,403	1,236	-167	-11.9
	Trade balance	-1,096	-1,225	-1,359	-1,330	-1,170	160	12.1
TX004F	Pillows, cushions, and sleeping bags:							
	Exports	93	108	130	149	155	6	3.9
	Imports	645	860	971	1,143	1,129	-14	-1.3
	Trade balance	-552	-752	-841	-994	-974	20	2.0
TX004G	Tapestries and other wall hangings:							
	Exports	1	9	4	1	1	(^c)	44.7
	Imports	3	6	5	4	3	-1	-15.1
	Trade balance	-2	3	-1	-3	-2	1	31.5
TX005	Apparel:							

See footnote(s) at end of table.

TABLE B.10 Textiles, apparel, and footwear: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Exports	4,414	4,129	3,854	3,206	3,190	-16	-0.5
	Imports	72,404	76,503	79,299	81,366	79,031	-2,334	-2.9
	Trade balance	-67,989	-72,374	-75,445	-78,159	-75,841	2,319	3.0
TX005A	Men's and boys' suits and sports coats:							
	Exports	28	30	32	28	24	-4	-14.1
	Imports	1,139	1,359	1,336	1,331	1,237	-94	-7.1
	Trade balance	-1,111	-1,329	-1,304	-1,303	-1,213	90	6.9
TX005B	Men's and boys' coats and jackets:							
	Exports	89	75	71	64	69	5	7.3
	Imports	2,134	2,255	2,441	2,814	2,759	-55	-2.0
	Trade balance	-2,045	-2,180	-2,370	-2,750	-2,690	60	2.2
TX005C	Men's and boys' trousers:							
	Exports	437	405	292	231	217	-14	-5.9
	Imports	7,568	7,776	8,014	7,940	7,626	-314	-4.0
	Trade balance	-7,131	-7,371	-7,722	-7,709	-7,409	301	3.9
TX005D	Women's and girls' trousers:							
	Exports	267	239	268	212	247	35	16.7
	Imports	9,327	9,664	9,889	9,872	9,305	-567	-5.7
	Trade balance	-9,060	-9,425	-9,621	-9,660	-9,058	602	6.2
TX005E	Shirts and blouses:							
	Exports	800	841	802	582	556	-25	-4.4
	Imports	22,474	23,664	25,073	26,035	24,876	-1,159	-4.5
	Trade balance	-21,674	-22,822	-24,272	-25,453	-24,320	1,134	4.5
TX005F	Sweaters:							
	Exports	33	28	35	35	43	8	22.8
	Imports	2,632	2,809	2,658	2,733	2,522	-211	-7.7
	Trade balance	-2,599	-2,781	-2,623	-2,698	-2,479	219	8.1
TX005G	Women's and girls' suits, skirts, and coats:							
	Exports	146	155	148	139	163	24	17.3
	Imports	5,866	6,941	6,663	6,346	5,851	-495	-7.8
	Trade balance	-5,720	-6,786	-6,515	-6,207	-5,688	519	8.4
TX005H	Women's and girls' dresses:							
	Exports	61	61	87	121	177	56	46.2
	Imports	1,524	1,465	1,841	2,900	3,176	275	9.5
	Trade balance	-1,463	-1,404	-1,753	-2,780	-2,999	-220	-7.9
TX005I	Robes, nightwear, and underwear:							
	Exports	700	479	394	203	109	-93	-46.1

See footnote(s) at end of table.

TABLE B.10 Textiles, apparel, and footwear: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—*Continued*

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Imports	5,246	5,418	5,478	5,380	5,444	64	1.2
	Trade balance	-4,546	-4,939	-5,084	-5,177	-5,335	-158	-3.0
TX005J	Hosiery:							
	Exports	356	343	383	349	334	-15	-4.4
	Imports	1,316	1,366	1,459	1,521	1,565	44	2.9
	Trade balance	-959	-1,023	-1,076	-1,172	-1,231	-60	-5.1
TX005K	Body-supporting garments:							
	Exports	310	275	166	57	45	-12	-20.8
	Imports	1,800	1,854	2,071	2,016	1,994	-21	-1.1
	Trade balance	-1,490	-1,579	-1,905	-1,959	-1,949	9	0.5
TX005L	Neckwear, handkerchiefs, and scarves:							
	Exports	24	26	23	19	24	4	23.4
	Imports	698	748	656	651	724	73	11.2
	Trade balance	-674	-722	-633	-632	-701	-68	-10.8
TX005M	Gloves, including gloves for sports:							
	Exports	104	101	100	106	127	21	19.6
	Imports	2,533	2,757	2,989	3,160	3,658	498	15.7
	Trade balance	-2,430	-2,656	-2,889	-3,054	-3,531	-477	-15.6
TX005N	Headwear:							
	Exports	102	111	114	126	157	31	25.1
	Imports	1,526	1,509	1,621	1,602	1,598	-3	-0.2
	Trade balance	-1,424	-1,398	-1,506	-1,476	-1,441	35	2.4
TX005O	Leather apparel and accessories:							
	Exports	108	175	165	220	202	-18	-8.3
	Imports	1,605	1,512	1,496	1,344	1,091	-253	-18.8
	Trade balance	-1,497	-1,337	-1,331	-1,124	-890	235	20.9
TX005P	Fur apparel and other fur articles:							
	Exports	18	16	22	29	30	1	4.2
	Imports	334	314	274	221	170	-50	-22.8
	Trade balance	-316	-298	-253	-192	-140	52	26.9
TX005Q	Rubber, plastic, and coated-fabric apparel:							
	Exports	129	142	165	141	155	14	10.2
	Imports	462	470	382	387	368	-19	-5.0
	Trade balance	-334	-328	-217	-247	-213	34	13.7
TX005R	Nonwoven apparel:							
	Exports	34	27	25	65	75	10	15.2
	Imports	395	419	479	488	547	59	12.1

See footnote(s) at end of table.

TABLE B.10 Textiles, apparel, and footwear: U.S. trade for industry/commodity groups and subgroups, 2004–08^a—Continued

USITC code ^b	Industry/commodity group	2004	2005	2006	2007	2008	Change, 2008 from 2007	
							Absolute	Percent
		<i>Million dollars</i>						
	Trade balance	-361	-392	-454	-423	-473	-49	-11.7
TX005S	Other wearing apparel:							
	Exports	668	599	564	481	437	-44	-9.2
	Imports	3,825	4,204	4,479	4,623	4,518	-105	-2.3
	Trade balance	-3,157	-3,604	-3,916	-4,143	-4,082	61	1.5
TX006	Miscellaneous textile products:							
	Exports	1,701	1,825	2,037	2,174	2,310	136	6.3
	Imports	4,319	4,651	5,104	5,502	5,575	73	1.3
	Trade balance	-2,618	-2,826	-3,067	-3,328	-3,265	63	1.9
FW001	Footwear:							
	Exports	450	507	573	578	673	95	16.4
	Imports	16,498	17,834	19,038	19,270	19,451	181	0.9
	Trade balance	-16,048	-17,327	-18,465	-18,692	-18,778	-86	-0.5

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

Note: Calculations based on unrounded data.

^aImport values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

^bThis coding system is used by the U.S. International Trade Commission to identify major groupings and subgroupings of import and export items for trade monitoring purposes.

^cLess than \$500,000.