
Appendix 2

Global Commodity Price Prospects

GLOBAL COMMODITY PRICES HAVE FOLLOWED many different paths since the lows after the Asian crisis, with crude oil prices rising sharply, agricultural prices remaining low, and metals and minerals prices staging a modest recovery. The recovery of non-oil commodity prices lagged behind that of oil prices because supplies of non-oil commodities were slow to adjust to low prices while oil production was significantly reduced by OPEC producers. Producers of non-oil commodities have been left with large inventories that still need to be absorbed before prices can rise significantly. Metals and minerals prices have begun to recover, rising 27 percent since their lows. However, agricultural prices remain near their cyclical lows (after a brief rally that was not sustained), because of continued production increases and large stocks. Rapid global economic growth, which contributed to the sharp increase in crude oil prices in 1999 and 2000, is expected to fuel a recovery in non-oil commodity prices during the next several years.

The near-term outlook is for the divergence in commodity prices to be reduced with declines in energy prices, further increases in metals and minerals prices, and a recovery in agricultural prices (see annex tables A2.1 and A2.3 for nominal price forecasts for individual commodities and indexes). In nominal terms, crude oil prices are expected to decline 11 percent in 2001, relative to 2000, and an additional 16 percent in 2002 as OPEC and non-OPEC supplies increase in response to the surge

in prices in 1999 and 2000. Metals and minerals prices are projected to rise 2.2 and 2.4 percent, respectively, in 2001 and 2002 after rising 13.6 percent in 2000. Agricultural prices continued to fall in 2000, with a decline of 5.2 percent, but are expected to increase 3.9 percent in 2001 and an additional 6.0 percent in 2002 as global stocks begin to fall and demand increases in response to current low prices and rapid economic growth.

Over the balance of the decade, real commodity prices¹ are expected to reverse recent moves as energy and metals prices fall and agricultural prices rise (see annex tables A2.2 and A2.3 for real price forecasts for individual commodities and indexes). Real energy prices are projected to fall sharply from current levels, with real petroleum prices down 47 percent by 2010 compared to 2000 levels as OPEC and non-OPEC supplies increase. Agricultural prices are low by historical comparison, and real prices are expected to rise modestly over the balance of the decade. By 2010, real agricultural prices are projected to rise 9 percent relative to 2000. Metals and minerals prices have already made a significant recovery from the lows of 1999, and by 2010 they are projected to fall 7.6 percent from the 2000 levels. This would still leave metals and minerals prices above the 1999 levels. The long-term decline in real commodity prices, which has been observed for many decades, is expected to continue. However, these trends will largely be dominated during the decade by the reaction

of prices to recent extremes, which have seen energy prices rise and agricultural prices fall.

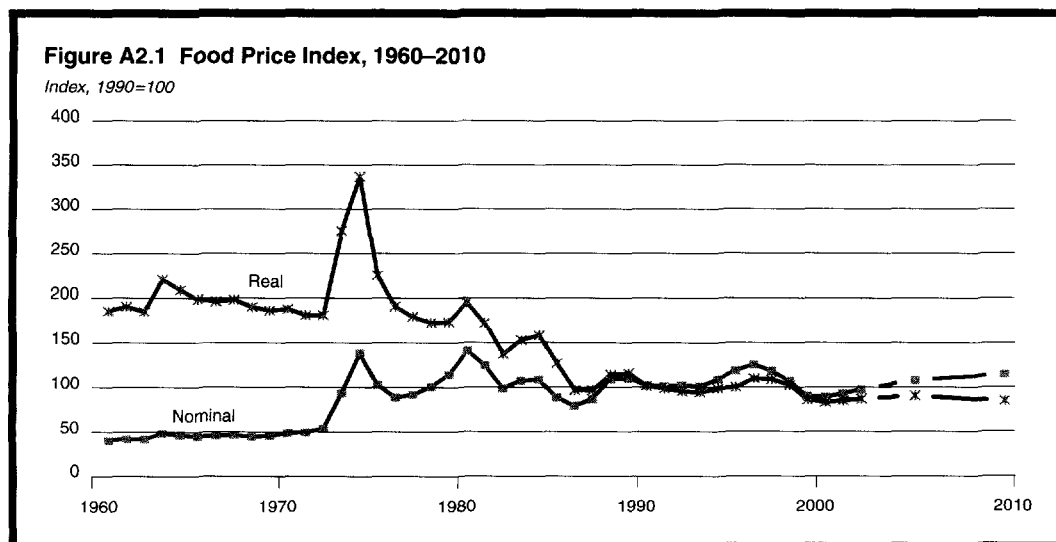
Agriculture

Food

The World Bank's index of nominal food prices has declined by one-third since the recent high in 1997. In real terms, food prices are down by more than half since 1980 (see figure A2.1). The decline in real food prices reflects the combined impact of countries' agricultural policies, improved technology, and changes in demand, which, on balance, have caused food supplies to increase faster than food demand and prices to decline relative to manufactures prices. Despite the price declines, the FAO's index of world food production increased by 20 percent from 1990 to 1999, and per capita production increased by about 5.5 percent. Our forecast is for real food prices to stabilize over the decade following recent declines.

Grain prices are severely depressed, with nominal prices near the lows of the past decade and real prices at all-time lows.² Several factors account for current low prices. Consumption growth has slowed over the last few

decades, from 2.7 percent per year during the 1970s to 1.7 percent growth during the 1980s and 0.8 percent growth during the 1990s³, and this has led to nearly stagnant world trade since the late 1970s. While consumption and trade have seen slow growth, world grain yields have been increasing at 1.4 percent per year over the last decade, and an even more rapid 1.7 percent when the countries of the former Soviet Union (FSU) and Eastern Europe are excluded. The yield increases have been rapid enough to meet global demand at declining real prices and still allow total world cropland devoted to grains to fall by 8 percent since the peak in 1981. Among major grain-exporting countries⁴, cropland planted to grain has declined 21 percent since the peak. Much of this idled cropland will not likely return to grain production, but it represents substantial capacity that could return if prices rise enough to justify its use. Grain prices are not expected to rise in real terms for any sustained period because of continued yield increases, the surplus production capacity in major exporting countries, and continued moderate demand growth. However, prices are projected to increase over the next several years, as prices recover from current severely depressed levels. This will likely be followed by further price declines be-



ginning about mid-decade as production increases exceed demand growth.

Vegetable oil prices remain depressed following the declines in 1999. Prices of major vegetable oils, such as soy and palm, have declined by nearly one-half since their 1998 highs, while prices of other oils, such as coconut and groundnut, have fallen by about one-quarter since their 1999 highs. Unlike most other agricultural commodities, vegetable oil prices increased during the Asian crisis, as Indonesia (a major exporter) imposed export taxes on palm oil in an effort to stabilize domestic prices. These taxes were gradually removed starting in 1999, as the crisis eased, and this caused exports to increase and all vegetable oil prices to fall. Global supplies of vegetable oils are expected to increase 5.0 percent in 2000, compared to the long-term average of 3.5 percent, and this could keep prices depressed for at least another year. Palm oil production has grown by 7.5 percent per year over the past decade, compared to 5.5 percent for soy oil, and this growth is expected to continue as more Southeast Asian and Latin American producers expand palm oil production. Palm oil could displace soy oil as the dominant oil produced within five years, and this would contribute to long-term weakness in the entire vegetable oils complex as palm oil use displaces soy and other oils. Palm oil is already the most heavily traded oil, with a 40 percent market share, while soy oil is second with a 20 percent share. The index of nominal vegetable oil prices fell 8.6 percent in calendar year 2000 and is projected to rise 6.0 percent in 2001. By 2005, nominal prices are projected to increase 30.9 percent from 2000 levels. Real prices are projected to rise less than 3 percent between 2000 and 2010.

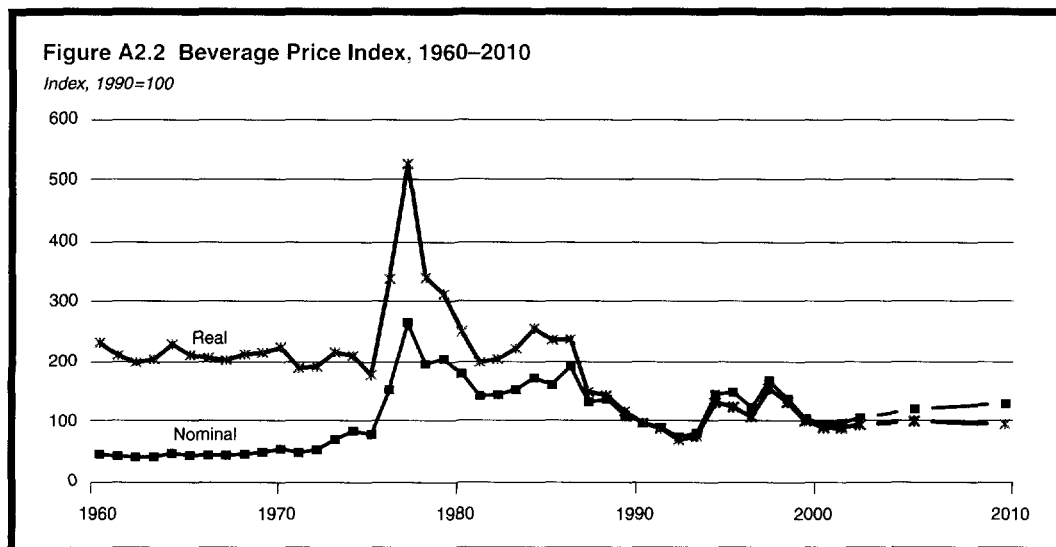
Other food prices have been mixed, with beef and shrimp prices strong because of the rapid global economic growth, while banana and citrus prices have remained weak because of large supplies. Sugar prices have recovered from 1999 lows despite large stocks resulting from five consecutive seasons when global production has exceeded consumption. Raw

sugar prices averaged 17.6 cents per kilogram in the world market in 2000 compared to an average of 24.5 cents per kilogram during the decade ending in 1998. World production and stocks are expected to fall in 2001, and prices should continue to recover. However, the price recovery is expected to take several years, with prices rising to about 20 cents per kilogram by 2005. Real prices are projected to remain almost unchanged from 2000 to 2010.

Beverages

After falling sharply in 1998 and 1999, the index of nominal beverage prices is expected to increase modestly in 2001 and more rapidly in 2002 (figure A2.2). The decline in prices began as the Asian crisis weakened demand and followed several years of high prices in the mid-1990s, which had stimulated global production. The sharp drop in prices has not yet been reversed despite falling beverage stocks and rising imports. Currency devaluations in the major exporters: Brazil (for coffee), Côte d'Ivoire (for cocoa), and Kenya (for tea) contributed to lower U.S. dollar export prices.⁵ Weak currencies in major importers, such as the European Union and the Russian Federation, also weakened import demand. Beverage prices have historically been among the most volatile commodity prices, and a supply disruption in a major producer could quickly reverse the recent price declines. However, barring such an event, prices are expected to be slow to recover because of new capacity added by major exporters. The index of nominal beverage prices is expected to rise 1.5 percent in 2001 and 8.7 percent in 2002. Real prices are expected to increase about 20 percent from 2000 to 2005 and then decline as productivity increases allow supplies to meet demand with falling real prices.

Cocoa prices reached a three-decade low in February 2000, as production increased 6 percent in the 1999 season compared to a decade-long growth rate of 1.4 percent. Cocoa consumption rose in response to lower prices and increased global economic growth, but not enough to keep stocks from rising 12 percent.



Prices are expected to begin to recover in 2001 as demand increases in major markets accompanying projected strong economic growth. By 2002, nominal cocoa prices are projected to rise 22 percent from 2000 levels. The longer-term outlook is for real prices to rebound from current severely depressed lows. By 2005, real prices are projected to rise 45 percent from the lows of 2000 and then remain about unchanged at that level, but this would still leave real prices at one-third of the 1980 level. One of the factors that should keep prices from returning to previous highs is the 20 percent increase in world cocoa planted areas during the 1990s as low-cost producers such as Côte d'Ivoire, Ghana, and Indonesia expanded production capacity.

Coffee prices declined sharply during 1999 and 2000, with arabica prices down 37 percent and robusta prices down 48 percent. Overproduction, the Brazilian currency devaluation in January 1999, and weak demand in Europe and the United States all contributed to the price declines. Vietnam emerged as the largest robusta producer and exporter, and became the second-largest overall coffee exporter, following Brazil. This contributed to the greater decline in robusta prices compared to arabica prices but also contributed to over-

all weakness in all coffee prices. In response to low prices, Brazil and Colombia, the two largest arabica producers and dominant members of the Association of Coffee Producing Countries (ACPC), agreed to an export retention scheme to withhold 4.5 million bags of production from export during 2000 and 2001. This could support arabica prices and would be more effective if other ACPC countries joined the scheme. However, this will not change the longer-term issues of weak demand growth, excess production capacity, and large stocks, which have been with the industry for many years. Barring a weather-related supply disruption, prices are expected to slow to recover, with arabica prices increasing only 7.4 percent by 2002 and robusta prices increasing 16.2 percent. Real prices are projected to rise over the next 10 years (from current extremely depressed levels), with arabica prices up 7 percent by 2010 compared to 2000, and robusta prices up 55 percent.

Tea prices have remained the strongest of the three major beverages, with a 10 percent decline in 1999 compared to 1998 and a 2.8 percent increase in 2000. The strength was largely due to poor weather-related growing conditions in Kenya, which reduced quality exports, and the recovery of demand in coun-

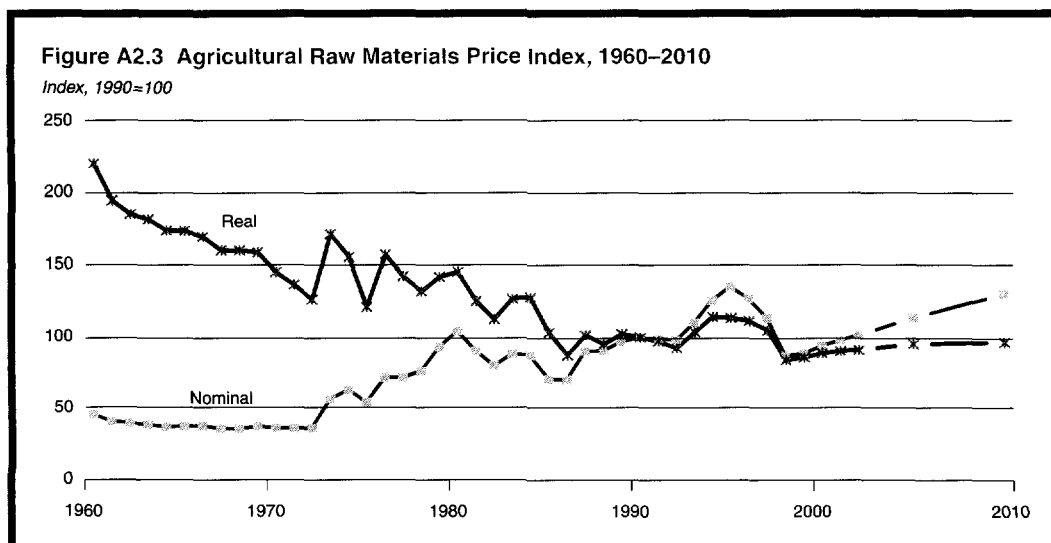
tries that benefited from increased crude oil prices. Many of the major oil exporters of the Middle East as well as the Russian Federation are major tea buyers. The return of Iraq as a tea importer, following the lifting of U.N. sanctions on food imports, also contributed to the overall price strength. However, supplies are now increasing in major exporters, and nominal prices are not projected to increase significantly over the next several years. Tea yields in Sri Lanka, a major exporter, increased 48 percent from 1990–92 to 1996–98 in response to tea estate privatization in the early 1990s, which led to increased investment and improved management of the tea estates. Nominal prices are expected to rise about 11 percent by 2010 relative to 2000, while real tea prices are expected to fall about 13 percent. There is some prospect that rapid consumption growth in major producing countries, such as India and China, could offset weak demand in industrial countries and provide a firmer price outlook.

Agricultural Raw Materials

The index of nominal agricultural raw materials prices rose by 35 percent during the first half of the 1990s, as the global economy boomed, and then fell sharply by 35 percent in

response to the Asian crisis. Prices are now set to recover from the lows of 1998 and have increased about 5 percent during 1999 and 2000 (figure A2.3). We project a further increase of 4.2 percent in 2001 and 5 percent in 2002. By 2010, real prices are projected to increase 23 percent relative to the 1998 lows, which would still leave the index well below the cyclical highs of the mid-1990s. However, raw materials prices are responsive to global economic conditions and would likely rise further if the global recovery exceeds current forecasts.

Cotton prices have remained around 150 cents per kilogram (nominal) for the past two decades, and there is no reason to think this will change soon. Prices rose 66 percent from 1993 to 1995, from 128 to 213 cents per kilogram, and then fell back to 117 cents per kilogram in 1999. Global consumption rose sharply during the 1980s as clothing fashions favored cotton. However, those trends have changed and global consumption stagnated during the 1990s. Global production has been very erratic in response to wide swings in prices and policy changes in major producers such as China and the United States. Consequently, cotton prices have been volatile, but without a clear trend, since about 1980. Prices have begun to recover from the recent lows, with nominal prices up



about 9.2 percent in 2000 and projected to rise about 6.9 percent in 2001. By 2005, nominal prices are projected to rise to 159 cents per kilogram, and by 2010, prices are expected to reach 181 cents per kilogram. In real terms, prices are forecast to rise 24.1 percent relative to the 1999 lows by 2010.

Rubber prices were severely depressed in 1999 because Indonesia, Malaysia, and Thailand (which account for 70 percent of rubber exports) devalued their currencies as a result of the Asian crisis. The price of rubber in U.S. dollars tumbled to a 24-year low in 1999—down 60 percent from the 1995 high. Prices have stopped falling, but the recovery has been modest as record production, weak demand, and high stocks have kept prices near the low reached in 1999. The International Natural Rubber Organization, which was the last U.N.-backed commodity price stabilization body, was formally dissolved in October 1999 after the withdrawal of key members in the wake of the rubber price collapse and currency devaluations. Buffer stocks held by the organization (amounting to 2.5 percent of annual trade) are yet to be liquidated, but they will eventually find their way into the market. Prices are expected to recover slowly and are unlikely to reach the highs seen in the mid-1990s. Our near-term forecast is for nominal prices to rise about 6 percent per year in both 2001 and 2002, following the 12 percent increase in 2000. Real prices are projected to rise 9.2 percent between 2000 and 2010.

Asian tropical timber has been one of the few commodities that have seen rising real prices over the past two decades. However, prices fell following the Asian crisis as demand weakened dramatically. Prices of Malaysian logs have since risen 18 percent from the 1998 lows, and the recovery in Asian economies will likely support further price increases. Malaysian log prices are expected to increase 18.6 percent, in real terms, from 2000 to 2010. African tropical timber is mostly imported into Europe, and prices did not decline as sharply as those of Asian timber did following the Asian crisis. The improving growth prospects in Europe suggest prices of African timber could

rise over the next several years as tropical timber becomes scarcer, environmental regulations become tighter, and demand continues to increase. However, real price increases will also be moderated by improved production techniques that allow better use of timber. Real prices of Cameroon log are projected to increase 9.9 percent from 2000 to 2010.

Energy

Crude oil prices have tripled since the lows of early 1999, to well over \$35 per barrel, as significant production cutbacks by OPEC (as well as reductions by Mexico and Norway) and strong demand growth, reduced stocks to historically low levels. Product stocks, particularly gasoline and middle distillate, have also been drawn to extremely low levels, and a tight gasoline market is expected to turn into a tight heating oil market this winter. In addition, steep backwardation of futures prices (near-term futures prices lower than distant futures prices) has discouraged stock building above immediate requirements. The U.S. gasoline market has been additionally affected by capacity outages, the introduction of Phase II reformulated gasoline (RFG), the phaseout of methyl tertiary butyl ether (MTBE), and Unocal's RFG patent, which makes it more costly to manufacture gasoline.

OPEC responded to the dramatic price increases by raising production quotas 7.5 percent in April 2000, 2.9 percent in July 2000, and 3.1 percent in October 2000. But these increases were not enough to reduce prices. OPEC also introduced a price band mechanism for its basket of crudes in mid-2000. If the average price of the OPEC reference basket exceeds \$28 per barrel each day for 20 consecutive trading days, OPEC production, excluding Iraq's, will increase by 0.5 million barrels per day. If the average price falls below \$22 per barrel for 10 consecutive trading days, OPEC production, excluding Iraq's, will decrease by an additional 0.5 million barrels per day. This mechanism was triggered in late October when prices exceeded \$28 per barrel for 20 consecutive trading days, and OPEC announced plans

to increase production by 0.5 million barrels per day. Saudi Arabia, the largest OPEC producer, has stated that it would like to see prices settle around \$25 per barrel. Iraq remains outside the quota system because of U.N. sanctions, but its production has risen to nearly 3 million barrels per day. In response to persistent high prices, the United States released 30 million barrels from its Strategic Petroleum Reserve and set up emergency heating oil inventories in the northeast region.

Inventories are now rebuilding, although stocks will likely remain low in the near term, depending on demand and the severity of winter. OPEC's new price band and accompanying production restraint are designed to stabilize oil prices. However, the impact on prices is expected to be short-lived because oil production costs are substantially below current prices, and advances in technology and improved managerial practices continue to result in ever lower development costs. In addition, the costs of competing fuels and non-conventional energy sources continue to fall and are becoming increasingly competitive when oil prices are high. Non-OPEC oil supplies are expected to continue to increase, despite the significantly slower growth in 1998-99, because of low oil and gas prices. Capital expenditures by the petroleum industry have been relatively modest, despite the rebound in prices, as companies grapple with large merger activities, debt pay-down, share buyback programs, and a cautious attitude to the "new" price regime. However, major oil companies have had large earnings increases, and this could eventually lead to significant spending programs, which would result in higher oil production in future years.

Significant advances in oil development technology in recent years, such as 3-D computer seismic, horizontal drilling, and floating production systems, have helped reduce development and operating costs and shifted supply curves outward. New frontiers still remain for substantial oil development, for example, offshore, deepwater, heavy oil, and the Caspian Sea. Large increases in production from offshore West Africa are expected in the next few years, and deepwater advances in the U.S. Gulf

of Mexico and Brazil give promise of similar development in many other locales around the world. The costs of non-conventional oil resources, such as oil sands development in Canada, have fallen significantly in recent years, and new projects have proceeded under the assumption of low oil prices. Several countries have invited in, or back, foreign oil companies, including some OPEC countries, and these actions will result in increased production capacity.

High oil prices will reduce demand and encourage substitution of other fuels for oil, as occurred when prices spiked during the past three decades. For example, world oil demand (excluding demand in the FSU) grew by 2.3 percent in the 1990s compared with global growth of 7.5 percent prior to the first oil price shock in 1973. Efficiency improvements, however, have slowed significantly in recent years as real prices have declined. This has been notable in the United States, with the surge in demand for fuel-thirsty sport-utility vehicles (SUVs). In addition, U.S. corporate average fuel economy (CAFE) standards for conventional automobiles have not been raised since 1990. Thus significant potential exists for improving efficiency in transport and other uses. Higher prices will also encourage the substitution of other fuels, notably natural gas, and also of renewable energy sources. Environmental pressures to reduce local pollution, reduce congestion, and curb greenhouse gas emissions will push policymakers to improve energy efficiency and restrain consumption of oil and other carbon-based fuels. More ominously for oil producers, the development of transport fuel-cell technology⁶ looms on the horizon, although the costs remain high and a single preferred fuel has not yet been established.

We expect oil prices to average \$28 per barrel in 2000 because of tight underlying market conditions and OPEC's resolve to keep prices within its new price band. Prices are then expected to fall to \$25 per barrel in 2001 as higher production from both OPEC and non-OPEC sources allows stocks to rebuild and tilt the market back into surplus. However, most OPEC countries are at or near capacity, with

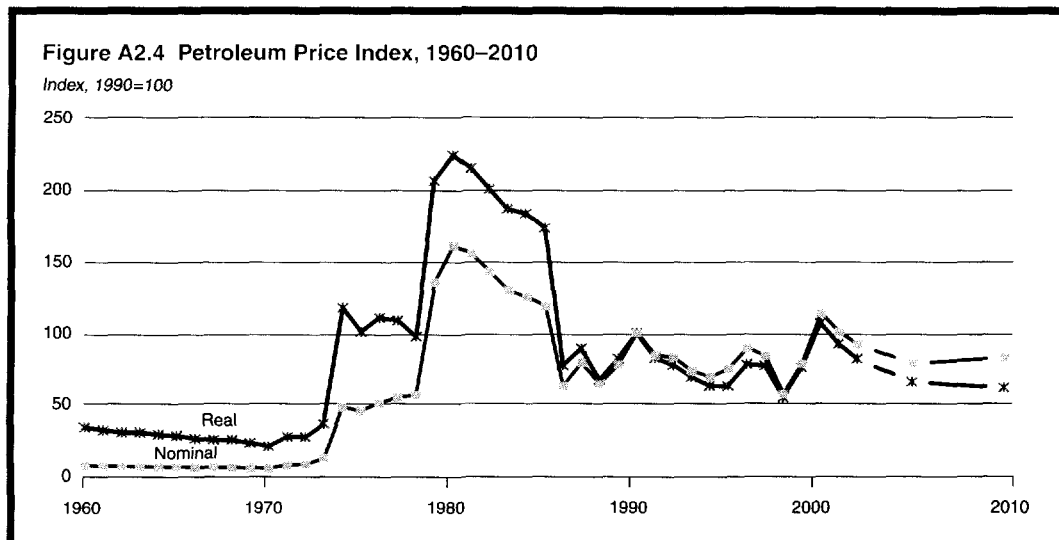
only Saudi Arabia having significant spare capacity. This, along with a delayed non-OPEC supply response, could keep OPEC in firm control of the market for an extended period—perhaps several years. Over the longer term, real oil prices (figure 2.4) are expected to decline because of abundant low-cost global supplies, increasing competition from non-OPEC producers and non-oil fuels, environmental concerns, and technological advances.

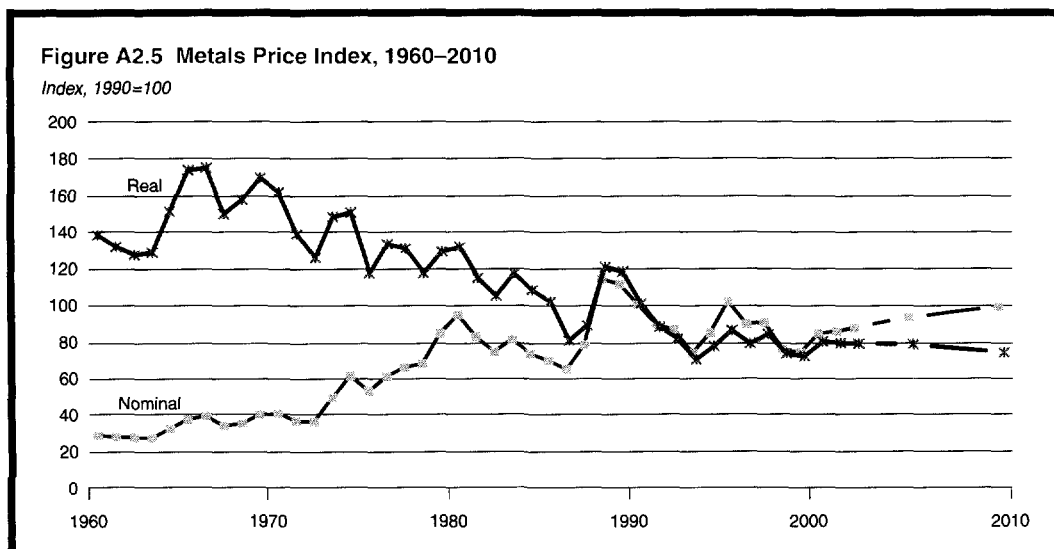
Fertilizer

Fertilizer prices, like the prices of many other commodities, have followed very divergent paths over the past several years. Nitrogen fertilizer prices declined from more than \$200 a ton to near \$60 a ton (for bulk urea), while phosphate fertilizer prices declined only 20 percent (for triple super phosphate, or TSP), and potash fertilizer prices continued to rise. The differences in price behavior were due to the different impact that the economic collapse of the FSU had on fertilizer markets, the different industry market structures, and different export firm behavior. The FSU was both a major producer and a major consumer of fertilizer prior to 1990. When these countries faced severe economic

crisis in the 1990s, domestic fertilizer consumption declined along with grain demand, and firms directed their fertilizer production to the export market. This led to aggressive price-cutting and competition for market share in the nitrogen fertilizer market, especially by the Russian Federation and Ukraine. The competition was less intense in the phosphate and potash markets because the FSU countries had smaller market shares and because other major phosphate and potash producers responded to increased exports from the FSU by cutting production rather than by lowering prices and competing for market share. Other factors also contributed to the different price behavior, including the decision by China (the major nitrogen fertilizer importer) to ban nitrogen imports in 1997.

Nitrogen fertilizer prices have increased nearly 45 percent in 2000 compared to 1999 as major producers in Europe and the U.S. cut production. However, the price recovery is expected to slow as the industry faces large excess capacity and continued aggressive export competition. Weak grain prices contribute to weak demand and further delay a significant price recovery, since more than 50 percent of nitrogen fertilizer is used for grain production. Real urea prices are projected to rise 55 per-





cent by 2010 compared to 1999 lows, but still remain 30 percent below the highs of 1996.

Phosphate prices fell less, and will likely reach new highs sooner, than nitrogen fertilizer prices. The industry is faced with surplus capacity, but demand has been strong, as many developing countries have increased imports of phosphate in order to improve the balance of fertilizer applications. After falling 19 percent from 1998 to 2000, TSP prices are projected to increase 7 percent in 2001. Nominal prices are expected to increase an additional 7 percent by 2005 as improvements in world grain prices boost fertilizer demand. By 2010, real prices are expected to decrease as new capacity comes onstream, causing real prices to fall 5 percent from 2000 levels.

Potash prices have increased about 5 percent since 1998, while most other commodity prices fell. This was possible because of strong import demand from developing countries and the willingness of major producers to close production capacity rather than see prices fall. These industry trends are expected to continue and should lead to gradually increasing muriate of potash (MOP) prices. At some point, enough new capacity may be developed to threaten this price stability, but this probably will not occur for several more years. Nominal

MOP prices are projected to increase about 1 percent per year until 2005 and then remain about unchanged for the balance of the decade. In real terms, prices will decline, as nominal price increases will not be large enough to offset overall inflation. By 2010, real MOP prices are projected to fall about 19 percent from the 2000 level.

Metals

The World Bank's nominal index of metals and minerals prices has increased nearly 27 percent from the lows in early 1999 because of production cutbacks and strong demand growth (figure A2.5). However, abundant supplies and high stocks have prevented even larger price gains. Much of the increase in the price index has been a result of the more than doubling of nickel prices and the 30 to 40 percent increases in aluminum and copper prices. Other metals prices have failed to move higher because of abundant supplies and in some cases relatively weak demand. Tin prices have risen slightly, while gold and silver prices are relatively unchanged since early 1998. Lead prices have fallen because of weak demand and rising stocks. Many metals prices are poised to increase in the near term in re-

sponse to demand growth, which accompanies expected strong economic growth, and more favorable supply balances.

Aluminum prices have recovered from the lows of early 1999, but high stocks, rising production, and forward selling by producers have kept a lid on price gains. In mid-2000, the market balance began to tighten because of producer cutbacks in the United States. Nearly 40 percent of the U.S. aluminum capacity is located in the Pacific Northwest, where deregulation of the U.S. power industry, along with strong summer demand, has driven up power prices and led to lower aluminum production. Further production cuts or strong demand growth could lead to a period of higher prices. In the longer term, real prices are expected to weaken because of improved technologies, new lower-cost capacity, and demand-side pressures from substitution of low-cost materials such as plastics. By 2010, real aluminum prices are expected to fall by about 5 percent from 2000 levels.

Copper prices have risen about 40 percent from the lows of early 1999 because of strong demand and significant reductions in high-cost production—much of it in the United States. World copper consumption is expected to grow by more than 5 percent in 2000, and far outstripped global production growth, resulting in a 50 percent decline in London Metals Exchange (LME) inventories. As a result, the market balance has moved into deficit, following large surpluses during the 1997–99. Further shortfalls are anticipated, causing nominal prices to rise by 8.2 percent in 2001 and an additional 3.8 percent in 2002. However, higher prices will bring forth investment in new capacity, along with reactivation of idle plants, which will prevent escalation of real prices over the forecast period. Prices will remain cyclical, with the cost structure of the industry essentially determining the low point in the cycle. New technologies will continue to reduce production costs, leading to declining real prices later in the forecast period. On the demand side, new copper alloys could regain some market share previously lost to aluminum. Although the threat of substitution from new materials exists, it is

likely that copper will retain its position in existing applications. Real prices are expected to rise about 3 percent between 2000 and 2010.

Gold has traded between \$275 and \$300 per troy ounce during most of the past three years because of central bank sales, declining production costs, and forward selling by producers. A number of central banks have been selling gold reserves to exchange their low-interest assets for investments that yield higher interest. The Netherlands, Switzerland, and the United Kingdom are in the midst of large gold sale programs, while other countries are contemplating such actions. In September 1999, 15 European central banks agreed to limit gold sales to 2,000 tons over the next five years and restrict their lending activities, and several producers announced that they would limit or suspend their gold hedging programs. However, this failed to lift prices. Prices are expected to remain under pressure as supplies from all sources will be more than adequate to meet demand. Price movements above \$300 per troy ounce will probably face reduced demand, provide greater incentives for producers to sell forward, and encourage central banks to increase sales. Real prices are expected to decline by about 1.7 percent per year between 2000 and 2010.

Nickel prices rose from under \$4,000 per ton in December 1998 to more than \$10,000 per ton during 2000. Various supply problems contributed to the tight market, particularly technical problems bringing on new capacity in Australia and labor strikes in Canada. Nickel demand has also been very strong because of the strength of the global economic recovery and large growth in steel production. This has depleted stocks, causing LME inventories to fall to the lowest level in nine years. Prices are expected to fall as nickel production increases substantially in the coming years and large amounts of scrap metal are brought to market. The supply deficit is expected to diminish in 2001, and the market is expected to be in better balance going forward. Real prices are expected to decline by nearly 40 percent between 2000 and 2010, mainly reflecting the lofty level of prices in 2000.

Table A2.1 Commodity prices and price projections in current dollars

Commodity	Unit	Actual					Projections				
		1970	1980	1990	1998	1999	2000	2001	2002	2005	2010
Energy											
Coal, U.S.	\$/mt	—	43.10	41.67	34.38	33.17	33.00	33.00	33.50	35.00	37.50
Crude oil, avg, spot	\$/bbl	1.21	36.87	22.88	13.07	18.07	28.00	25.00	21.00	18.00	19.00
Natural gas, Europe	\$/mmbtu	—	3.40	2.55	2.42	2.13	3.80	3.75	3.20	2.75	2.75
Natural gas, U.S.	\$/mmbtu	0.17	1.55	1.70	2.09	2.27	4.00	4.00	3.50	2.75	3.00
Non-Energy Commodities											
Agriculture											
Beverages											
Cocoa	c/kg	67.5	260.4	126.7	167.6	113.5	90.0	95.0	110.0	150.0	170.0
Coffee, other milds	c/kg	114.7	346.6	197.2	298.1	229.1	195.0	195.0	209.4	253.5	265.0
Coffee, robusta	c/kg	91.4	324.3	118.2	182.3	148.9	94.8	97.0	110.2	149.9	187.4
Tea, auctions (3) average	c/kg	83.5	165.9	205.8	204.6	183.9	189.0	192.0	192.0	195.0	210.0
Food											
Fats and oils											
Coconut oil	\$/mt	397.2	673.8	336.5	657.9	737.1	444.0	500.0	540.0	620.0	650.0
Copra	\$/mt	224.8	452.7	230.7	411.1	461.5	310.0	425.0	435.0	460.0	483.0
Groundnut oil	\$/mt	378.6	858.8	963.7	909.4	787.7	700.0	740.0	775.0	820.0	850.0
Palm oil	\$/mt	260.1	583.7	289.8	671.1	436.0	322.0	340.0	360.0	400.0	450.0
Soybean meal	\$/mt	102.6	262.4	200.2	170.3	152.2	185.0	195.0	200.0	215.0	226.0
Soybean oil	\$/mt	286.3	597.6	447.3	625.9	427.3	340.0	360.0	380.0	430.0	460.0
Soybeans	\$/mt	116.9	296.2	246.8	243.3	201.67	210.0	220.0	230.0	250.0	270.0
Grains											
Maize	\$/mt	58.4	125.3	109.3	102.0	90.2	86.0	95.0	110.0	125.0	130.0
Rice, Thai, 5%	\$/mt	126.3	410.7	270.9	304.2	248.4	202.0	215.0	235.0	275.0	300.0
Sorghum	\$/mt	51.8	128.9	103.9	98.0	84.4	85.0	88.0	100.0	120.0	125.0
Wheat, U.S., HRW	\$/mt	54.9	172.7	135.5	126.1	112.0	112.0	120.0	130.0	160.0	170.0
Other food											
Bananas, U.S., new series	\$/mt	166.1	377.3	540.9	489.5	373.8	430.5	465.2	490.5	529.1	567.7
Beef, U.S.	c/kg	130.4	276.0	256.3	172.6	184.3	194.0	198.4	202.8	209.4	225.0
Oranges	\$/mt	168.0	400.2	531.1	442.4	438.2	365.0	400.0	500.0	565.0	600.0
Shrimp, Mexican	c/kg	—	1,152	1,069	1,579	1,461	1,503	1,515	1,530	1,550	1,590
Sugar, world	c/kg	8.2	63.16	27.67	19.67	13.81	17.84	18.10	18.10	20.00	24.00
Agricultural raw materials											
Timber											
Logs, Cameroon	\$/cum	43.0	251.7	343.5	286.4	269.3	275.0	285.0	300.0	330.0	385.0
Logs, Malaysia	\$/cum	43.1	195.5	177.2	162.4	187.1	192.0	198.0	210.0	245.0	290.0
Sawnwood, Malaysia	\$/cum	175.0	396.0	533.0	484.2	600.8	600.0	620.0	655.0	750.0	900.0
Other raw materials											
Cotton	c/kg	67.6	206.2	181.9	144.5	117.1	127.9	136.7	141.1	158.7	180.8
Rubber, RSS1, Malaysia	c/kg	40.7	142.5	86.5	72.2	62.9	70.6	75.0	79.4	88.2	99.2
Tobacco	\$/mt	1,076	2,276	3,392	3,336	3,041	2,985	3,000	3,100	3,250	3,300
Fertilizers											
DAP	\$/mt	54.0	222.2	171.4	203.4	177.8	155.0	165.0	175.0	195.0	205.0
Phosphate rock	\$/mt	11.00	46.71	40.50	43.00	44.00	43.80	44.00	44.00	44.00	46.00
Potassium chloride	\$/mt	32.0	115.7	98.1	116.9	121.6	122.5	124.0	124.0	125.0	127.0
TSP	\$/mt	43.0	180.3	131.8	173.1	154.5	140.0	150.0	155.0	160.0	170.0
Urea, E. Europe, bagged	\$/mt	48.0	222.1	130.7	103.1	77.8	112.0	120.0	130.0	140.0	150.0
Metals and minerals											
Aluminum	\$/mt	556	1,456	1,639	1,357	1,361	1,575	1,600	1,650	1,800	1,900
Copper	\$/mt	1,416	2,182	2,661	1,654	1,573	1,825	1,975	2,050	2,200	2,400
Gold	\$/toz	36.0	607.9	383.5	294.2	278.8	280.0	280.0	275.0	275.0	300.0
Iron ore, Carajas	c/dmtu	9.84	28.09	32.50	31.00	27.59	29.00	29.50	30.25	32.00	33.00
Lead	c/kg	30.3	90.6	81.1	52.9	50.3	46.0	50.0	55.0	60.0	64.0
Nickel	\$/mt	2,846	6,519	8,864	4,630	6,011	8,600	7,500	7,000	6,000	6,800
Silver	c/toz	177.0	2,064	482.0	553.4	525.0	505.0	500.0	510.0	525.0	550.0
Tin	c/kg	367.3	1,677	608.5	554.0	540.4	545.0	550.0	560.0	590.0	610.0
Zinc	c/kg	29.6	76.1	151.4	102.5	107.6	114.0	116.0	117.0	120.0	125.0

— Not available.

\$/mt, dollars per metric ton; \$/bbl, dollars per barrel; \$/mmbtu, dollars per million British thermal units; c/kg, cents per kilogram; \$/cum, dollars per cubic meter; \$/toz, dollars per troy ounce; c/dmtu, cents per dry metric ton unit of iron (fe).

Note: Projections as of November 14, 2000.

Source: World Bank, Development Economics, Development Prospects Group.

Table A2.2 Commodity prices and price projections in constant 1990 dollars

Commodity	Unit	Actual					Projections				
		1970	1980	1990	1998	1999	2000	2001	2002	2005	2010
Energy											
Coal, U.S.	\$/mt	—	59.86	41.67	32.40	32.10	32.70	31.57	30.91	30.13	29.18
Crude oil, avg, spot	\$/bbl	4.82	51.21	22.88	12.31	17.49	27.74	23.91	19.38	15.49	14.78
Natural gas, Europe	\$/mmbtu	—	4.72	2.55	2.28	2.06	3.76	3.59	2.96	2.37	2.14
Natural gas, U.S.	\$/mmbtu	0.68	2.15	1.70	1.97	2.19	3.96	3.83	3.23	2.37	2.33
Non-energy commodities											
Agriculture											
Beverages											
Cocoa	c/kg	268.9	361.6	126.7	157.9	109.9	89.2	90.9	101.5	129.1	132.3
Coffee, other milds	c/kg	456.8	481.4	197.2	280.9	221.7	193.2	186.5	193.3	218.2	206.2
Coffee, robusta	c/kg	364.0	450.5	118.2	171.7	144.1	93.9	92.8	101.7	129.0	145.8
Tea, auctions (3) average	c/kg	332.7	230.5	205.8	192.8	178.0	187.3	183.7	177.2	167.8	163.4
Food											
Fats and oils											
Coconut oil	\$/mt	1582.4	935.9	336.5	619.9	713.5	439.9	478.3	498.3	533.7	505.7
Copra	\$/mt	895.8	628.8	230.7	387.3	446.7	307.1	406.5	401.4	395.9	375.8
Groundnut oil	\$/mt	1508.2	1192.7	963.7	856.8	762.4	693.6	707.9	715.1	705.8	661.3
Palm oil	\$/mt	1036.0	810.7	289.8	632.3	422.0	319.0	325.2	332.2	344.3	350.1
Soybean meal	\$/mt	408.7	364.5	200.2	160.5	147.3	183.3	186.5	184.5	185.1	175.8
Soybean oil	\$/mt	1140.8	830.0	447.3	589.7	413.6	336.9	344.4	350.6	370.1	357.9
Soybeans	\$/mt	465.8	411.4	246.8	229.2	195.2	208.1	210.5	212.2	215.2	210.1
Grains											
Maize	\$/mt	232.7	174.0	109.3	96.1	87.3	85.2	90.9	101.5	107.6	101.1
Rice, Thai, 5%	\$/mt	503.2	570.5	270.9	286.6	240.5	200.1	205.7	216.8	236.7	233.4
Sorghum	\$/mt	206.4	179.0	103.9	92.4	81.7	84.2	84.2	92.3	103.3	97.3
Wheat, U.S., HRW	\$/mt	218.7	239.9	135.5	118.8	108.5	111.0	114.8	120.0	137.7	132.3
Other food											
Bananas	\$/mt	661.7	524.0	540.9	461.2	361.9	426.5	445.0	452.6	455.4	441.7
Beef, U.S.	c/kg	519.6	383.3	256.3	162.6	178.4	192.2	189.8	187.1	180.2	175.1
Oranges	\$/mt	669.5	555.8	531.1	416.8	424.2	361.6	382.6	461.3	486.3	466.8
Shrimp, Mexican	c/kg	..	1,600	1,069	1,488	1,414	1,489	1,449	1,412	1,334	1,237
Sugar, world	c/kg	32.8	87.7	27.7	18.5	13.4	17.7	17.3	16.7	17.2	18.7
Agricultural raw materials											
Timber											
Logs, Cameroon	\$/cum	171.3	349.6	343.5	269.8	260.7	272.5	272.6	276.8	284.0	299.5
Logs, Malaysia	\$/cum	171.8	271.6	177.2	153.0	181.1	190.2	189.4	193.8	210.9	225.6
Sawnwood, Malaysia	\$/cum	697.2	550.0	533.0	456.1	581.6	594.5	593.1	604.4	645.6	700.2
Other raw materials											
Cotton	c/kg	269.4	286.4	181.9	136.1	113.4	126.7	130.8	130.2	136.6	140.7
Rubber, RSS1, Malaysia	c/kg	162.2	197.9	86.5	68.0	60.8	69.9	71.7	73.2	75.9	77.2
Tobacco	\$/mt	4,287	3,161	3,392	3,143	2,944	2,958	2,870	2,860	2,797	2,567
Fertilizers											
DAP	\$/mt	215.1	308.6	171.4	191.7	172.1	153.6	157.8	161.5	167.8	159.5
Phosphate rock	\$/mt	43.8	64.9	40.5	40.5	42.6	43.4	42.1	40.6	37.9	35.8
Potassium chloride	\$/mt	127.5	160.7	98.1	110.1	117.8	121.4	118.6	114.4	107.6	98.8
TSP	\$/mt	171.3	250.4	131.8	163.0	149.5	138.7	143.5	143.0	137.7	132.3
Urea, E. Europe, bagged	\$/mt	191.2	308.5	130.7	97.1	75.3	111.0	114.8	120.1	120.5	116.7
Metals and minerals											
Aluminum	\$/mt	2,215	2,022	1,639	1,279	1,317	1,560	1,531	1,522	1,549	1,478
Copper	\$/mt	5,640	3,031	2,661	1,558	1,522	1,808	1,889	1,891	1,894	1,867
Gold	\$/toz	143.2	844.3	383.5	277.1	269.8	277.4	267.8	253.7	236.7	233.4
Iron ore	c/dmtu	39.2	39.0	32.5	29.2	26.7	28.7	28.2	27.9	27.5	25.7
Lead	c/kg	120.7	125.8	81.1	49.8	48.7	45.6	47.8	50.8	51.6	49.8
Nickel	\$/mt	11,339	9,054	8,864	4,362	5,819	8,521	7,174	6,459	5,164	5,291
Silver	\$/toz	705.2	2866.1	482.0	521.4	508.1	500.4	478.3	470.6	451.9	427.9
Tin	c/kg	1463.5	2329.8	608.5	522.0	523.1	540.0	526.1	516.7	507.8	474.6
Zinc	c/kg	117.9	105.7	151.4	96.5	104.2	113.0	111.0	108.0	103.3	97.3

— Not available.

\$/mt, dollars per metric ton; \$/bbl, dollars per barrel; \$/mmbtu, dollars per million British thermal units; c/kg, cents per kilogram;

\$/cum, dollars per cubic meter; \$/toz, dollars per troy ounce; c/dmtu, cents per dry metric ton unit of iron (fe).

Note: Projections as of November 14, 2000.

Source: World Bank, Development Economics, Development Prospects Group.

Table A2.3 Weighted indexes of commodity prices and inflation

Index (1990 = 100) 2010	Actual				Projections ^a					
	1970	1980	1990	1998	1999	2000	2001	2002	2005	
Current dollars										
Petroleum	5.3	161.2	100.0	57.1	79.0	122.4	109.3	91.8	78.7	83.0
Non-energy commodities ^b	43.8	125.5	100.0	99.1	88.0	87.3	90.3	94.8	105.7	115.6
Agriculture	45.8	138.1	100.0	107.8	92.8	88.0	91.4	96.9	110.6	122.3
Beverages	56.9	181.4	100.0	140.6	107.7	89.5	90.8	98.6	121.7	132.9
Food	46.7	139.3	100.0	104.9	87.6	84.2	88.5	93.2	102.3	110.0
Fats and oils	64.4	148.7	100.0	132.8	105.0	96.0	101.8	106.4	116.8	125.7
Grains	46.7	134.3	100.0	101.3	86.4	78.3	84.1	93.2	110.1	117.4
Other food	32.2	134.3	100.0	84.1	74.0	77.9	80.0	82.4	86.2	93.0
Raw materials	36.4	104.6	100.0	87.3	88.5	91.8	95.7	100.5	113.0	130.3
Timber	31.8	79.0	100.0	90.9	111.8	112.0	115.7	122.3	140.4	168.2
Other raw materials	39.6	122.0	100.0	84.8	72.7	78.1	82.1	85.6	94.3	104.4
Fertilizers	30.4	128.9	100.0	122.1	114.1	106.9	111.9	114.3	116.7	123.3
Metals and minerals	40.4	94.2	100.0	75.5	73.7	83.8	85.6	87.6	92.7	98.6
Constant 1990 dollars^c										
Petroleum	21.1	223.8	100.0	53.8	76.5	121.3	104.5	84.7	67.7	64.6
Non-energy commodities	174.7	174.3	100.0	93.4	85.2	86.5	86.4	87.4	91.0	90.0
Agriculture	182.4	191.8	100.0	101.6	89.8	87.2	87.5	89.4	95.2	95.1
Beverages	226.6	252.0	100.0	132.4	104.2	88.6	86.8	91.0	104.8	103.4
Food	186.0	193.4	100.0	98.9	84.8	83.4	84.6	86.0	88.1	85.6
Fats and oils	256.4	206.5	100.0	125.2	101.7	95.1	97.4	98.2	100.5	97.8
Grains	186.1	186.5	100.0	95.4	83.6	77.5	80.4	86.0	94.8	91.4
Other food	128.4	186.6	100.0	79.3	71.6	77.1	76.5	76.0	74.2	72.3
Raw materials	145.1	145.2	100.0	82.3	85.7	91.0	91.6	92.7	97.3	101.4
Timber	126.6	109.7	100.0	85.7	108.2	111.0	110.7	112.8	120.8	130.8
Other raw materials	157.7	169.4	100.0	79.9	70.3	77.3	78.5	78.9	81.2	81.3
Fertilizers	121.1	179.0	100.0	115.0	110.4	105.9	107.0	105.5	100.5	96.0
Metals and minerals	160.8	130.8	100.0	71.1	71.3	83.0	81.9	80.8	79.7	76.7
Inflation indexes, 1990 = 100^d										
MUV index ^e	25.10	72.00	100.00	106.14	103.31	100.93	104.54	108.38	116.18	128.53
Percentage of change per year		11.11	3.34	0.75	-2.67	-2.30	3.58	3.68	2.35	2.04
U.S. GDP deflator	33.59	65.93	100.00	119.32	121.11	123.89	126.87	129.91	138.54	152.96
Percentage of change per year		6.98	4.25	2.23	1.50	2.30	2.40	2.40	2.17	2.00

^aCommodity price projections as of November 14, 2000.

^bThe World Bank primary commodity price indexes are computed based on 1987-89 export values in U.S. dollars for low- and middle-income economies, rebased to 1990. Weights for the subgroup indexes expressed as ratios to the non-energy index are as follows in percent: agriculture 69.1, fertilizers 2.7, metals and minerals 28.2, beverages 16.9, food 29.4, raw materials 22.8, fats and oils 10.1, grains 6.9, other food 12.4, timber 9.3, and other raw materials 13.6.

^cComputed from unrounded data and deflated by the MUV index.

^dInflation indexes for 2000-10 are projections as of November 3, 2000. MUV for 1999 is an estimate. Growth rates for years 1980, 1990, 1998, 2005, and 2010 refer to compound annual rate of change between adjacent endpoint years; all others are annual growth rates from the previous year.

^eUnit value index in U.S. dollar terms of manufactures exported from the G-5 countries (France, Germany, Japan, the United Kingdom, and the United States) weighted proportionally to the countries' exports to the developing countries.

Description of Price Series in Commodity Price Tables

Aluminum (LME) London Metal Exchange, unalloyed primary ingots, high grade, cash price.	DAP (diammonium phosphate), bulk, f.o.b. U.S. Gulf.	Rubber (Malaysian), RSS 1, f.o.b. Kuala Lumpur.
Bananas (Central and South American), import price, free on truck (f.o.t.) U.S. Gulf.	Gold (U.K.), London afternoon fixing.	Sawnwood (Malaysian), dark red seraya/meranti, select and better quality, kiln dry, cost and freight U.K.
Beef (Australian/New Zealand); frozen boneless; 85 percent chemical lean; cost, insurance, and freight (c.i.f.) U.S. East Coast.	Groundnut oil (any origin), c.i.f. Rotterdam.	Silver (Handy and Harman), refined, New York.
Coal (U.S.) thermal, free on board (f.o.b.) Hampton Roads/Norfolk.	Iron ore (Brazilian), Companhia Vale do Rio Doce (CVRD) Carajas fines, contract price to Europe, f.o.b. Ponta da Madeira.	Sorghum (U.S.), no. 2 milo yellow, f.o.b. Gulf.
Cocoa (ICCO), International Cocoa Organization daily price.	Lead (LME), refined, settlement price.	Soybean meal (any origin), c.i.f. Rotterdam.
Coconut oil (Philippines/Indonesian), bulk, c.i.f. Rotterdam.	Logs (West African), sapele, high quality (Loyal and Marchand LM), f.o.b. Cameroon.	Soybean oil (Dutch), crude, f.o.b. ex-mill.
Coffee (ICO), International Coffee Organization indicator price, other mild Arabicas, average New York and Bremen/Hamburg markets.	Logs (Malaysian), meranti, Sarawak, Tokyo import price.	Soybeans (U.S.), c.i.f. Rotterdam.
Coffee (ICO), International Coffee Organization indicator price, Robustas, average New York and Le Havre/Marseilles markets.	Maize (U.S.), no. 2, yellow, f.o.b. U.S. Gulf ports.	Sugar (world), International Sugar Agreement daily price, raw, f.o.b. Caribbean ports.
Copper (LME), grade A, cathodes and wire bar.	Natural Gas (Europe), import border price.	Tea, average of quotations at Calcutta, Colombo, and Mombasa/Nairobi.
Copra (Philippines/Indonesian), bulk, c.i.f. N.W. Europe.	Natural Gas (U.S.), Henry Hub, Louisiana.	Tin (LME), refined, settlement price.
Cotton ("Cotton Outlook A Index"), c.i.f. Northern Europe.	Nickel (LME), cathodes.	TSP (triple super-phosphate), bulk, f.o.b. U.S. Gulf.
Crude oil, average spot price of Brent, Dubai, and West Texas Intermediate, equally weighed.	Oranges (Mediterranean exporters), EEC indicative import price, c.i.f. Paris.	Urea, (varying origins), bagged, f.o.b. Eastern Europe.
	Palm oil (Malaysian), bulk, c.i.f. N. W. Europe.	Wheat (U.S.), no. 1, hard red winter, export Gulf.
	Phosphate rock (Moroccan), 70 percent BPL, contract, free alongside ship (f.a.s.) Casablanca.	Zinc (LME), special high grade, settlement price
	Potassium chloride, f.o.b. Vancouver.	
	Rice (Thai), 5 percent broken, white rice, milled, indicative survey price, f.o.b. Bangkok.	

Notes

1. Real prices are obtained by deflating nominal prices by the unit value index in U.S. dollar terms of manufactures (MUV) exported from the G-5 countries (France, Germany, Japan, the United Kingdom, and the United States) weighted proportionally to the countries' exports to the developing countries.

2. Grains account for 55 percent of the world's food supplies (calories) and occupy nearly one-half of the world's cultivated cropland (FAO). Grains prices are important as an indicator of overall food prices because of the close substitutability of grains with other food crops in production and consumption. Sugar and vegetable oils account for about 10 percent each of the world's total calorie supplies while animal products and fish account for about 16 percent. The remaining roughly 10 percent of world food supplies come from fruits, nuts, pulses, roots, tubers, and vegetables.

3. However, the growth during the 1990s was reduced by a 40 percent decline in grain consumption in the FSU countries and smaller declines in Eastern Europe. When these countries are excluded, world grain consumption grew by 2.0 percent per year during the 1990s. Growth rates in China and India, with 46 percent of developing-country populations, has been 1.9 and 1.5 percent, respectively, during the 1990s.

4. The five largest grain exporters are Argentina, Australia, Canada, the European Union, and the United States. Together, these entities account for about 85 percent of world exports.

5. For example, the Brazilian real depreciated 68 percent from 1997 to 1999, the CFA franc depreciated 9 percent, and the Kenyan shilling depreciated 16 percent (IFS, August 2000)

6. Fuel cells convert energy stored in a fuel directly into electricity and heat without combustion. Using hydrogen as fuel, they emit only water and heat as waste products.