

Import and export price gains ease in 1989

Annual rates of price increase for both imports and exports were considerably lower than those posted during the preceding 2 years, reflecting a slowdown in the U.S. economy and the turnaround of the dollar

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Prices of U.S. imports advanced 1.9 percent during 1989, as all major categories except fuels recorded annual price declines or smaller rates of increase than in 1987 and 1988.¹ (See table 1.) Prices of fuels and related products, noted for their volatility, rose 30 percent over the year after declining more than 16 percent in 1988. When fuels are excluded, import prices actually fell 0.5 percent in 1989. In 1987 and 1988, nonfuel import prices had advanced 8.9 and 6.9 percent, respectively, reacting to the depreciating dollar and strong domestic growth.

Export prices climbed just 0.6 percent in 1989, following gains of 6.0 and 6.4 percent in 1987 and 1988. A decrease in food prices from the previous year's drought-inflated levels, as well as weaker world demand for industrial products, helped to dampen price increases. Export prices decreased in the year's final three quarters after a relatively steep 1.5-percent jump in the first quarter, in part the result of strong export growth in the first half of the year.

Developments influencing prices

Exchange rates influenced import and export prices throughout 1989. The year marked the first time since 1984 that the trade-weighted value of the dollar strengthened against foreign currencies. The 3.5-percent annual appreciation of the dollar, spurred by the 7.3-percent gain in

the first half of the year,² contributed heavily to the 0.8-percent drop in prices for all nonfuel imports during the second quarter. The April-to-June movement represented the year's largest 3-month decline and the steepest quarterly slide in nonfuel import prices since the 1.8-percent decrease recorded for the first quarter of 1985. (See chart 1.)

The stronger dollar in the first half of 1989, which lowered United States import prices, and the slowing U.S. economy in the second half of the year, which reduced industrial demand, had their greatest effect on prices for imported raw materials and the finished goods they are used to produce. The rapid growth in prices for the intermediate manufactures category experienced during the 2 earlier years came to a halt in 1989 when prices decreased 0.7 percent after double-digit advances in 1987 and 1988. The same was true for the machinery and transport equipment category, where prices rose a modest 0.2 percent after averaging 6.6-percent increases for the preceding 2 years. (See chart 2.)

Export prices also responded to moderating growth in the U.S. and global economies and to the movement of the dollar in 1989. In particular, chemicals prices declined 8.4 percent during the year, following 18.6- and 11.2-percent jumps in 1987 and 1988. Prices of exported crude materials advanced just 0.7 percent in 1989, as large increases for some categories,

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caused by strong export growth, offset decreases for other categories. Prices for exported machinery and transport equipment, which had increased 3.3 percent in 1988, rose 2.6 percent during the year. (See chart 3.)

The dollar's strength early in 1989 coincided with the firm U.S. economy through the middle of the year. Most major foreign currencies depreciated against the dollar through June. The Japanese yen, the West German mark, and the U.K. pound all declined more than 10 percent versus the dollar in the first half of the year.³ The trend of dollar appreciation slowed in the second half when speculation about a domestic economic slowdown and the possibility of a recession moderated demand for dollars.

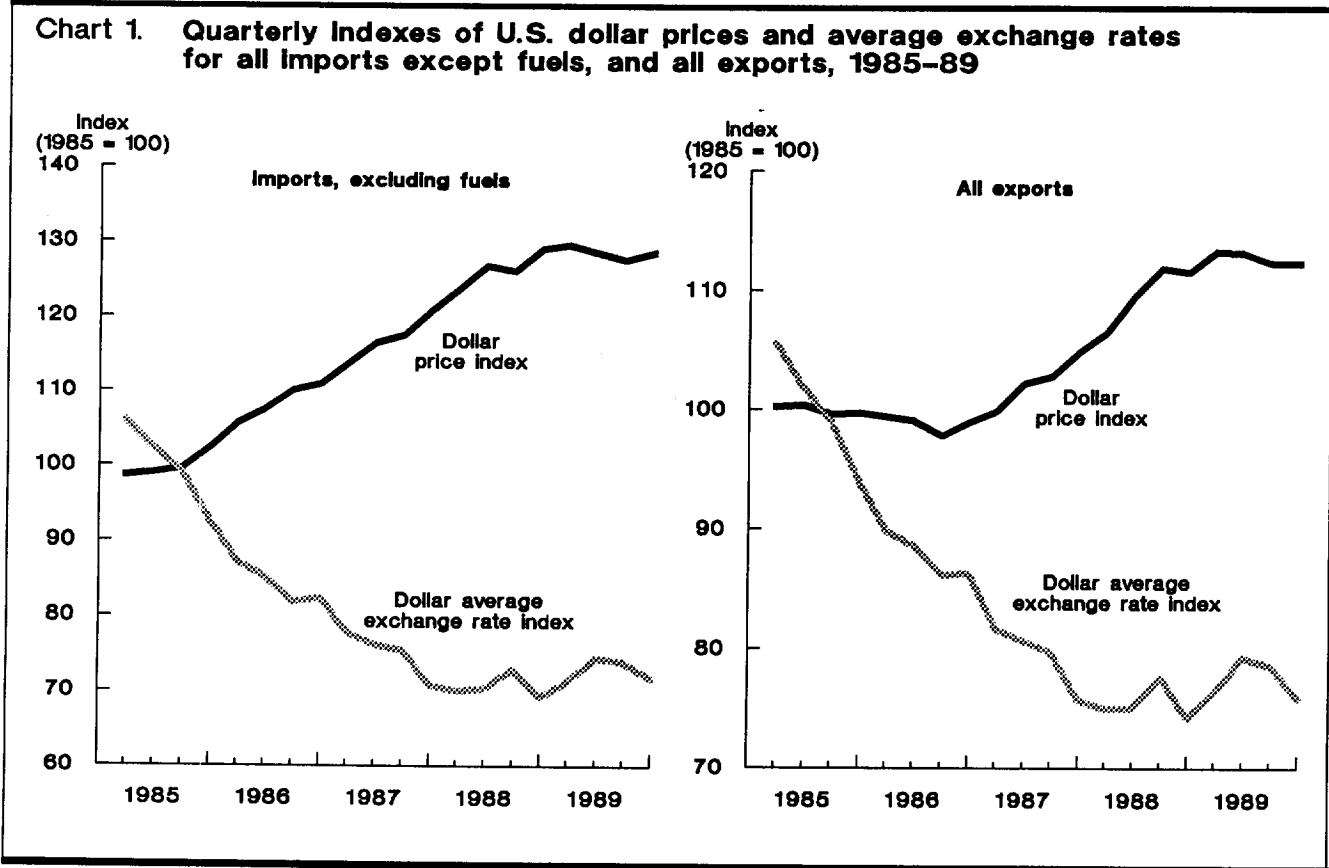
The dollar's depreciation during the second half again spanned most major currencies, although the magnitude of the decline against each varied considerably. For example, the mark appreciated nearly 14 percent against the dollar between July and December, while the pound and yen rose just 2.8 and 0.2 percent, respectively, over the same period.⁴ For the year, the dollar averaged 7.7 percent higher against the yen, 8.7 percent higher against the pound, and 7.0 percent higher against the mark. The dollar continued to depreciate against the currencies of the

Newly Industrialized Countries (Taiwan, South Korea, Hong Kong, and Singapore), losing 7.8 and 8.2 percent of its average value against the Taiwan dollar and South Korean won for the year as a whole. (See chart 4.)

The first-half appreciation of the dollar in 1989 took many observers by surprise and may have signaled a temporary halt of effective cooperation by major industrial nations to control currency movements. Prior to 1989, an overall 4-year decline of the dollar, which was precipitated by the Group of Five's (G-5) signing of the Plaza Accord in 1985 and which continued—albeit at a slower rate—following the signing of the Louvre Accord by the Group of Seven (G-7) in 1987,⁵ was designed to promote U.S. exports and to balance world trade. However, the trade-weighted 2.1-percent depreciation of the dollar in 1988 for all import commodities was the smallest annual decline since 1985. The dollar's rise during the middle of 1988, while reversed in the fourth quarter, foreshadowed things to come.

The erratic nature of currency fluctuations and the numerous factors that influence exchange rates had more effect in 1989 than in the past. Interest rates, international developments, and a global increase in oil prices created a

Chart 1. Quarterly indexes of U.S. dollar prices and average exchange rates for all imports except fuels, and all exports, 1985-89



climate more conducive to volatile currency swings throughout the year.

Interest rates. High U.S. interest rates, a tight money supply, and widening interest rate differentials with foreign trading partners were the major reasons behind the dollar's increase early in 1989. In an effort to ease inflationary concerns and temper economic growth by discouraging borrowing, U.S. monetary authorities permitted short-term interest rates to rise. On February 24, the Federal Reserve increased the discount rate by one-half of a percentage point.⁶ In the interim, monetary policy in West Germany, Japan, and England kept interest rates in those nations stable, causing demand for the dollar to grow, and hence increasing its value.

In April, spurred by the G-7 statement that the "continued rise of the dollar which undermined adjustment efforts, or an excess decline, would be counterproductive,"⁷ many European central banks followed West Germany's lead by raising their own discount rates. Concern for the dollar's upswing also emanated from the White House, which claimed that the strong dollar could detract from the goal of reducing global trade imbalances.

From the end of 1988 through June of 1989, the dollar was nearly 13 and 17 percent higher against the mark and yen,⁸ with similar double-digit increases posted against other European currencies. Despite the efforts of the G-7 to fight the rise of the dollar, its exchange rate climbed to yearly highs of 2.03 marks and 149 yen,⁹ notably higher than the 1.90-mark and 140-yen levels thought to be the upper limits desired by the G-7.

During the second half of 1989, the combination of declining U.S. interest rates and rising foreign rates began to narrow the differential. After continued strong domestic economic growth in the beginning of the year, statistics that indicated an easing economy led to fears of a slowdown. Monetary policy was loosened and short-term interest rates declined. On August 1, many banks reduced their prime lending rates.¹⁰

In September, finance ministers of the G-7 met and again issued a statement that the strong dollar was unwanted and could adversely affect the world economy. Thereafter, the dollar started to fall, picking up speed when the central bank of West Germany increased its discount rate another 1 percent in October in response to its own growing economy. Other Western European countries, including Britain, France, and Switzerland, supported their discount rates as well, while Japan raised its rate by one-half of 1 percent.¹¹ Meanwhile, U.S. interest rates continued their descent as the year came to a close.

After reaching a high of 9.57 percent in March, the average annual yield for 1-year U.S. Treasury notes and bonds fell to 7.77 percent by November.¹²

Canada was the one major industrialized country whose currency failed to depreciate against the dollar during the first half of 1989. Subsequently, the U.S. dollar lost nearly 4 percent of its annual average value against the Canadian dollar.¹³ High Canadian interest rates throughout 1989 matched those in the United States, as Canada attempted to slow its economy and avoid accelerating inflation. Average short-term interest rates peaked in Canada at about the same time as in the United States, rising to 12.58 percent in April after averaging 11.15 percent at the end of 1988. The rate differential reached a 9-year high in November, when interest rates in the United States dropped and those in Canada remained stable.¹⁴

International developments. Developments around the world, ranging from in-house government dissension in England to the opening of borders in Eastern Europe, played a role—albeit not a quantifiable one—in currency markets during 1989. In general, political instability abroad worked to the dollar's advantage during the first half of the year, while events later in the year benefited the foreign currencies.

In April, Japanese Prime Minister Noboru Takeshita announced that he would resign after allegations linked him to an insider trading scandal. In addition, the ruling Liberal Democratic Party lost the upper house of parliament, and speculation about the potential resignation by the Bank of Japan's Governor Sumitomo contributed to continued political uncertainty in that country.¹⁵

During the spring, West Germany's Chancellor Helmut Kohl was engaged in an intra-party struggle. This, and a belief that Kohl's ruling coalition could possibly be replaced by an alliance of socialists and environmentalists, caused many investors to view the dollar as a safer haven than the mark. Also contributing to economic uncertainty was confusion over the implementation and ensuing removal of a withholding tax on interest, as well as Kohl's struggle in NATO over nuclear weapons policy.¹⁶

In the People's Republic of China, anti-government protests by students, although unsuccessful, moved some to worry that disorder could spread to other parts of Asia. There also was concern that the economies of other countries in the region that rely heavily on export growth, especially the Newly Industrialized Countries, might be adversely affected by possible lower demand for goods in China. Both the

Political instability abroad worked to the dollar's advantage during first-half 1989.

Taiwan dollar and South Korean won, which had been appreciating against the U.S. dollar through the year's first 5 months, began to decline in June. The yen, which had been depreciating up to that time, experienced its biggest monthly drop of the year during June, falling more than 4 percent.¹⁷

The U.K. pound grew stronger against the dollar during the second half of the year, although its rise was the smallest among the other G-7 European countries.¹⁸ Developments reflected political tensions which heightened towards the end of October, when both the Chancellor of the Exchequer and Prime Minister Margaret Thatcher's chief economic advisor resigned in a dispute over who was in charge of monetary and economic policy.

The controversy, reported as Thatcher's most serious crisis in her 10-year tenure, centered around Britain's joining the European Monetary System (EMS). At the time, Britain was the last major country in the European Community yet to commit to the EMS. Thatcher, who previously opposed joining the EMS and believed that Britain should keep its independence in determining economic policy rather than targeting the pound with the other European currencies, softened her stance, providing certain conditions were met. Among the conditions specified were guarantees that the movement of capital would not be restricted, that all subsidies would be removed, and that foreign exchange controls would be eliminated.¹⁹

The steepest decline of the dollar in the second half of the year occurred against the West German mark, which seemed to benefit most from the opening of East Germany's borders in November and the subsequent opening of many other Eastern European countries. The ramifications of these political developments were especially vague, however, as some analysts predicted that the mark would start to depreciate for the very same reasons.

Increase in oil prices. The sharp increase in world oil prices also played a role in the higher value of the dollar early in the year. Because all of the world's oil is purchased in dollars, higher oil prices translated into stronger demand for dollars from abroad. In the United States alone, the price index for imported crude petroleum jumped 36.9 percent through the first 6 months of 1989. During the final two quarters, however, the index rose just 3 percent.

The trade deficit

Despite the appreciation of the dollar, the Nation's real merchandise trade deficit fell to \$107.6 billion in 1989, the third consecutive

annual decline since the \$167.8 billion peak in 1986.²⁰ (See charts 5 and 6.) Although the trade deficit declined at a slower 12.4-percent rate for the year, in comparison to the 20.7-percent reduction in 1988, it ended the year at its lowest level since 1983. Imports grew 5.8 percent in 1989 to \$494.4 billion, slightly slower than the 6.1-percent rate recorded in 1988. However, exports increased 12.3 percent to \$386.8 billion, considerably less than the 16.2-percent and 20.6-percent advances in 1987 and 1988, respectively.

The imbalance with selected trading partners fell in 1989 as well. The deficit with the European Community dropped 87.6 percent to \$1.5 billion for the year.²¹ Highlights of this reduction include a 25.2-percent decrease in the deficit with France, a 34.5-percent fall in the deficit with West Germany, and the reversal of the previous year's \$497 million deficit with the United Kingdom to a \$1.7 billion surplus in 1989. The U.S. trade debt with the Newly Industrialized Countries improved by 16.3 percent for the year, with deficits falling to \$3.8 billion with Hong Kong, \$6.4 billion with South Korea, and \$1.9 billion with Singapore. The deficit with Taiwan, however, rose 0.9 percent to \$13.2 billion, while that with Japan remained persistently high, declining only 7.5 percent to \$49.1 billion.

On the export side, the year started out strong for overall deficit reduction, with seasonally adjusted and annualized merchandise exports in the first half of 1989 climbing 10.3 percent over 1988 levels, while the constant-dollar value of imports rose just 3.3 percent for the same period.²² The resulting \$102.8 billion deficit for the first 6 months of 1989 was a 16.3-percent improvement over 1988. The robust export growth began in 1987 and continued through June of 1989, as exports became increasingly important to the U.S. economy. Exports of goods and services as a percentage of constant-dollar GNP climbed from 11.1 percent in 1987 to 13.2 percent the following year, and to 14.0 percent for the first two quarters of 1989.²³ If services are excluded, the export share of GNP is even higher, having risen from 17.2 percent in 1987 to 20.7 percent in the first half of 1989.²⁴

The depreciation of the dollar was an important factor in the two-and-a-half-year U.S. export expansion. After an expected lag, the sharp fall in the value of the dollar between 1985 and 1988 increased the competitiveness of U.S. exports on world markets in 1987 and 1988. Despite a subsequent reversal of the dollar's direction, which resulted in a 6.9-percent appreciation of the currency on a trade-weighted

A sharp increase in world oil prices also tended to drive up the dollar.

basis for U.S. exports in first-half 1989, the lingering effects of the cheaper dollar remained a positive influence on exports during the first half of the year.

Strong economic growth among the Nation's major trading partners contributed to the export boom by ensuring healthy demand for U.S. exports from early 1987 through midyear 1989. For Canada, the annual increase in gross domestic product (GDP) rose steadily from 3.1 percent in 1986 to 5.0 percent in 1988; in Japan, it climbed from 2.5 percent to 5.7 percent for the same period; and the rate of increase for the European Community rose from 2.6 percent to 3.8 percent.²⁵

In the second half of 1989, the real U.S. trade deficit deteriorated to \$112.4 billion dollars, as exports grew only 3.7 percent above first-half levels and the rate of increase in imports quickened to 4.9 percent.²⁶ Although the dollar reversed direction in the latter half of the year, falling 4.2 percent on an export trade-weighted basis, lagged effects of the dollar's unexpected appreciation in the first half reduced U.S. competitiveness in world markets in the final two quarters of 1989. The resulting slowdown in export growth was intensified by softened demand for U.S. exports late in 1989, as the increase in GDP slowed for many U.S. trade partners, such as Canada, Japan, and the European Community. As previously noted, the latter countries were raising interest rates during this time to curb their growing economies.

The divergent trends in constant-dollar exports between the first and second halves of 1989 were especially evident for industrial supplies and materials and for consumer goods. In the former category, exports were a seasonally adjusted and annualized 14.7 percent greater in the first 6 months of 1989 than in 1988 and just 0.8 percent higher in the second half of the year than in the first half.²⁷ For consumer goods, the first-half increase in exports was 24.4 percent and a comparatively small 6.7 percent in the latter half. (See chart 7.)

When measured in current dollars, the category of capital goods excluding autos also exhibited a large difference in export growth between the two periods. For the first two quarters, exports of capital goods climbed 12.5 percent, a sharp contrast to the 6.6-percent rise in the final two quarters.²⁸

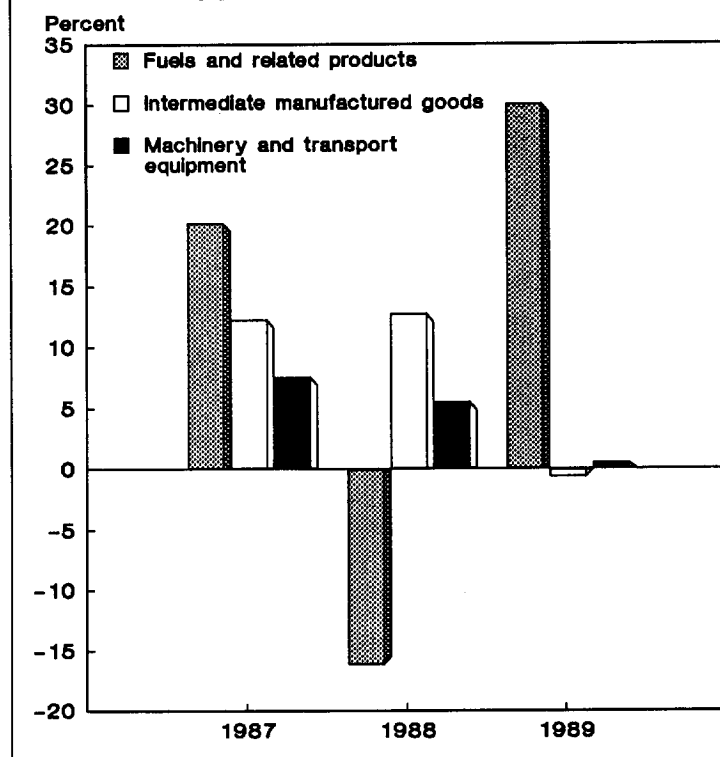
Unlike the overall large increase in exports in 1989, merchandise import growth in constant dollars moderated only slightly for the year. Of the \$27.3 billion rise in imports in 1989, 22.7 percent was due to an increase in oil imports.²⁹ In current dollars, oil imports constituted a

much larger 35.6-percent share of the year's \$31.2 billion increase in all imports because of sharply higher crude petroleum prices in 1989.³⁰

In contrast to those for exports, the trends in current- and constant-dollar values for non-petroleum imports were notably different. Current-dollar nonpetroleum imports, which are not adjusted for price changes, rose 4.9 percent in 1989, a little less than one-half the rates of increase in both 1987 and 1988.³¹ However, constant-dollar nonpetroleum imports, which measure actual volumes, climbed 5.5 percent for the year, slightly faster than the 5.2-percent rate recorded in 1988.³²

While the level of U.S. exports has responded favorably to currency fluctuations and increased dramatically over the last 3 years, import penetration has not abated in response to the depreciation of the dollar between 1985 and 1988. In fact, constant-dollar imports of goods and services as a percentage of gross domestic purchases have risen fairly steadily. In 1989, the import share totaled 15.3 percent, compared to 14.8 percent in 1988 and 14.0 percent in 1987.³³ For merchandise imports only, the degree of import penetration was even larger, having grown to 24.6 percent in 1989 from 23.6 percent in 1988, and 24.2 percent in 1987.³⁴

Chart 2. Annual percent price changes for selected categories of U.S. Imports, 1987-89



A notable factor in the failure of U.S. import volumes to decline significantly has been the minimal amount of home currency appreciation passed along by foreign producers to U.S. consumers in the form of higher prices since 1985.³⁵ Although the pass-through rate for nonfuel imports increased to 58.4 percent for the period between March 1985 and December 1988, compared to 42.5 percent between March 1985 and December 1987,³⁶ the rate still remains considerably below levels of the 1970's. Plausible explanations for the lower pass-through rates are that foreign producers are shaving profits, as well as cutting costs, to preserve U.S. market share.

Import price trends

Energy. After a 16.1-percent decline in 1988, the index for imported fuels and related products climbed 30 percent in 1989, largely because of a 41-percent jump in crude petroleum prices. Early in the year, perceptions of improved unity within the Organization of Petroleum Exporting Countries (OPEC), coupled with strong world demand for OPEC oil, contributed to the surge in imported petroleum prices, much of which occurred in the first quarter.

In November of 1988, the 13-member cartel had unanimously signed an agreement to restrict their combined output to 18.5 million barrels per day (mb/d) for the first half of 1989, substantially below the 20.9 mb/d production level recorded in 1988.³⁷ After gaining quota parity with Iran, Iraq signed the agreement, marking this as the first time Iraq has signed any OPEC agreement since 1986. Subsequently, the November accord was hailed as one of the strongest OPEC actions in years, and much needed after lack of unity within the cartel during 1988 led to overproduction, which caused crude oil prices to drop 20.5 percent for that year.

Despite the perceived cohesiveness of the organization, OPEC production for the first 3 months of 1989 averaged 21.1 mb/d, 2.6 mb/d over quota.³⁸ Although every country in the cartel overproduced during the first quarter, the United Arab Emirates and Kuwait exceeded their quotas by the largest amounts. The United Arab Emirates produced 1.7 mb/d, almost 75 percent above its allotment, while Kuwaiti oil production was 1.3 mb/d, 25.4 percent above quota.³⁹ Many observers had speculated that Iran and Iraq would produce as much oil as possible to finance reconstruction after the Iran-Iraq war ended in August of 1988. Realizing that revenue maximization would not be achieved by flooding the market, however, neither country exceeded its first-quarter quota by a large margin.

Unlike the situation in 1988, increased demand for OPEC oil absorbed the excess supply and, in turn, drove up prices during the first 3 months of 1989. Petroleum consumption by member nations of the Organization for Economic Cooperation and Development (OECD)⁴⁰ rose by 537,000 b/d for the period.⁴¹ Petroleum consumption in the United States, which accounts for over 45 percent of OECD consumption, grew just 0.2 percent. However, a 6.6-percent reduction in U.S. crude oil production for the first quarter forced the Nation to increase its reliance on foreign oil to fill the widening gap between petroleum supply and demand.⁴² OPEC provided much of the crude oil needed, as output was reduced by some non-OPEC countries, such as the United Kingdom, where a series of oilfield accidents late in 1988 had forced cutbacks in North Sea area production.

In the second quarter of the year, crude petroleum prices rose 7.2 percent, considerably less than the 27.8-percent jump in the first quarter. The primary reason for the moderating prices was increased overproduction by OPEC, which coincided with disunity among cartel members. Total OPEC production averaged 22.2 mb/d from April to May, 3.7 mb/d above quota.⁴³ All 13 members produced over quota, with the United Arab Emirates and Kuwait exceeding their allotments by 827,000 and 898,000 b/d, respectively, in continued protest of what they believed to be unjustifiably low quotas assigned to them in November of 1988.⁴⁴

As the third largest reserve holder in the world, with most of its oil sold as petroleum products, Kuwait has a big incentive to exceed quota and therefore benefits from lower crude oil prices that increase product margins.⁴⁵ It was Kuwait's tendency to overproduce that resulted in the continuing deterioration of Saudi-Kuwaiti relations, causing both the June and September OPEC meetings to fall short of expectations. Saudi Arabia's continual insistence on stable prices and the maintenance of its 24.6-percent OPEC share remained a source of friction with Kuwait and the United Arab Emirates, both of which prefer quota allocation based on reserve holdings and production capacity. The agreements reached at the two meetings increased the OPEC production ceiling by 1 mb/d for each quarter, but Kuwait, which, along with the United Arab Emirates, had pushed for a disproportionate increase in its quota, signed both accords "with reservations," thus making it known that Kuwait would continue to produce at a level it considered optimal for its own interests.

The breakdown of relations among OPEC members led to repeated overproduction in both

Merchandise import growth moderated only slightly for the year.

the third and fourth quarters of 1989 as demand from the slower-growing Western economies fell slightly, causing crude petroleum prices to stabilize in the latter half of the year. In the United States, petroleum consumption from July to December averaged 17.25 mb/d, 230,000 b/d below year-earlier levels.⁴⁶

Although crude oil prices were sharply higher for the year, net U.S. petroleum imports were up 8.1 percent in 1989 to 7.119 mb/d, the highest level since 1979.⁴⁷ This reflected the continuation of a 3-year trend of growing U.S. dependence on crude oil imports. Net imports as a percentage of U.S. petroleum products supplied reached 41.3 percent for the year, compared to 38.1 percent in 1988. Plummeting world oil prices in the mid-1980's precipitated the increased reliance on foreign oil, as U.S. petroleum consumption rose 1.5 mb/d from 1985 to 1989⁴⁸ while domestic production fell 1.34 mb/d over the same period.⁴⁹

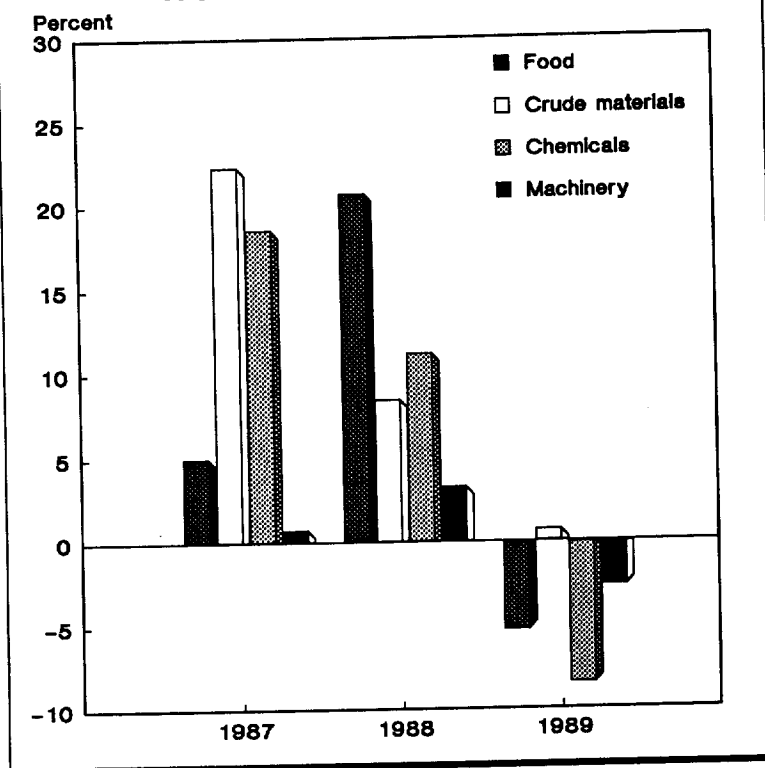
Growing U.S. dependence on foreign oil, largely from OPEC, is likely to continue, because the U.S. oil industry has not supported significant amounts of additional spending on exploration projects. The average number of rotary rigs in operation in the United States, an important indicator of future U.S. production levels, totaled 869 in 1989 compared to 936 in 1988 and the 3,970 record set in 1981.⁵⁰ The number of oil wells completed in the United States dropped to 10,860 for the year, 15.9 percent below the number completed in 1988.

Intermediate manufactures. Import prices for intermediate manufactured products decreased 0.7 percent in 1989. The drop was primarily a result of domestic economic conditions, which were characterized by some analysts as the foreshadowing of a recession, by others simply as a slowdown, and by Federal Reserve Board Chairman Alan Greenspan as a "temporary hesitation."⁵¹

The downward trend in the index for intermediate manufactured products, which accounts for nearly 16 percent of the all-import index, marked the end of 3 years of upswings that had included 12.3- and 12.7-percent surges in 1987 and 1988. Among the index's nine subcategories, three experienced annual price declines while another three experienced rates of increase smaller than those recorded in 1987 and 1988. (See chart 8.)

Steel prices, which had climbed a cumulative 30 percent over the years 1987-88, showed no change in 1989. Nonferrous metals prices, which had risen 66.6 percent over the same period, decreased 14.4 percent in 1989, and

Chart 3. Annual percent price changes for selected categories of U.S. exports, 1987-89



prices for metal manufactures, which had increased nearly 21 percent during 1987-88, moved up 2.4 percent, the smallest change in that index since 1984. These three categories represent the first, second, and fourth largest groups within the intermediate manufactured products index, with iron and steel and nonferrous metals accounting for more than one-third of the aggregate index. The 8.1-percent jump in nonmetallic mineral manufactures, caused in part by the 14.8-percent increase for gemstones, was the only major subcategory to post a significant increase.

While the economy completed its seventh consecutive year of expansion in 1989,⁵² the rate of growth declined, with most economic indicators falling from previous levels. Real GNP increased 3.0 percent in 1989, the smallest annual advance since 1986 and significantly below the 4.4-percent advance in 1988.⁵³ In addition, output from the automobile, construction, and housing industries, which are major end users of iron, steel, and nonferrous metals, fell from the record levels set in the past few years. The result was stagnant or lower prices for the intermediate products, especially in the second half of the year, during which the slowdown combined

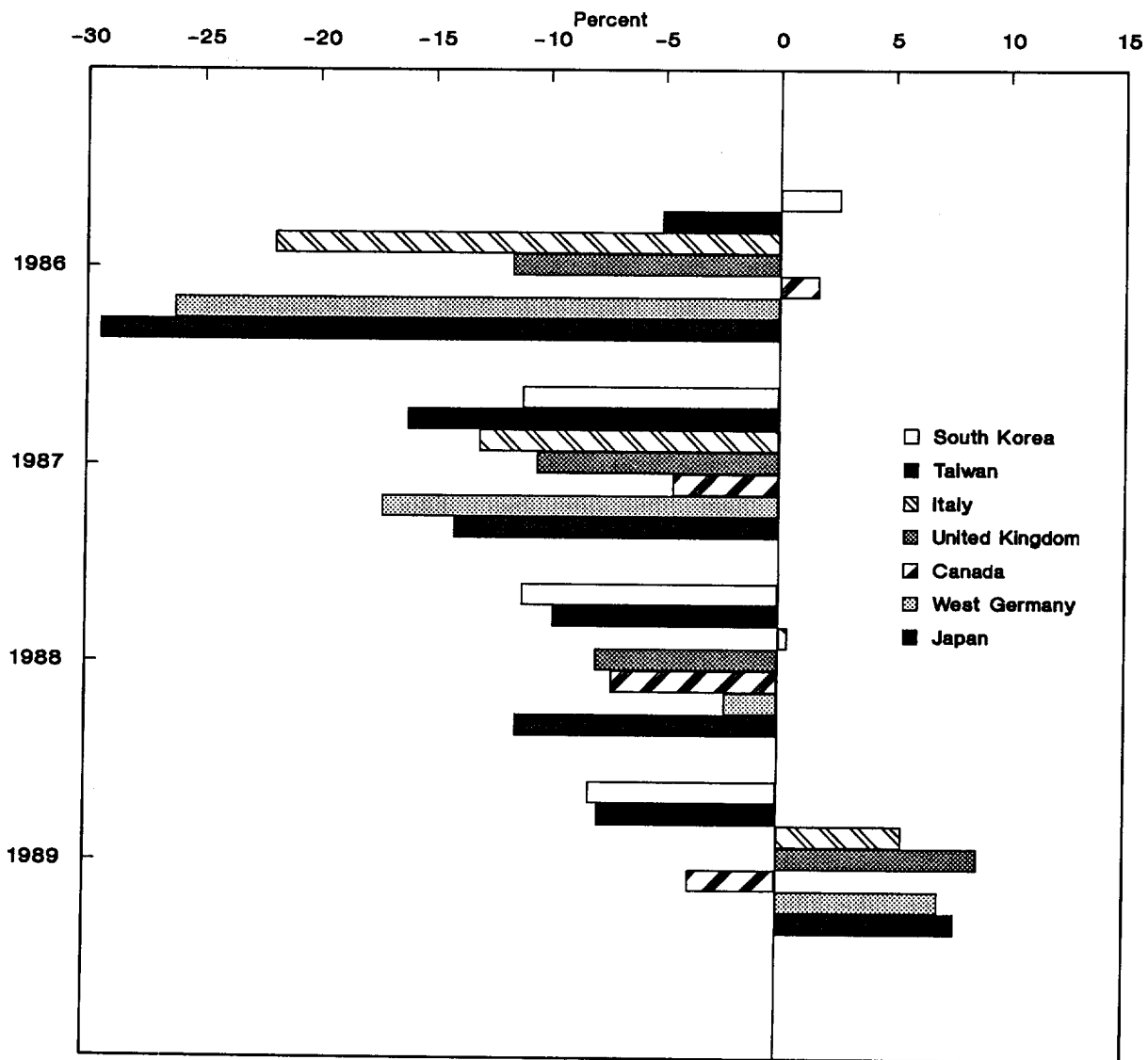
with cautious expectations for the near future to reduce demand even further.

During the expansive years of 1987 and 1988, demand for intermediate products and the outputs they are used to manufacture skyrocketed, supply shortages arose, and prices jumped. In response to rising prices, metal plants that had closed during the recessionary times of the early 1980's were reopened, company investment increased, and capacity levels grew. The additional capacity that came online between late 1988 and the middle of 1989, along

with the economy's slowdown, resulted in rising inventory levels that lasted throughout the year.

Import prices for *iron and steel* moderated during 1989, as the 1.5-percent increase during the first quarter was followed by relative price inactivity in the middle 6 months, and was subsequently negated by the 2.2-percent drop in the final quarter. At the subgroup level, the small annual increase for the universals, plates, and sheets index was offset by declines in the indexes for ferroalloys and for tubes, pipes, and fittings.

Chart 4. Annual percent change in the exchange rate of the dollar against various foreign currencies, 1986-89



SOURCE: *Federal Reserve Bulletin*, various issues, table 3.28, "Foreign Exchange Rates."

Table 1. Changes in import and export price indexes for selected product categories, 1988 – 89

SITC code	Product category	Percent	Annual percent change		Quarterly percent change			
			December 1987 to December 1988	December 1988 to December 1989	December 1988 to March 1989	March 1989 to June 1989	June 1989 to September 1989	September 1989 to December 1989
	All imports	100.000	4.5	1.9	1.8	0.1	-1.2	1.2
	All imports excluding fuels	90.746	6.9	-5	.4	-.8	-.7	.7
0	Food	4.940	1.6	-5.5	-2	-2.5	-4.7	1.8
1	Beverages and tobacco	1.117	2.4	5.3	.7	.2	3.0	1.4
2	Crude materials	3.629	17.3	-5.0	2.1	-1.3	-4.9	-8
3	Fuels and related products	9.252	-16.1	30.0	18.4	9.7	-6.1	6.5
4	Fats and oils	.179	10.0	-10.3	.2	4.4	-9.1	-5.6
5	Chemicals and related products	4.213	11.0	-2.7	1.1	-2.6	-2.2	1.0
6	Intermediate manufactured products	15.847	12.7	-.7	1.7	-.9	-.6	-.9
7	Machinery and transport equipment	44.295	5.5	.2	.2	-.7	-.2	.9
8	Miscellaneous manufactured articles	15.745	3.9	1.8	.0	.0	.5	1.3
	All exports	100.000	6.4	.6	1.5	-.1	-.7	-.1
0	Food	9.603	20.7	-5.2	3.0	-1.8	-4.4	-1.9
1	Beverages and tobacco	1.628	4.4	7.3	4.9	.3	2.4	-.4
2	Crude materials	10.676	8.5	.7	5.0	.3	2.4	-1.7
3	Fuels and related products	4.013	-3.8	14.7	2.9	5.3	2.2	3.6
4	Fats and oils	.560	12.1	-5.2	-1.3	-3.3	-4.0	3.5
5	Chemicals and related products	11.645	11.2	-8.4	.0	-2.9	-3.4	-2.3
6	Intermediate manufactured products	8.194	8.5	1.7	-1.7	.4	-.2	-.2
7	Machinery and transport equipment	45.294	3.3	2.6	.9	.5	.7	.6
8	Miscellaneous manufactured articles	7.702	4.6	3.9	.8	1.3	.7	1.1

Import prices and volumes of iron and steel reflected the condition of the domestic steel industry, which was considerably stronger in the beginning of the year than at yearend. For example, U.S. steel shipments in 1989 rose less than 1 percent over 1988's record-setting total,⁵⁴ despite having increased 4.5 percent in the first quarter.⁵⁵ Capacity utilization, while on a par with 1988 levels through May at nearly 90 percent,⁵⁶ ended the year at just over 84 percent.⁵⁷ In addition, steel production, which rose 9 and 12 percent in 1987 and 1988, respectively, declined more than 2 percent in 1989. Domestic consumption also fell more than 5 percent for the year.

Declines in shipments to the two largest domestic markets, service centers and the automotive industry, were the primary reason for the steel industry's lethargy. Shipments to service centers and distributors, which account for more than one-fifth of all steel shipments, fell an estimated 3.2 percent to 18.4 million tons in 1989;⁵⁸ meanwhile, those to auto markets dropped 7.1 percent to 11.2 million tons, after increasing more than 13 percent in the first quarter.⁵⁹

The decline in sales of both domestic and imported automobiles in the United States caused car inventories to grow throughout 1989, particularly in the latter half of the year. Con-

currently, distributor steel inventories rose and peaked in the summer because of deliberate overstocking in midyear to combat the threat of a potential steelworkers strike that failed to occur, lower lead times between orders by customers and contracted delivery dates, and a general inability to draw down stock levels in the face of weak demand.

Import volumes of steel also declined in 1989, falling 16.7 percent from the previous year.⁶⁰ The combination of sluggish U.S. demand, the relatively weak dollar, and stronger economies in Europe and Japan kept foreign shipments to this country below the import levels dictated by the Voluntary Restraint Agreements (VRA's) that were negotiated in 1984. In all, the volume of imports from the 29 countries affected by the VRA's⁶¹ for steel mill products and certain fabricated steel products declined 12.3 percent during 1989.⁶² This continues a trend also noted in 1988, during which foreign producers exported to the United States just 75 percent of their allotted total,⁶³ and concentrated more on supplying their own growing markets. U.S. purchasers of steel have responded to lower import levels by buying their steel domestically. Imports from Canada, the only major producer not covered by a VRA, decreased more than 6 percent as well.⁶⁴ Since the VRA's went into effect, total imports as a percent of U.S.

market share have fallen from 28.4 percent to just over 17 percent in 1989.⁶⁵

The VRA's have achieved their goal of reducing foreign competition in the U.S. steel market. To ensure that this trend would continue, the industry began lobbying for a 5-year extension of the program well before its scheduled September 30, 1989, expiration date. In July, the agreements were extended until March 31, 1992. The new pacts, while similar to the earlier ones, allow import penetration starting at 18.4 percent to increase by 1 percent each year. Provisions were also made to loosen restrictions in the event that steel supplies become scarce at any time. However, a decision to extend the VRA's for only two-and-a-half years was a compromise of a sort, as domestic steel purchasers had argued for the abolition of such agreements.

Prior to the extension, the International Trade Commission released the findings of its investigation of the effects of the VRA's on the domestic steel industry. The investigation, which was initiated by the Subcommittee on Trade of the U.S House of Representatives' Ways and Means Committee, concluded that the VRA's caused imported and domestic steel prices to increase between 0.2 and 1.6 percent

more each year between 1985 and 1988 than if the agreements had not been in place.⁶⁶ However, the Commission also decided that the VRA's had little, if any, adverse effect on the automotive, construction, or agricultural equipment industries.

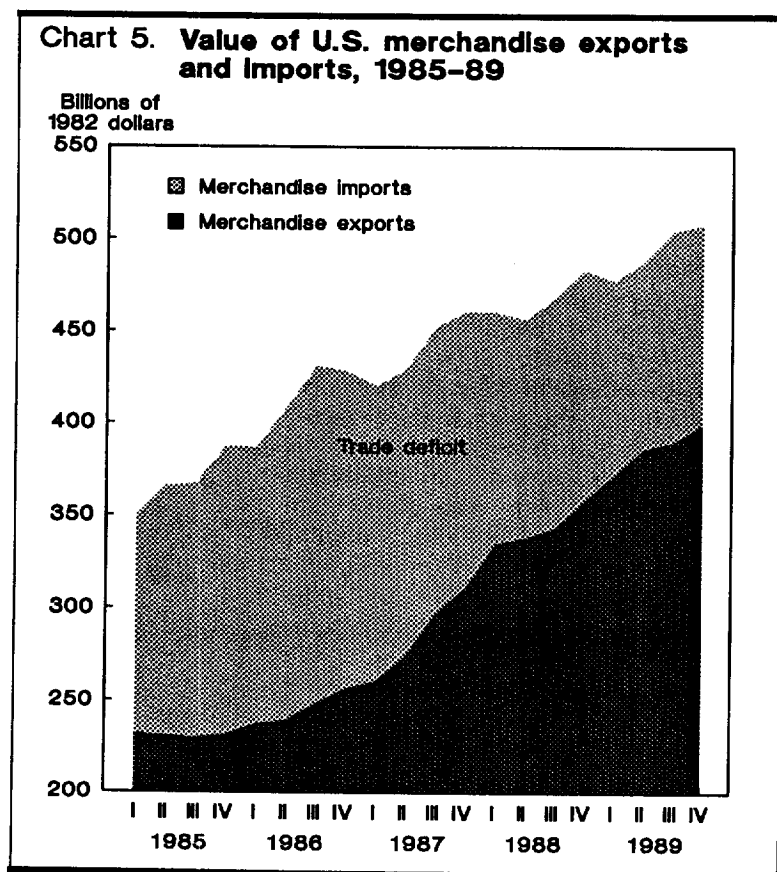
Import prices for *nonferrous metals*, historically the most volatile category of the intermediate manufactured products index, followed a path similar to that of iron and steel prices in 1989, rising moderately in the first quarter and dropping rapidly in the final three quarters. The 14.4-percent annual decline was the first downward movement in the index since 1985 and the largest decrease since publication of the nonferrous metals index began in 1982. Import prices for all of the major subcategories of the index declined, except for a slight annual increase for zinc.

The slowdown in the economy also was the driving force behind lower prices for copper, aluminum, and nickel, and the slowed increase for zinc. Prices of the aforementioned metals, like those of iron and steel, all depend heavily on consumer demand and the strength of industrial activity. Consequently, the slowdown in the key transportation, housing, and construction sectors affected nonferrous metal prices similarly.

Copper prices—which in general appeared to be affected by the economic slowdown, falling 16.1 percent in 1989 after rising 32.9 percent in 1988—were more erratic during the year due to world production problems caused by work stoppages and other troubles in Belgium, Peru, Canada, Mexico, Chile, Zambia, and Papua New Guinea. All of the problems were resolved later in the year, except for the disorder in Papua New Guinea. The United States was the only major free world copper producer that failed to experience supply problems in 1989.

In response to the production disruptions and despite weak seasonal demand, imported copper prices increased 5.2 percent during the third quarter after falling the previous two. Unlike those of the other metals, copper supplies did not finish the year at especially strong levels, although the resolution of the supply interruptions and the continued slack in industrial activity caused prices to fall nearly 9 percent in the fourth quarter.

Despite the turmoil in most copper producing countries, global copper production increased during the year, most notably in the United States, which is second only to Chile as the world's largest copper producing nation.⁶⁷ The U.S. producers took advantage of the new solvent extraction electrowinning (SX-EW)



technology, an innovative, low-cost method of extracting copper from ore. In 1989, about 18 percent of U.S. copper was produced using SX-EW technology, up from about 12 percent in 1987.⁶⁸ Copper ranks second only to aluminum as the most commonly used nonferrous metal in the U.S. and world economies.

The Nation's building and construction industry continued to be the largest market for copper shipments, accounting for more than 40 percent of all U.S. shipments.⁶⁹ In 1989, spending on construction projects grew just 1.2 percent, the lowest rate of increase since 1982.⁷⁰ The electrical and electronics sector and the industrial machinery and equipment industry were other major end markets for copper, while demand from the automobile industry accounted for slightly more than 10 percent of all copper shipments.⁷¹

Among the other nonferrous metals, aluminum recorded a price decline—18.7 percent—during the year because of increased capacity levels worldwide and weakening demand from many major end markets. Nickel prices fell almost 43 percent during the final three quarters and slightly more than 30 percent for the year as a whole. This was due to the softening stainless steel market, which accounts for about 40 percent of U.S. nickel demand and 60 percent of world demand.⁷²

The 8.1-percent increase for imported *non-metallic mineral manufactures*, which represent almost 16 percent of the intermediate manufactured products index, was the largest jump among all the index subcategories. The large increase in gemstone prices was primarily a result of the 15.5-percent price increase in March for rough or uncut diamonds by De Beers' Central Selling Organization, the South African cartel which controls 80 percent of the worldwide rough diamond market.⁷³ The 1989 increase for gemstones was the largest in 4 consecutive years of price increases by De Beers.

Imported diamond and other gemstone prices slowed considerably following the first quarter's 7.8-percent rise, especially in the United States, where diamond demand slackened following the cartel's action. Global demand for diamonds remains high, however, particularly in Japan, where the government substantially reduced the luxury tax, which applies to such items. Speculation for the future centers upon whether producers in Australia, Botswana, Namibia, Zaire, and the Soviet Union will follow the lead of those in Angola and break with the De Beers pricing strategy in an attempt to sell more of their stones on the

open market. In all, De Beers' second-half 1989 sales were 24 percent lower than first-half sales, while their annual sales were 2 percent lower than 1988's record level.⁷⁴

Machinery and transport equipment. The sluggish performance of the U.S. economy in 1989 and the appreciation of the dollar during the first half of the year were evident, to perhaps the greatest degree, in the price trends for imported machinery and transport equipment. The index for this category of goods, which accounts for almost 45 percent of the all-import index, experienced just a 0.2-percent annual upturn, substantially lower than the 7.6- and 5.5-percent yearly gains of 1987 and 1988. If the heavily weighted subcategory of road vehicles and parts is excluded, import prices for the remaining finished goods actually declined 0.5 percent.

There is evidence that the slowdown of the domestic economy played a part in the stagnation of import price growth, in that none of the machinery and transport equipment index's seven published subcategories posted a yearly rise of more than 0.8 percent in 1989. In comparison, over the 3-year period from 1986 through 1988, all subcategories except one registered annual increases of at least 2.9 percent each year. In 1989, import prices decreased in four subcategories—specifically, specialized machinery, office machines and automated data processing equipment, telecommunications equipment, and electrical machinery and equipment. Not since 1985 had any subcategory experienced an annual drop in prices, and not since 1984 had prices declined in so many product areas.

The aggregate index for machinery and transport equipment increased in the first and fourth quarters of 1989 and decreased during the middle two. The 0.7-percent second-quarter decline and 0.9-percent fourth-quarter rise were the index's largest quarterly movements. The trade-weighted value of the dollar for such commodities showed the most volatility during these two periods, appreciating 5.6 percent in the second quarter and depreciating 2.9 percent in the fourth quarter.

It is important to note that the BLS International Price Program accepts import price data reported in terms of both foreign currency and U.S. dollars. For the purposes of index calculation, prices stated in foreign denominations must be converted to dollars. Prices for as many as 37 percent of all metalworking machinery products and 33 percent of all general industrial machinery products were reported in foreign currencies, thus making the indexes in those

In 1989, spending for construction posted its lowest increase since 1982.

areas more susceptible to exchange rate fluctuations. Consequently, these two subcategories of the machinery and transport equipment index showed the most sensitivity to the appreciation of the dollar in the second quarter.

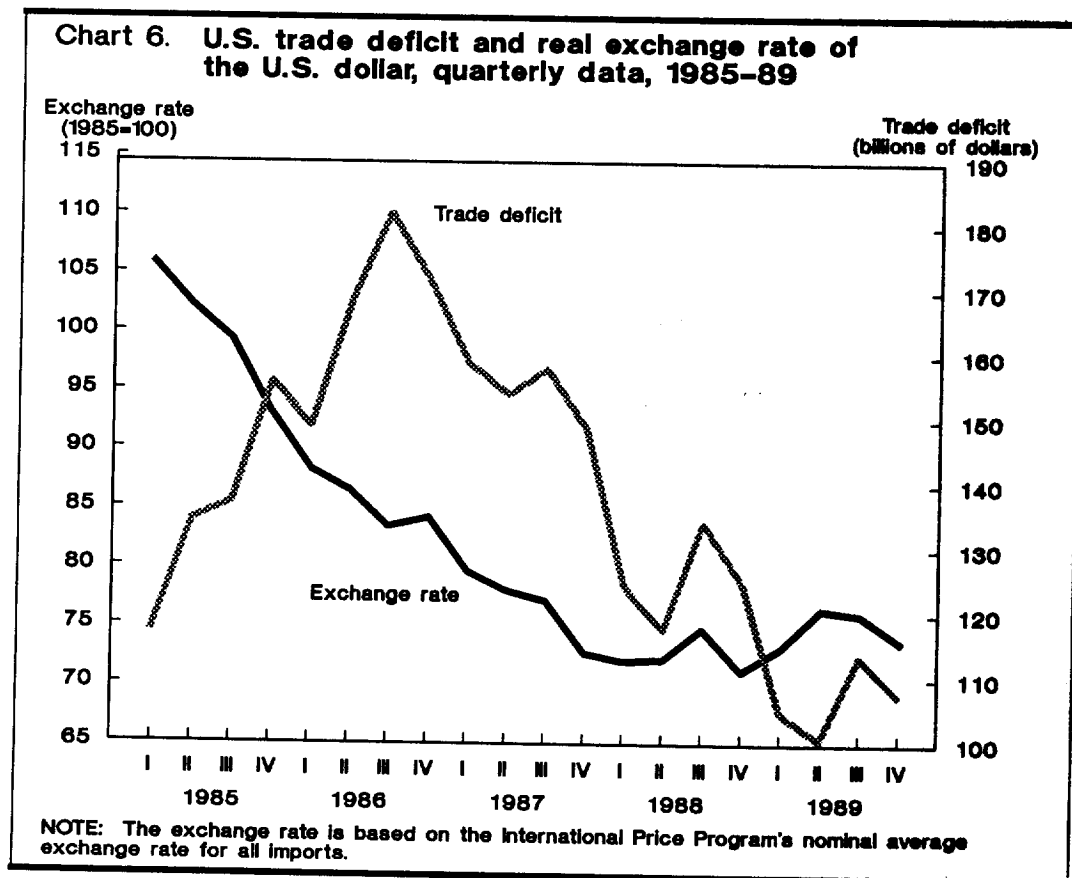
Although fluctuations in the value of the dollar affected the direction of quarterly index movements, many other factors contributed to lower import prices in 1989. Among these were the sharp drop-off in consumer demand for automobiles and computers, an easing of supply constraints in such areas as semiconductors, and a leveling-off of production in machinery industries as a result of negligible growth of construction projects.

Prices for road vehicles and parts, which is the largest subcategory within the machinery and transport index and accounts for more than 18 percent of the all-import index, increased 0.8 percent for the year. That figure represents the lowest price advance in this area since 1982, at which time the U.S. economy was experiencing a recession. In 1989, the index decreased in each of the first three quarters, while the 1.9-percent advance in the fourth quarter, which reflected the introduction of the new 1990 model cars into the index, was lower than the

2.4-percent mean increase for all fourth quarters between 1982 and 1988. On average, the road vehicles and parts index had increased 7.5 percent annually between 1985 and 1988.

Prices for imported passenger automobiles rose 0.4 percent during 1989, the smallest annual increase since 1982, while those for automotive trucks advanced just 0.1 percent, the smallest gain in that area since publication of the trucks and special purpose vehicles index began in 1984. Most of the fourth-quarter price growth was attributed to higher costs associated with the new passive restraint systems required on all 1990 model cars sold in the United States.

The slowdown in the automobile industry during 1989 followed more than 4 years of substantial growth and record or near-record sales and profits.⁷⁵ Demand for passenger cars, in particular, stalled during 1989. Consumers stopped buying a new car every 3 or 4 years as a result of the increasing costs of purchasing an automobile and the cyclical lull that followed the recent boom. The two concepts are related, in that the higher retail car prices have caused consumers to extend their financial liabilities over a greater timespan.



As a result, U.S. sales of both domestic and imported passenger automobiles declined considerably throughout the year, falling a combined 6.6 percent from 1988 levels.⁷⁶ While performance during the first 9 months of 1989 led to speculation that an industrywide downturn was a possibility, it did not become a reality until the final 3 months. From October through December, total U.S. sales of all passenger automobiles fell nearly 17 percent from year-earlier levels. In December alone, car sales were down more than 25 percent from December 1988. Meanwhile, as production facilities were shut down, inventories continued to increase despite massive incentive packages that offered discounts, rebates, and cash-back programs to prospective buyers.

Although sales of imported automobiles decreased 8 percent in 1989 and the import share of the U.S. market fell nearly 0.5 percent,⁷⁷ the impact that foreign competition has had on the domestic car industry continued to grow. Output of automobile "transplants"—cars built in the United States in factories owned by foreign manufacturers—surged, with U.S. sales from transplant firms and joint ventures increasing 30 percent in 1989.⁷⁸ By November, a record was set, as more than 1 million cars were produced in transplant facilities. In addition, the market share held by Japanese manufacturers reached an all-time high of 26 percent during the year.⁷⁹ Two Japanese companies sold more cars in the United States during December than one of America's "Big Three" automakers, a historic first. Finally, although the public's perception of the quality gap between foreign-made and American-made cars narrowed, as indicated by the J.D. Power and Associates Consumer Satisfaction Index,⁸⁰ the Honda Accord became the best-selling car in the Nation during 1989, a distinction never before held by a non-American manufactured automobile.⁸¹

The influx of Japanese transplant automobiles, which comprised about 10 percent of the U.S. market through September of 1989,⁸² has resulted from the decrease in manufacturers' distribution expenses; the depreciation of the dollar, which in theory makes imports more expensive; and the restriction of imports to a bilaterally agreed-upon level of 2.3 million units per year. Because transplants are manufactured in the United States, they are not considered imports and thus are not subject to trade restrictions.

Among all of the machinery and transport equipment subcategories, the index for electrical machinery and equipment, which accounts for nearly 6 percent of the all-import index,

showed the greatest reversal between 1988 and 1989. After increasing 9.4 percent in 1988, the largest gain in the history of the index's publication, prices for electrical machinery and equipment declined 0.3 percent in 1989. The contrasting movements followed the divergent annual trends noted in the electronic components area—consisting primarily of semiconductors—for which prices fell 4.1 percent last year after rising 16 percent in 1988.

Contributing to the downward movement was an easing of supply problems, combined with weak demand for semiconductors and other electronic components after a somewhat unanticipated strong year in 1988. The softening computer, telecommunications, and automotive markets in the United States all played a role in weakening demand, as did an increase in capacity. The electronic components index decreased in all four quarters of 1989, as the average price of a 1-megabit DRAM (Dynamic Random-Access Memory) chip fell from more than \$15 in January to less than \$11 by October.⁸³

Japan, which controls between 65 and 70 percent of the world market for memory devices, continues to hold an even greater share of the DRAM market.⁸⁴ The supply shortage of 1988 transpired as the result of a 1986 agreement between the United States and Japan whereby Japan would stop "dumping" semiconductors—that is, selling them below cost—on the U.S. market, while the United States would take measures to increase its own production. In June of 1989, U.S. Memories, a consortium of U.S. computer and semiconductor companies that included IBM and Digital Equipment Corporation, was established, with the goal of producing large quantities of memory chips inexpensively. (However, the group was disbanded in January 1990 because of reported financing problems and a lack of commitment on the part of many companies to invest in the long-term project.⁸⁵)

Developments in export prices

Food. Following 2 years of increases—including the drought-generated 20.7-percent rise in 1988—the index for exported food products, which accounts for nearly 10 percent of the all-export index, declined 5.2 percent in 1989. Whereas the grain category constitutes nearly 60 percent of the index and is customarily the most volatile food subdivision, large decreases in other areas such as exported meat, fish, and animal feeds edged the index down even further than did the modest 1.0-percent drop in grain prices.

The impact of foreign competition on the domestic car industry continues to grow.

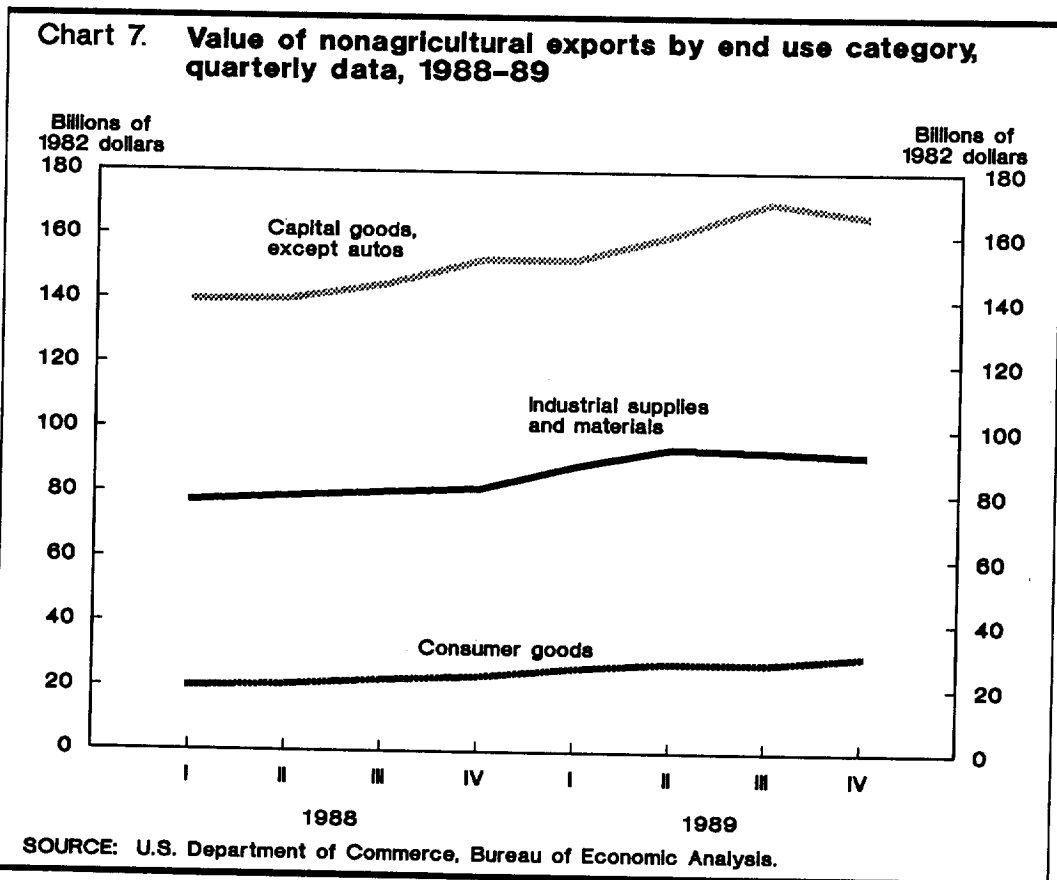
In all, export prices for four of the six major food categories fell, with only those for fruits and vegetables and miscellaneous food products showing slight over-the-year increases. The index for exported fish and crustaceans dropped 24 percent after having risen 80.7 percent since 1984. Like that for fish, the index for animal feeds, consisting largely of soybean meal, registered its first annual decline in 5 years, dropping 17.9 percent. The index for exported meat and meat preparations declined 10.4 percent, its first downturn since BLS began publication of the index in 1983.

The slight dip in grain prices during 1989 marked the smallest change in the grain index since it was first published in 1980 and was a notable reversal from the cumulative 40.7-percent advance in the index over the years 1987-88. Prices were not pushed down substantially from inflated 1988 levels, primarily because beginning stock inventories were depleted as a result of the drought. That exported grain prices fell just 1 percent, as compared to the 12-percent annual drop in 1983—the year following the last domestic drought—tends to support claims that the 1988 drought was the worst since the mid-1930's.⁸⁶

Weather conditions around the country were considered adequate for food production during 1989. However, climatic effects of the 1988 drought lingered. The middle part of the country, including the Corn Belt and Northern Plains, was adversely affected during the growing season by already low ground moisture, a small rainfall, and other postdrought consequences. Cool summer temperatures and an increase in precipitation helped to offset those problems. The East, meanwhile, enjoyed a good year, as heavy rains helped the Southeast to its best crop in 5 or 6 years.⁸⁷ The western part of the country was dry once again.

Farmers tried to compensate for the effects of the drought by increasing acreage in 1989. For example, cropland idled in 1989 under the terms of annual Federal commodity programs was almost 50 percent below that in 1988.⁸⁸ The Federal Acreage Reduction Program's requirements, which make participating farmers reduce the amount of crop planted in order to qualify for price support assistance, were relaxed for wheat, corn, grain sorghum, and barley.

Declines in the aggregate exported *grain* index in the final three quarters offset the 6.3-percent increase registered in the first quarter.



The index for yellow corn, accounting for nearly 50 percent of the grain index, decreased 3.8 percent for the year, as sharp price drops during the harvest season more than compensated for increases in the first and fourth quarters. Wheat prices, however, continued to climb, rising 1.4 percent for the year as U.S. and world wheat supplies remained the tightest they had been in 20 years.⁸⁹ The wheat index constitutes nearly 32 percent of the grain index and almost 2 percent of the all-export index. The indexes for corn and wheat had increased 32.1 and 50.3 percent, respectively, during 1988. Rice prices, which were unaffected by the drought and had fallen 22.4 percent in 1988, rose 6.8 percent in 1989, primarily because of increased world consumption.

The decrease in corn prices subsequently proved to be the principal factor in lower grain prices. Corn production and yields for 1989 rebounded sharply from those achieved in 1988, reaching levels more in line with nondrought years. Production was estimated at 7.5 billion bushels, up from 4.9 billion, and the number of bushels harvested per acre jumped from 84.6 to 116.2.⁹⁰

Yields typically increase further the second year after a drought because the recovery year is often spent replenishing ground water and dealing with soil problems caused by unused fertilizer and chemicals. Following the droughts in 1970, 1974, 1980, and 1983, yields averaged 6.7 percent higher in the second postdrought year than in the recovery year.⁹¹ This past performance gives farmers high expectations for crops set to be harvested in 1990.

Corn stocks at the beginning of the 1989-90 marketing year—September 1989 through August 1990—were well below year-earlier levels as a result of the poor 1988 harvest and export expansion during the 1988-89 marketing year. (Grain and other agricultural statistics are often quoted in marketing year terms in order to reflect the 12 months between harvests.) September 1989 stocks numbered only 1.9 billion bushels, down substantially from the nearly 4.3 billion bushels available to start the 1988-89 marketing year.⁹² The United States, which became the world's largest exporter of corn in 1972-73⁹³ and accounted for 80 percent of the world's exports in fiscal year 1989 (October 1988-September 1989),⁹⁴ has started to sell abroad in volumes not seen since early in the decade. During the 1988-89 marketing year—the marketing year immediately following the drought—2.1 billion bushels of corn were exported.⁹⁵ This represents an 18.9-percent increase over the 1987-88 level.

The movements in corn export prices during the 1989 calendar year reflected the increased production but also stronger world demand. After a 7.0-percent drought-induced increase in the first quarter, the corn index fell 13 percent between March and September. The index was down 9.4 percent in the third quarter alone, due to seasonal decreases that are common with the fall harvest. The 3.3-percent turnaround in the fourth quarter was a result of the increased demand from the Soviet Union, which purchased nearly 8 million tons of U.S. corn during a 3-week period in October. That amount was equal to almost 50 percent of the Soviet Union's total corn purchases from the United States in 1988.⁹⁶ The increased Soviet demand resulted in revisions to the U.S.-Soviet Long Term Grain Agreement, which originally stated that the U.S.S.R. could buy as much as 12 million tons of grain each marketing year. In November, with Soviet purchases increasing, the limit was raised to 16 million tons, and later, to 20 million tons.⁹⁷

The wheat index increased 1.4 percent for the year, the smallest annual movement since 1984. The 6.8-percent advance in the first quarter was caused by poor growing conditions for winter wheat. Strong winds and an arctic flow of cold air in the Plains States preceded warmer-than-normal spring temperatures to reduce production. Output levels for Hard Winter Ordinary Wheat (HRW), which represents 45 percent of all U.S. exported wheat, posted 20-year lows and were down 18 percent from the 1988 crop.⁹⁸ Stocks of HRW were estimated at 300 million bushels on June 1, nearly 50 percent below year-earlier levels and the lowest since 1975.

Wheat exports decreased an estimated 3 million tons during the 1989 fiscal year. The Soviet Union purchased more than one-third fewer tons than their record 9 million tons in fiscal 1988 because of a better domestic crop.⁹⁹ Exports to Eastern Europe and Latin America also were estimated to be lower, offsetting larger exports to Pakistan and China.

The value of all agricultural exports, as well as the agricultural trade surplus, increased in fiscal 1989 as a result of higher prices for most agricultural products and the greater value of the dollar at the beginning of the year. U.S. exports were valued at \$39.7 billion, the highest total since 1981,¹⁰⁰ a 12-percent increase over fiscal 1988 performance, and the third consecutive yearly rise.¹⁰¹ Japan was the leading market, importing \$8.2 billion worth of U.S. products. The European Community and the U.S.S.R. followed at \$6.5 billion and \$3.2 billion, respectively. In unit terms, however, agricultural

The Soviet Union purchased nearly 8 million tons of U.S. corn during a 3-week period in October.

exports declined about 1 percent from the previous year in fiscal 1989. The trade surplus for U.S. agricultural products reached its highest level since fiscal 1984 at \$18.2 billion, \$3.8 billion greater than the 1988 mark.¹⁰²

The 24-percent decline in the *fish and crustaceans* index, which accounts for slightly more than 5 percent of the aggregate food index, represented the largest annual movement among the food subcategories. The index for fresh fish, accounting for 64 percent of all U.S. exported fish, was chiefly responsible for the drop, falling 27.1 percent. After having risen 25.2 and 29.0 percent in 1987 and 1988, fresh fish prices at the end of 1989 stood at their lowest levels since the middle of 1987.

Lower world salmon prices, the result of an oversupplied market, spurred the downturn. The total Alaskan salmon catch for the year reached a record 152 million,¹⁰³ up 21 percent from the March estimate of 125.6 million,¹⁰⁴ and 131 percent greater than the 1988 catch.¹⁰⁵ Alaska is the biggest supplier of the world salmon market, and the larger catch marked the first major U.S. production increase since 1985.¹⁰⁶

The Exxon Valdez oil spill in March of 1989, in which 11 million gallons of crude oil spilled into Alaska's Prince William Sound, had only minor impact on the salmon fishing industry. Although many fishing areas were forced to close and more than 1,000 fisherman claimed damages from Exxon Corp.,¹⁰⁷ the distant fishing waters in southeast Alaska and Bristol Bay were uncontaminated and extremely productive. Even in the well-harvested area surrounding Prince William Sound, salmon fishing was quite strong, with the catch nearly doubling the previous year's level.

The catch increase exacerbated an oversupply on the salmon market that had existed before the 1989 harvest began. The glut was actually caused during 1988 when demand grew, the fish catch was expected to be poor, and prices rose. Consumer demand subsequently fell, and prices began slipping in the fourth quarter of 1988 as sellers tried to move the old supplies. However, Japan, the United States' largest export fish market, apparently believed the leftover inventories were overpriced and slowed its purchases of salmon.

The United States was not the only fish producer to have a strong year. Norway doubled its production of farmed salmon in 1989 to 160,000 tons.¹⁰⁸ In addition, British Columbia, eastern Canada, Chile, Scotland, Ireland, and the Shetland Islands all registered productive years.

Prices for exported fish declined in all four quarters of 1989, with the third quarter's 13.7-

percent drop being the largest as it became apparent that production levels were going to be higher than anticipated. In response to the oversupplied market, Norway and British Columbia, as well as other countries, started advertising campaigns designed to increase salmon consumption. Attempts to do the same in the United States were rejected by the International Salmon Farmers Association early in the year, with talks set to resume in February 1990.¹⁰⁹ U.S. wholesalers have generally neglected the chance to introduce lower salmon prices at the retail level, preferring instead to realize larger profit margins.

Crude materials. Exported crude materials prices rose 0.7 percent in 1989, following gains of 22.3 percent in 1987 and 8.5 percent in 1988. Last year's rise was the smallest annual increase since the crude materials index was first published in 1983, and can be attributed to offsetting price movements among major components of the index. For example, annual increases were registered for wood (19.4 percent), textile fibers (12.4 percent), and pulp and wastepaper (6.7 percent), while decreases were recorded for oilseeds (19.3 percent) and metal ores and scrap (8.0 percent).

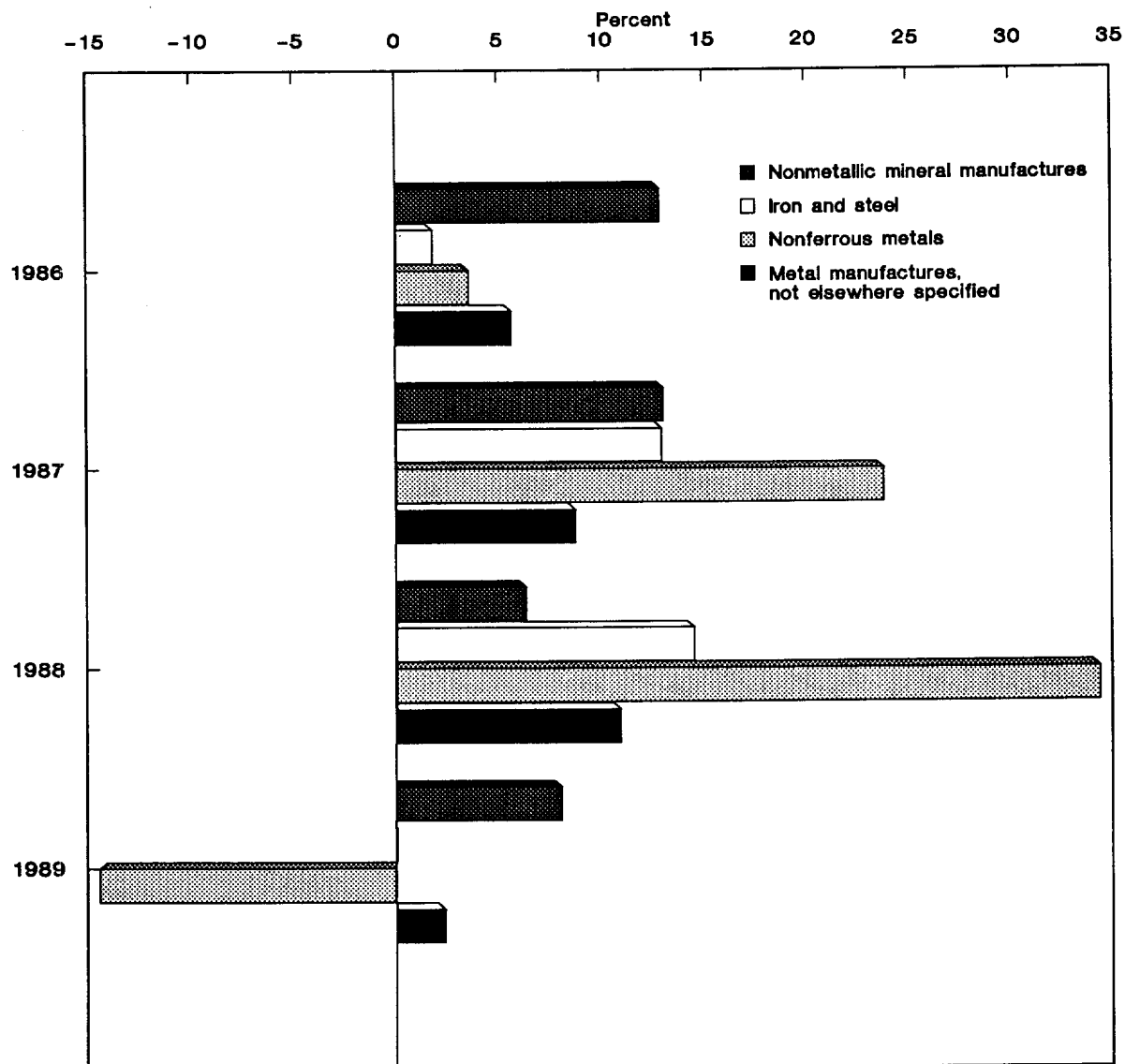
After rising only 1.8 percent in 1988, prices for exported *wood* climbed 19.4 percent, the year's largest advance within the crude materials category. Much of the increase occurred between March and September, with a peak in the second quarter. Tightened supplies within the United States and an export surge early in the year were the two primary forces driving up wood prices in 1989.

Wood supplies were restricted in March of last year when U.S. environmentalists blocked the logging of old-growth timber on Federal lands in the Pacific Northwest in order to protect the nesting sites of the threatened Northern Spotted Owl.¹¹⁰ The resulting 14.1-percent reduction in the total supply of forest land in Washington and Oregon forced many small independent sawmills, which depend heavily on Federal timber, to shut down. As court injunctions continued to restrict timber supplies throughout the spring and summer, the remaining larger forest product companies found it increasingly difficult to supply the market.

Growth in wood exports, especially to Japan, put further pressure on those U.S. producers still in business. Japan increased its purchases of softwood logs by 25.3 percent and of softwood lumber by 14.0 percent in 1989.¹¹¹ At the same time, U.S. lumber exports to the Middle East rose 39.4 percent. To avoid overcutting their

Prices of wood exports posted the largest advance within the crude materials category.

Chart 8. Annual percent price changes for selected categories of Imported metals manufactures, 1986-89



own future supplies, U.S. landholders used most of their private timber for export because, by law, logs cut from Federal land cannot be exported. As a result, prices were bid up for the already scarce and increasingly expensive Federal timber to supply the domestic market.

In Japan, the destination for over 60 percent of U.S. softwood exports in 1989, increased demand resulted in the payment of higher prices by the Japanese than by U.S. consumers. Strong levels of housing starts in Japan over the past 3 years, averaging 1.6 million to 1.7 million units

compared to 1.1 million units in the early 1980's, have kept wood consumption in that country high.¹¹² In the case of U.S. lumber, yen prices historically have been low, but they stood at or near record levels in dollars in 1989.¹¹³ This reflects cost advantages enjoyed by U.S. sawmills over Japanese sawmills gained through the declining value of the dollar against the yen during the past 3 years. The cost difference was reportedly large enough that the dollar's rebound in 1989 had little effect on the U.S. marketing edge.

U.S. soybean exporters faced stiff competition from their Brazilian counterparts in 1989.

Spurred by a 15.4-percent increase in cotton prices, the index for exported textile fibers climbed 12.4 percent in 1989, reversing the previous year's decline of 7.2 percent. Most of this increase was the result of an 11.2-percent rise in cotton prices in the second quarter of 1989.

The strength of the world cotton market in the spring was a principal factor in rising U.S. cotton export prices. World cotton production was up 4 percent in the 1988-89 marketing year (August 1988-July 1989), but estimates for 1989-90 are down 5.1 percent, to 80.1 million bales, as crops worldwide suffered from poor weather conditions.¹¹⁴ Furthermore, world consumption in 1989-90 is projected at 85.6 million bales, up 800,000 bales over 1988-89. Many of the leading suppliers of cotton, such as China, Pakistan, and the U.S.S.R., are facing growing domestic demand and have pulled their crops from the world market for lack of exportable supplies.¹¹⁵ China, the largest cotton producer, became a net importer of cotton in 1989 for the first time since the early 1980's, as the country's total consumption, driven by an expanding textile industry's needs, outweighed production.

In 1989, the U.S. cotton industry was in a position to take advantage of the tightness in foreign supplies, which led to higher prices abroad and thus made the U.S. cotton price more competitive. As a result, projected exports for 1989-90 are estimated at 7.7 million bales, a 25.2-percent increase over 1988-89 levels, as the U.S. share of global cotton trade grows from 24 percent to 30.1 percent.¹¹⁶

Exported *oilseeds* prices fell 19.3 percent in 1989 following two consecutive yearly increases of 15.1 percent and 23.8 percent. The decline was led by a 21.8-percent drop in soybean prices, most of which occurred in the second and third quarters. The 1988-89 production year (September 1988-August 1989) marketed the crop from the U.S. drought, which had driven production down 20.1 percent from the previous year to the lowest level for the decade.¹¹⁷ The drought-induced price effects, however, peaked in September of 1988, when low crop yield expectations forced prices 66.8 percent above year-earlier levels. Later projections for a 26.7-percent increase in the U.S. crop for the 1989-90 marketing year began to ease pressure on soybean prices, which fell in the second quarter.¹¹⁸

The size of the Brazilian crop, second only to that of the United States, also influenced soybean prices in 1989. In March of 1989, the U.S. Department of Agriculture predicted that Brazil's crop, which is harvested in February, would reach a record 21 million metric tons, a

16.3-percent increase over the previous marketing year.¹¹⁹ Brazilian soybean exports for the 1989-90 marketing year (February 1989-January 1990) were estimated at 4.2 million metric tons, up 39.5 percent from a year earlier. This increase might not have had a large effect on U.S. prices if, as in previous years, Brazil's crop had hit the market soon after harvesting. However, as of June, only 30 percent of the crop had been marketed,¹²⁰ as Brazilian farmers held back stocks because soybean export prices offered to them by their Government failed to match world prices adjusted for Brazilian inflation.¹²¹ (Unlike farmers in the United States, those in Brazil must sell their crop on the global market through the Government.) The marketing delay was exacerbated by a dock workers strike begun in April at Santos, the largest port in Brazil, through which 40 percent of last year's soybean exports passed.¹²²

When the Brazilian crop finally did enter the market late in the summer, the United States faced stiff competition for sales and prices fell further. As a result, the volume of U.S. soybean exports for 1989-90 is expected to increase only 11.9 percent over that posted for the drought year—which is still 26.6 percent below the 1987-88 level, despite an increase in exportable supplies of 29.7 percent over year-earlier levels.¹²³ Ending stocks are projected to be 81.3 percent higher for 1989-90 than for the previous year, but will still remain below the extremely high levels of 1985-86 and 1986-87.

Prices for exported *metal ores and scrap* also experienced a downturn in 1989. After 3 years of uninterrupted gains, the index for these exports fell 8.0 percent for the year, with the sharpest drop occurring in the final quarter. A 10.6-percent price decline for waste and scrap metal of iron or steel, together with a 15-percent reduction in nonferrous base metal waste and scrap prices, accounted for most of the drop.

The bearish trend in 1989 was primarily the result of a slowing U.S. economy, as well as increased supplies in the nonferrous metal markets. Demand for metals flattened out in 1989, and fell in the key construction and auto markets. At the same time, new capacity began to come online in late 1988 and early 1989 in response to rising prices over the past 3 years. This triggered price declines for the nonferrous base metals as well as for nonferrous scrap, which, pricewise, trend similarly to the primary metal markets.

Much of the downward impetus for ferrous scrap prices in 1989 was provided by stainless steel scrap. The primary end use for this material is as a source of nickel and chromium in the

production of cold rolled stainless steel products, and its price therefore trends with those of both metals. A sharp decline in output of stainless steel, which is the most important use of refined nickel, in the United States, Europe, and Japan, depressed prices for nickel, and consequently those for stainless steel scrap.¹²⁴

Chemicals. Prices for exported chemicals and related products fell 8.4 percent in 1989, after increases of 18.6 and 11.2 percent in 1987 and 1988. The year's decline was the largest for this index since initial publication in 1983, with indexes for most of the major subcategories falling in 1989. Those for manufactured fertilizers and for artificial resins, plastics, and cellulose recorded the largest declines, at 20.9 and 16.2 percent, respectively. Organic chemicals prices decreased 15.6 percent, while prices for inorganic elements, oxides, and salts edged down 3.6 percent.

The lower prices largely reflected a downturn in the U.S. chemicals industry, as well as a decline in orders from China, a big market for thermoplastics and basic chemicals. After a 3-year boom, activity in the U.S. chemicals industry began to ease in 1989. Operating rates fell to 88.3 percent after rising to 90.5 percent in the final quarter of 1988, the highest in 37 years.¹²⁵ Production growth slowed to an estimated 5 percent in 1989, compared to 7- and 8-percent increases in 1987 and 1988,¹²⁶ while industry capacity rose as nominal spending in the chemicals sector climbed 13.3 percent for the year.¹²⁷

Because China has become increasingly important to the U.S. chemicals industry, an unexpected reduction in chemicals exports to that country caused export prices to fall further. In each of the 2 previous years, exports of U.S. chemicals and related products to China grew by more than 70 percent.¹²⁸ In 1989, however, U.S. exports destined for China fell 13.1 percent. The decline in shipments can be attributed to an overheated Chinese economy, a lack of foreign currency reserves in that country precipitated by problems encountered in the transition to a more market-oriented economy, and to political upheaval.

Lower domestic prices for ethylene, the petrochemical produced in largest volume and the raw material for many other chemicals products, contributed significantly to the 15.6-percent decline in the index for organic chemicals exports. U.S. wholesale prices for ethylene fell 26.7 percent in 1989 after fears of a shortage had driven prices up 69 percent in 1988.¹²⁹ Excess capacity during 1989 was partly the reason for the price decline. In response to tight supplies in 1988,

producers brought approximately 1.4 million metric tons of additional capacity online in 1989.¹³⁰ At the same time, however, ethylene demand fell as purchasers tried to work off high inventories stockpiled during the previous year's shortage. In addition, U.S. exports of ethylene and its derivatives were hard hit by the curtailment of shipments to China in 1989, which furthered the decline in export prices.

The plastics industry, which uses ethylene as an input for many of its products, was similarly affected by depressed ethylene prices. Export prices for artificial resins, plastics, and cellulose fell 16.2 percent in 1989, following 25.4- and 6.2-percent increases in 1987 and 1988. Domestic wholesale prices for plastic resins and materials, which trend with export prices, declined 12.4 percent for the year.

In 1987 and 1988, prices for exported plastic materials rose sharply as U.S. operating rates were driven to near-capacity levels, the result both of capacity cutbacks in the early 1980's and vigorous demand. The trend was reversed last year when additional U.S. capacity came online and, as was the case for ethylene, purchases of many plastics materials by all levels of consumers were reduced as inventories were drawn down. Export prices were pulled down further by the sudden decline in shipments to China late in 1988 and throughout 1989. As a leading plastics products producer, China's purchases of polyethylene and polypropylene usually total 1 billion pounds of each a year.¹³¹

The fertilizer industry also suffered a disappointing year in 1989, as a 20.9-percent drop in export prices followed annual increases of 37.6 percent in 1987 and 12.6 percent in 1988. In the United States, excess production was precipitated by a projected 8- to 10-percent increase in domestic fertilizer demand for 1989 as farmers were expected to increase their crop acreage and replenish the soil to recoup losses from the drought of 1988.¹³² This did not prove to be the case, however, and domestic demand increased by only 4 to 5 percent.

Furthermore, the U.S. phosphate fertilizer industry, which exports approximately half of its production, has been losing market share to Morocco, the second largest producer of phosphate fertilizers.¹³³ Although the U.S. fertilizer industry has relatively low fixed costs compared to Third World countries such as Morocco, it has higher variable costs due to its dependence on higher priced raw materials. Because Morocco prices its fertilizers on the basis of variable costs, that country has enjoyed a competitive advantage over the United States. Restructuring of the U.S. fertilizer industry is

After a 3-year boom, activity in the U.S. chemicals industry began to ease in 1989.

currently under way to reduce costs and regain market share.

In spite of the fall in chemicals export prices, the U.S. chemicals trade surplus reached \$16 billion in 1989, up 33 percent over 1988's level.¹³⁴ Chemicals exports climbed 14.3 percent over 1988 to \$36.5 billion, despite the aforementioned loss of a significant portion of the Chinese market. In contrast, imports rose just 3.1 percent, to \$20.5 billion, in 1989.

The improvement in the chemicals trade surplus occurred despite the appreciation of the dollar in 1989. When measured against a trade-weighted basket of currencies representing the major markets for U.S. chemicals and related products, the dollar rose 3.1 percent for the year, causing prices for U.S. chemicals exports in foreign currencies to fall only 5.5 percent,¹³⁵ considerably less than the 8.4-percent decline in U.S. dollar prices for the year. The recent strength of the dollar is in sharp contrast to the experience of the previous 3 years, during which the dollar fell, greatly enhancing U.S. chemicals export competitiveness. The year's exchange rate reversal did not adversely affect the chemicals industry, however, given that, at the end of 1989, the value of the dollar remained 28.4 percent below that in March of 1985.

Machinery and transport equipment. Reacting to continued strong demand for U.S. products overseas, prices for exported machinery and transport equipment increased 2.6 percent in 1989. The upward movement marks the 11th consecutive annual advance in this index, yet the rise in prices slowed slightly from the 3.3-percent hike of the previous year, during which exports surged significantly as a result of the lower value of the dollar and economic expansion abroad.

All but one of the subcategories within the machinery and transport equipment index, which accounts for more than 45 percent of the all-export index, increased during the year. Only the index for office machines and automated data processing equipment fell in 1989, declining 2.0 percent. Among the major index subcategories, the index for road vehicles and parts climbed 3.0 percent in 1989 and that for power generating machinery and equipment rose 4.6 percent. The index for electrical machinery and equipment gained a modest 1.2 percent.

The index for specialized machinery showed the strongest movement among the subcategories, rising 5.0 percent during 1989 following a 5.1-percent increase for the previous year. Prices for construction machinery and construction machinery parts, which together comprise

nearly half of the specialized machinery index, experienced the largest increase, rising 7.3 percent in 1989 after a 5.5-percent jump in 1988. The continued price gains in 1989 were partially a result of higher raw materials costs that were prevalent in 1987 and 1988. In addition, strong demand, which has led to lower transaction lead times and smaller, yet more frequent, orders, has boosted shipping and distribution costs, which have subsequently been passed along to the foreign buyer. Most significantly, however, is the transformation within the industry that began in the mid-1980's and resulted in more competitive U.S. products. This has enabled domestic producers to realize larger profit margins by increasing prices without losing market share.

From 1982 through 1987, prices for construction machinery and parts were relatively stable, with 3 years of modest increases countering 3 years of modest decreases. Price developments reflected a sagging U.S. construction industry that failed to respond to worldwide technological innovations and to a loss of domestic market share to foreign imports.

The improved trade position for construction machinery in recent years is a result of the concerted effort by domestic producers to upgrade plants, retool aging manufacturing facilities, and implement more effective worldwide distribution and service. The consolidation of companies within the industry has led to an increase in expenditures for research and development. As a result, U.S. products have improved to a level of quality comparable to that of products manufactured abroad.

Exports of construction machinery and parts, which currently account for as much as half of all shipments for some U.S. producers,¹³⁶ have surged in the last 2 years. Favorable exchange rates, for which the construction industry lobbied intensely, and strong global demand caused the value of exports to increase 32 percent in 1988 and an estimated 30 percent in 1989, after falling nearly 12 percent in 1985 and rising slightly less than 6 percent in 1986.¹³⁷ The U.S. Department of Commerce, in an attempt to calculate 1988 figures using the Harmonized classification, estimated that the value of exports for 1989 increased just 7 percent.¹³⁸

The 2-percent decrease in prices for office machines and automated data processing equipment followed a relatively strong year in 1988, during which prices rose for the first time since 1981. In 1989, the U.S. computer industry fell back into the lull that was evident in the market earlier in the decade. Prices for all categories within the index, which accounts for slightly more than 7 percent of the all-export index,

The lull in U.S. exports of computers reflected weak global demand and intense foreign competition.

declined during the year, except for the parts component, which showed no change. Weak global demand for the larger mainframe and minicomputer systems has combined with increased competition in the more popular workstation and personal computer markets to force manufacturers to cut prices. Excess capacity, which has also led to lower prices, has resulted from the rapid pace of technology and product changes, standardization, and advances in manufacturing productivity. The United States, once the major worldwide supplier of computer equipment, has continued to lose market share

in each of its five major foreign markets—France, Italy, the United Kingdom, West Germany, and Japan.¹³⁹

The potential for export growth for the U.S. computer industry lies in the political and economic opening of Eastern Europe and the development of a single integrated market in the European Community by the end of 1992. Within the European Community, the restructuring of financial and insurance industries should boost demand for information systems, and to that end, many U.S. companies have already built, or plan to build, plants in the region. □

Footnotes

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¹ Price developments discussed in this article are based on data from the Bureau of Labor Statistics International Price Program (IPP). That program produces import and export price indexes based on the Standard International Trade Classification (SITC) scheme. Both indexes use a modified Laspeyres formula. Price data are collected for more than 22,000 products, and are not seasonally adjusted. Beginning with data for the first quarter of 1988, released in April of that year, IPP indexes were weighted by the value of trade in 1985. (Formerly, the indexes had been weighted by the value of trade in 1980.) In addition, the indexes were recalculated from 1985 forward using the new weights. The Bureau also publishes these series by Standard Industrial Classification (SIC), as determined by the U.S. Office of Management and Budget, and end-use classifications as developed by the U.S. Department of Commerce's Bureau of Economic Analysis (BEA).

² These results are based on the International Price Program's nominal average exchange rate index. The average exchange rate indexes measure the change in the price of trade-weighted baskets of currencies against the dollar and are designed to match the import and export price index series published by BLS at the 2-digit, 1-digit, all-import, and all-export levels as defined by the Standard International Trade Classification, Rev. II system.

³ See "Foreign Exchange Rates," *Federal Reserve Bulletin*, selected issues, table 3.28.

⁴ *Ibid.*

⁵ The Group of Five (G-5) consisted of Japan, West Germany, Britain, France, and the United States. In 1986, Canada and Italy endorsed the G-5 program, and the organization has since been known as the Group of Seven (G-7).

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²⁰ Table 4.4—"Merchandise Exports and Imports by Type of Product and by End-Use Category in Constant Dollars," *Survey of Current Business* (U.S. Department of Commerce, Bureau of Economic Analysis), March 1990. These data, along with those in table 4.3, are on a GNP basis.

²¹ *U.S. Department of Commerce News*, FT-900 (Bureau of the Census), December 1989.

²² Table 4.4, *Survey of Current Business*, March 1990.

²³ Table 1.6—"Relations of Gross National Product, Gross Domestic Purchases, and Final Sales to Domestic Purchases in Constant Dollars," *Survey of Current Business* (U.S. Department of Commerce, Bureau of Economic Analysis), March 1990.

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²⁵ *Main Economic Indicators* (Organization for Economic Cooperation and Development), January 1990, p. 11.

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- ²⁶ Table 4.4, *Survey of Current Business*, March 1990.
- ²⁷ *Ibid.*
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- ²⁹ *Ibid.*
- ³⁰ Table 4.4, *Survey of Current Business*, March 1990.
- ³¹ Table 4.3, *Survey of Current Business*, March 1990.
- ³² Table 4.4, *Survey of Current Business*, March 1990.
- ³³ Table 1.6, *Survey of Current Business*, March 1990.
- ³⁴ Table 1.4 and table 4.4, *Survey of Current Business*, March 1990.
- ³⁵ The pass-through rate is defined as the proportion of a given exchange rate shift that an exporter allows to be reflected in the foreign currency price of a product (that is, the price denominated in the currency of the country of destination or importing country). For example, a 100-percent pass-through rate indicates that the home currency price of a particular product (the price denominated in the currency of the exporting country) remained unchanged, while the change in the foreign currency price fully reflected the exchange rate shift. Conversely, a pass-through rate of 0 percent signifies that the foreign currency price of a product remained unchanged while the change in the home currency price fully compensated for the shift in exchange rates.
- ³⁶ These results were obtained by dividing the change in U.S. dollar prices of all imported products except fuels for the appropriate period by the change in the reciprocal of the average exchange rate index for this category of products during the same period. This demonstrates the method for calculating pass-through rates for any given category of imported products using these data.
- ³⁷ *Monthly Energy Review*, DOE-EIA-0035 (89-10) (U.S. Department of Energy, Energy Information Agency), October 1989, p.113.
- ³⁸ *Ibid.*
- ³⁹ *Ibid.*, p.12.
- ⁴⁰ The Organization for Economic Cooperation and Development comprises Australia, Austria, Belgium, Canada, Denmark, Finland, France, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States and its territories, and West Germany.
- ⁴¹ *Monthly Energy Review*, October 1989, p.117.
- ⁴² *Ibid.*, p.113.
- ⁴³ *Ibid.*
- ⁴⁴ *Ibid.*, p.112.
- ⁴⁵ Joanne Legomsky, "Oil-Gas Basic Analysis," *Standard and Poor's Industry Surveys*, Aug. 3, 1989, p. O-20.
- ⁴⁶ *Weekly Petroleum Status Report*, DOE-EIA-0208 (90-12) (U.S. Department of Energy, Energy Information Agency), Mar. 30, 1990, p.16.
- ⁴⁷ *Monthly Energy Review*, December 1989, p. 21.
- ⁴⁸ *Ibid.*, p. 46.
- ⁴⁹ *Monthly Energy Review*, December 1989, p. 50.
- ⁵⁰ *Monthly Energy Review*, November 1989, pp. 66-67.
- ⁵¹ Hilary Stout, "Leading Index Rose Sharply in December," *The Wall Street Journal*, Feb. 1, 1990, p. A2.
- ⁵² 1990 *United States Industrial Outlook* (U.S. Department of Commerce, International Trade Administration, January 1990), p. 4.
- ⁵³ Hilary Stout, "Growth in GNP for 4th Quarter Revised Upward," *The Wall Street Journal*, Mar. 29, 1990, p. A2.
- ⁵⁴ *Monthly Report on the Status of the Steel Industry* (U.S. International Trade Commission), March 1990, table 1, p. 1.
- ⁵⁵ *Monthly Report on the Status of the Steel Industry*, June 1989, table 1, p. 1.
- ⁵⁶ *Monthly Report on the Status of the Steel Industry*, September 1989, table 1, p. 1.
- ⁵⁷ *Monthly Report on the Status of the Steel Industry*, March 1990, table 1, p. 1.
- ⁵⁸ *AISI Monthly 16 Report*, December 1990.
- ⁵⁹ Leo J. Larkin, "Steel and Heavy Machinery," *Standard and Poor's Industry Surveys*, Nov. 23, 1989, p. S2.
- ⁶⁰ *Monthly Report on the Status of the Steel Industry*, March 1990, table 1, p. 1.
- Data before 1989 are estimated due to the conversion from reporting international transactions based on the Tariff Schedule classification system to use of the Harmonized Tariff Schedule. Starting in 1988, many countries switched to the Harmonized classification system in an effort to standardize the reporting of import and export transactions. The United States began using the Harmonized Tariff Schedule in 1989. Previously in the United States, import transactions were classified using the Tariff Schedule of the United States Annotated (TSUSA), and export transactions were classified using the Schedule B. In many areas, one-to-one conversions were not possible, making it necessary for data prior to 1989 to be estimated.
- ⁶¹ The countries that have entered into Voluntary Restraint Agreements with the United States for steel and steel fabricated products include Australia, Austria, Brazil, Czechoslovakia, East Germany, members of the European Community, Finland, Hungary, Japan, Mexico, the People's Republic of China, Poland, Romania, the Republic of South Africa, the Republic of Korea, Trinidad and Tobago, Venezuela, and Yugoslavia.
- ⁶² *Monthly Report on the Status of the Steel Industry*, March 1990, table 7, p. 7.
- ⁶³ Leo J. Larkin, "Steel and Heavy Machinery," p. S3.
- ⁶⁴ *Monthly Report on the Status of the Steel Industry*, March 1990, table 7, p. 7.
- ⁶⁵ 1990 *United States Industrial Outlook*, p. 16-2.
- ⁶⁶ *The Effects of the Steel Voluntary Restraint Agreements on U.S. Steel-Consuming Industries* (U.S. International Trade Commission), May 1989, p. vii.
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- ⁶⁸ 1990 *United States Industrial Outlook*, p. 17-4.
- ⁶⁹ *Ibid.*
- ⁷⁰ Hilary Stout, "Industrial Sector Shows Signs of Weakness," *The Wall Street Journal*, Feb. 2, 1990, p. A2.
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- ⁷² Anthony M. Sorrentino, "Metals-Nonferrous," p. M99.
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- ⁹¹ "Bearish Cast to USDA Outlook," *Futures*, January 1990, p. 16.
- ⁹² *World Grain Situation and Outlook*, p. 14.
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