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Commodity Markets Outlook

Urbanization and Commodity Demand

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The cutoff date for the data used in this report was October 19, 2021.

Table of Contents

Tables

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The World Bank's *Commodity Markets Outlook* is published twice a year, in April and October. The report provides detailed market analysis for major commodity groups, including energy, agriculture, fertilizers, metals, and precious metals. Price forecasts to 2035 for 46 commodities are presented, together with historical price data. The report also contains production, consumption, and trade statistics for major commodities. Commodity price data updates are published separately at the beginning of each month.

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The report and data can be accessed at:
www.worldbank.org/commodities

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Executive Summary

Energy prices continued to surge in the third quarter of 2021 while most non-energy prices plateaued following steep increases earlier in the year. After reaching all-time highs, natural gas and coal prices are expected to decline in 2022 as demand growth slows and supply constraints ease. Crude oil prices are forecast to average $74/bbl in 2022, up from a projected $70/bbl in 2021. After rising more than 48 percent this year, metal prices are projected to decline 5 percent in 2022. Agricultural prices are expected to broadly stabilize in 2022, following a 22 percent increase in 2021. High commodity prices, if sustained, could slow growth in energy-importing countries and exacerbate food insecurity in low-income countries. Risks to the forecast include adverse weather, further supply constraints, and new outbreaks of COVID-19. The fluctuations in commodity prices this year highlight some of the challenges in transitioning to a zero-carbon economy. Cities have a key role to play, given they account for around two-thirds of energy demand and greenhouse gas emissions. A special focus documents that urbanization is associated with increased commodity demand, but high-density cities can have lower per-capita commodity demand than low-density cities. This reinforces the need for strategic urban planning to minimize the impact of future urbanization on commodity demand.

Recent trends

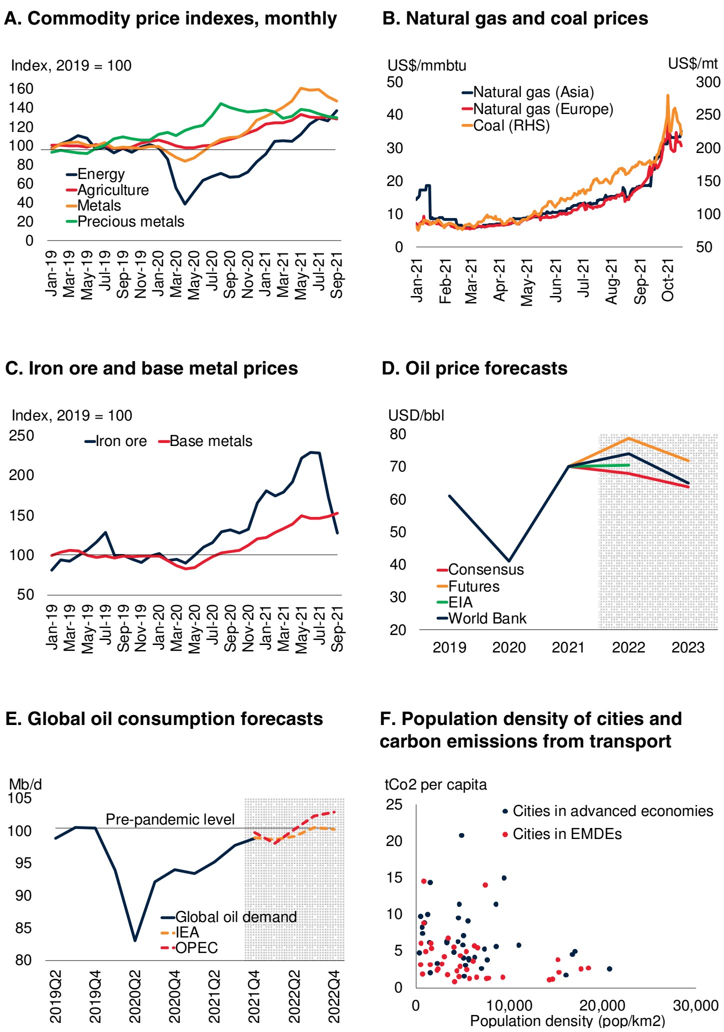
Energy prices rose sharply in 2021Q3 while non-energy prices plateaued (figure 1.A). Among the four major non-energy indexes, agriculture, fertilizers, and precious metals are about one-third above their pre-pandemic levels, while metals and minerals are around one-half higher. Adverse weather has buffeted many commodity markets: unusually high summer temperatures increased demand for electricity; droughts reduced hydro-electricity supply and affected some agricultural commodities, while floods impacted the supply of some metals and coal. Soaring natural gas and coal prices indirectly impacted production of other commodities, including fertilizers and some metals. Commodity markets have also been affected by the uneven recovery from the COVID-19 pandemic and supply chain disruptions.

Energy prices rose by 16 percent in 2021Q3 (q/q), continuing their upward trajectory since the start of the year, with natural gas and coal prices rising much faster than crude oil prices. *Crude oil prices* averaged $72/bbl in 2021Q3, an increase of 7 percent on the previous quarter, but with prices fluctuating significantly during the period. Prices initially softened in August amid worries about renewed outbreaks of the pandemic, but these were offset later in the quarter by supply disruptions in the U.S. arising from Hurricane Ida, as well as the broader rally in energy prices. *Natural gas prices* rose by 69 percent in 2021Q3, and *coal prices* increased 44 percent, with some price benchmarks for both commodities reaching all-time highs (figure 1.B). The economic recovery (particularly in China) is largely behind the surge as it has boosted demand for fossil fuels for electricity generation. Unusually hot weather in some countries also boosted electricity demand for cooling. Furthermore, electricity production from renewable sources declined in several countries due to drought and low wind speeds.

Although non-energy prices were unchanged in 2021Q3 (q/q) as a group, there has been significant variation among commodities. The *Metals and Minerals Price Index* declined 1 percent in the quarter, with drops in iron ore (-17 percent) and copper (-3 percent) and gains in other base metals (9 percent) on average (figure 1.C). The sharp fall in iron ore prices was largely due to China's reduction in steel production in order to meet zero-growth targets for the year. Demand for base metals has continued to increase, driven by the global economic recovery, while production has been disrupted by energy shortages and lockdowns. *Precious metal prices* fell 3 percent in 2021Q3 (q/q) amid a rise in U.S. 10-year Treasury yields, with larger falls for platinum (-13 percent) and silver (-9 percent) compared to gold (-1 percent). Platinum prices have been depressed by disruptions to car production globally, which have reduced demand for catalytic convertors.

FIGURE 1 Commodity market developments

In 2021Q3, energy prices rose sharply while many non-energy prices plateaued at high levels. Natural gas and coal prices soared amid high demand for electricity. Iron ore prices fell sharply from an all-time high as China reduced steel output; overall base metal prices continued to rise. Crude oil prices are expected to rise in 2022 before declining in 2023 as the recovery in demand is met by increased production. Looking ahead, the pattern of commodity demand will be affected by a continued increase in urbanization, with high-density cities having much lower energy use and CO_2 emissions than low-density cities.



Sources: Bloomberg; C40 Cities; EIA; IEA; OPEC; OurWorldinData; World Bank.

A.C. Last observation is September 2021.

B. Daily spot prices of natural gas and coal price benchmarks. Last observation is October 19, 2021.

C. Base metals are a weighted average of aluminum, copper, lead, nickel, tin, and zinc.

D. Shaded area indicates oil price forecasts (the equivalent of the World Bank average). Consensus forecasts were published in September and EIA forecasts in October.

E. Shaded area denotes IEA and OPEC's September forecast for global oil demand.

F. Y-axis shows tonnes of CO2 emissions per capita from transport. X-axis shows population density of 40 major cities. Data are from 2016 to 2019.

Agricultural commodity prices stabilized during 2021Q3, with declines in some food prices (e.g., rice) being offset by higher beverage prices (especially coffee). Despite tight supply conditions for some food commodities due to unfavorable weather (e.g., maize and soybeans), most food commodity markets remain adequately supplied by historical norms. However, the rally in energy prices, especially coal and natural gas, have sharply increased agricultural input costs. This includes fertilizers, which have risen more than 55 percent since January, with several fertilizer manufacturers halting or reducing production capacity. Elevated food prices combined with the recent spike in energy costs is pushing food price inflation up in several low-income countries (such as Ethiopia, Zambia, and Zimbabwe) as well as higher-income EMDEs, including Argentina and Turkey. High food prices may further exacerbate food insecurity—according to the Food and Agriculture Organization of the United Nations (FAO) and the World Food Programme (WFP)'s latest joint report, 23 low-income countries, including Ethiopia, Madagascar, and Somalia are facing acute food insecurity.

Outlook and risks

Energy prices are expected to increase more than 2 percent in 2022 after jumping more than 80 percent in 2021, supported by continued robust demand and gradual production gains, before falling sharply in 2023 as supply increases measurably (Table 1). Increasing energy prices pose significant inflation risks in many EMDEs and could weigh on growth in 2022 among energy-importing countries. *Non-energy prices* are projected to decrease somewhat in 2022 and 2023, with declines in both agriculture and metals prices as supply constraints ease.

Oil prices are forecast to average $74/bbl in 2022, up from a projected $70/bbl in 2021, before dropping to $65/bbl in 2023. Oil demand is expected to continue its recovery and reach its pre-pandemic level by the second half of 2022. Oil production is expected to increase as supply outages are resolved; as production responds to higher demand, particularly shale production in

TABLE 1 Nominal price indexes and forecast revisions

	Price Indexes (2010=100)[1]					Change (%) q/q		Change (%) y/y		Forecast revision[3]	
	2018	2019	2020	2021f[2]	2022f[2]	2021Q2	2021Q3	2021f[2]	2022f[2]	2021f[2]	2022f[2]
Energy	**87**	**76**	**52**	**95**	**97**	**12.8**	**16.2**	**83.4**	**2.3**	**35.3**	**2.3**
Non-Energy[4]	**85**	**82**	**84**	**110**	**108**	**8.6**	**-0.2**	**31.0**	**-2.3**	**8.4**	**0.6**
Agriculture	***87***	***83***	***87***	***106***	***105***	***5.4***	***-0.5***	***22.0***	***-1.4***	***5.9***	***-2.4***
Beverages	*79*	*76*	*80*	*91*	*91*	*5.4*	*10.5*	*13.2*	*-0.3*	*10.7*	*-2.7*
Food	*90*	*87*	*92*	*119*	*116*	*7.2*	*-1.8*	*28.2*	*-1.9*	*6.4*	*-2.8*
Oils and meals	85	77	90	126	126	4.1	-1.2	40.0	0.3	8.9	-0.6
Grains	89	89	93	115	105	7.5	-9.1	23.2	-8.3	1.7	-9.2
Other food	99	98	95	113	113	12.1	4.4	17.9	0.8	8.4	-0.2
Raw Materials	*81*	*78*	*78*	*84*	*84*	*-0.7*	*-1.8*	*8.6*	*-0.2*	*-0.4*	*-0.2*
Fertilizers	***83***	***81***	***73***	***116***	***124***	***14.0***	***18.3***	***58.6***	***6.5***	***29.9***	***11.8***
Metals and Minerals	***83***	***78***	***79***	***118***	***112***	***14.4***	***-1.4***	***48.5***	***-5.0***	***13.0***	***3.4***
Precious Metals	**97**	**105**	**134**	**140**	**136**	**1.1**	**-3.0**	**5.0**	**-2.7**	**5.0**	**4.1**
Memorandum items											
Crude oil ($/bbl)[5]	68	61	41	70	74	13.1	6.9	69.7	5.7	18.4	5.7
Gold ($/toz)	1,269	1,392	1,770	1,795	1,750	1.0	-1.4	1.4	-2.5	5.4	3.4

Source: World Bank.
Note: (1) Numbers may differ from tables A.1-4 due to rounding. (2) "f" denotes forecasts. (3) Denotes percentage points revision to the growth forecasts from the April 2021 report. (4) The non-energy price index excludes precious metals. (5) Average of Brent, Dubai and WTI. See Appendix C for definitions of prices and indexes.

the United States; and as OPEC and its partners unwind the rest of their production cuts. Investment shortfalls in new production, including U.S. shale, pose an upside risk. Investment in new oil production fell sharply in 2020 and has been slower to pick up than after previous price collapses. Furthermore, the substitution of crude oil for coal and natural gas in heating and electricity production poses another upside risk. Additional outbreaks of COVID-19 remain a downside risk to oil demand.

Natural gas and coal prices are expected to decline in 2022 and fall further in 2023, as demand growth eases (especially outside of Asia) and production and exports increase, driven by the United States. Further price spikes are likely, however, as inventories remain very low, and production is not expected to materially increase until 2022.

More broadly, the events of this year have highlighted how changing weather patterns due to climate change are a growing risk to energy markets, affecting both demand and supply. From an energy transition perspective, concerns about the intermittent nature of renewable energy highlight the need for reliable baseload and backup electricity generation. These will increasingly need to be from low-carbon sources, such as hydropower or nuclear power, or from new or better methods of storing renewable power. At the same time, the surge in natural gas and coal prices this year has made solar and wind power more competitive as an alternative energy source. Countries can benefit from accelerating the installation and transmission of renewable energy and reducing their dependency on fossil fuels.

Metal prices are forecast to fall 5 percent in 2022 following a projected increase of 48 percent in 2021 as the global recovery eases and supply disruptions are addressed. Bottlenecks in the supply chain are not expected to be fully resolved until the end of 2022, as energy and shipping shortages take time to normalize. Key risks to the metal price forecast are the outlook for China's property sector and energy-related supply disruptions.

Agricultural prices are expected to decline modestly in 2022 and 2023, following a projected 22 percent increase in 2021, as supply conditions improve. Upside risks to agricultural prices include high input prices, especially fertilizers, and more diversion of food commodities to the production of biofuels linked to efforts to decarbonize the global economy. High food prices have raised concerns about food insecurity in several EMDEs. In addition to lower incomes due to pandemic-driven production disruptions, several food-importing EMDEs are facing high international food prices and energy costs. According to the latest joint assessment by the Food and Agriculture Organization (FAO) and the World Food Program (WFP), food insecurity, which affected 155 million people in 2020 (up from 135 million in 2019), is expected to become more acute, with more than 41 million people worldwide being at risk of falling into famine or famine-like conditions.

Special Focus: Urbanization and commodity demand

The sharp fluctuations in energy prices observed this year highlight the difficulties in transitioning to a zero-carbon economy. Cities are on the frontlines of the energy transition; although they occupy less than 3 percent of global land, they consume over two-thirds of the world's energy and account for a similar share of global greenhouse gas (GHG) emissions. The past 50 years have seen a rapid increase in urbanization rates globally, and this trend is set to continue over the next three decades.

This edition of the *Commodity Markets Outlook* features a Special Focus on the linkages between urbanization and commodity demand. Mechanisms between urbanization and commodity demand include transport use in urban areas, household size and type of accommodation, the provision of infrastructure, and consumer preferences. After controlling for income and population, an increase in the share of the population living in urban areas is typically associated with higher energy consumption. However, high-density cities, especially in advanced economies, tend to have lower per capita energy consumption and lower GHG emissions from transport than less densely populated cities (figure 1.F). For policymakers, this reinforces the importance of strategic planning and high-quality infrastructure, particularly for transport, in limiting the impact of urbanization on commodity consumption while also boosting the quality of life in cities.

SPECIAL FOCUS

Urbanization and commodity demand

Urbanization and commodity demand

The past 50 years have seen a rapid increase in urbanization rates globally, and this trend is set to continue over the next 30 years. While income and population growth are frequently cited as an important determinant of commodity demand, urbanization—the rapid growth of urban areas and their concentration of people, economic activity, and resources—also has the potential to have a major impact. Evidence from the literature shows that, after controlling for income and population, an increase in the share of the population living in urban areas is associated with higher energy consumption. However, high density cities have lower per capita energy consumption than less densely populated cities. For policymakers, this reinforces the importance of good planning and high-quality infrastructure in limiting the impact of urbanization on resource consumption, while also boosting the quality of life in cities.

Introduction

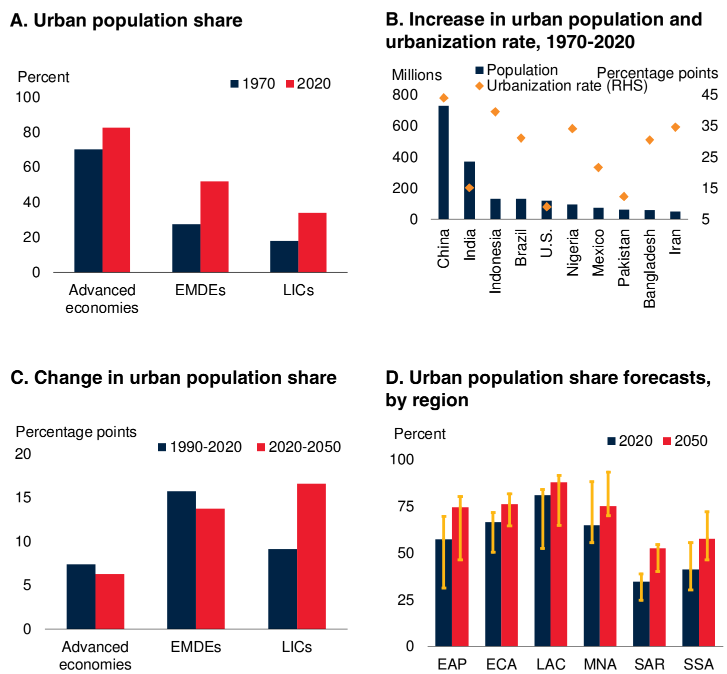
Over the past 50 years the share of the world's population living in urban areas has risen from 37 percent to 56 percent, an increase of three billion people (figure SF.1; United Nations 2019; World Bank 2021a). While this rise has been a global phenomenon, the sharpest increase has come from emerging market and developing economies (EMDEs), where the share of the urban population nearly doubled from 27 percent to 52 percent, due to both rural-urban migration and rapid population growth in urban areas.[1] The largest increase in the urban population came from China, where it rose by 700 million people and the share of the urban population rose from 17 percent to 61 percent between 1970 and 2020.

The demographic shift from rural to urban areas is set to continue, with the share of the urban population at the global level expected to reach 68 percent by 2050, before plateauing thereafter (United Nations 2019). Most of this growth is expected to occur in EMDEs and low-income countries (LICs), especially in South Asia and sub-Saharan Africa (SSA). However, the share of the urban population is expected to increase in all countries, although absolute numbers of urban populations may fall due to declining populations in some countries.

The increase in the share of the urban population has occurred alongside a sharp rise in commodity demand (figure SF.2). While population and income growth are two of the primary drivers of commodity demand, urbanization also has the potential to have a major impact, since urban areas can be very large and typically result in a

FIGURE SF.1 Urban population trends

Urban populations have risen rapidly over the past half-century. China saw the largest increase in its urban population share, followed by India. Over the next 30 years, most of the increase in the urban population is expected to occur in Sub-Saharan Africa and South Asia, with low-income countries seeing the largest increase in the share of urban population.



Sources: United Nations Population Division; World Bank.

Note: EMDEs = emerging market and developing economies. LICs – low-income countries. EAP = East Asia and Pacific, ECA = Europe and Central Asia, LAC = Latin America and the Caribbean, MNA = Middle East and North Africa; SAR = South Asia, SSA = Sub-Saharan Africa.

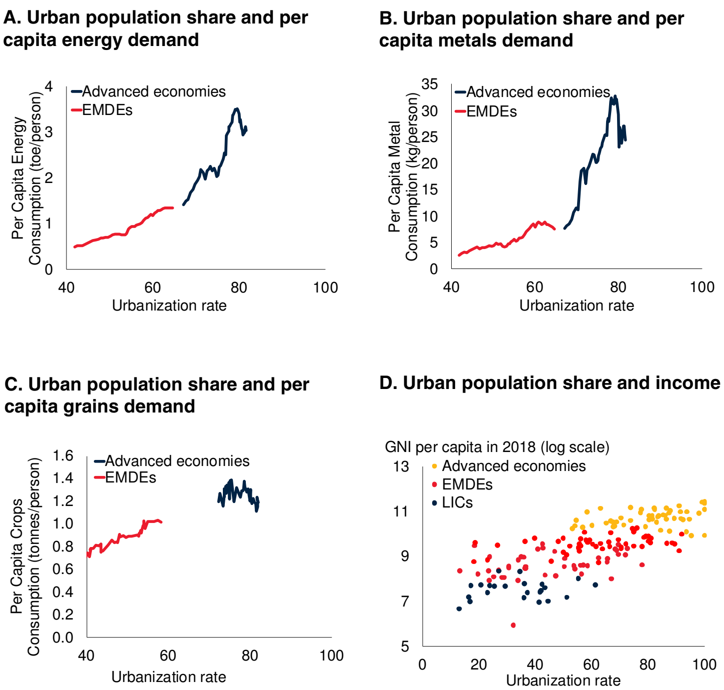
A.-D. Charts show data and forecasts for urbanization rates and urban populations from the UN Population Division's World Urbanization Prospects 2018 report.

D. Bars show average urbanization rates within regions. Lines show interquartile range of the urbanization rates of individual countries within regions.

[1] Throughout this special focus, the terms urbanization and urbanization rate refer solely to the share of people living in urban areas; it does not differentiate between different types of urban areas—for example, whether people live in high-density urban cores or low-density suburbs.

FIGURE SF.2 Urban population growth and commodity demand

The rising share of the urban population is correlated with rising rates of commodity demand, however, in practice this is mostly driven by rising income. While income is a primary driver of urban populations, the reverse relationship is also true, with urban growth potentially having positive impacts on economic growth through agglomeration effects. Indeed, all advanced economies have a high share of urban populations.



Sources: BP Statistical Review; United Nations Population Division; U.S. Department of Agriculture; World Bank; World Bureau of Metal Statistics.

Note: AE = advanced economies, EMDE = emerging and developing economies; LIC = low-income countries.

A.C. Median of per capita commodity demand and urbanization rates for advanced economies and EMDEs.

A. "toe/person" refers to tonnes of oil equivalent per person. Includes 31 advanced economies and 42 EMDEs.

B. Includes 24 advanced economies and 19 EMDEs. Refers to base metals only.

C. Includes 29 advanced economies and 100 EMDEs.

concentration of people, economic activity, and resources (Baffes, Kabundi, and Nagle 2021).[2] Indeed, despite covering less than 3 percent of the world's land area, urban areas currently account for roughly two-thirds of global energy consumption (UN Habitat 2020). They can also have significant ecological impacts, accounting for around 70 percent of CO_2 emissions, as well as causing significant air and water pollution due to the concentration of people living within them (Moran et al. 2018).

Urbanization can affect commodity demand through several channels, the magnitude of which depends heavily on the nature of urbanization (World Bank 2010). Urban areas in countries can take multiple forms, ranging from high-density mega cities, to smaller cities, to low-density urban sprawls that result in dependency on automobiles and prohibit walking (Benfield, Raimi, and Chen 1999; Burchell et al. 1998; Brody 2013).[3] At the same time, the reverse relationship may also occur: changes in commodity demand can affect urbanization. For example, fluctuations in agricultural prices may influence rural wages and make moving to urban areas more, or less, attractive. Given the sharp increase in the urban population that is expected to occur over the next 30 years, it is critical to understand how urbanization can affect demand for different types of commodities, beyond the broader impact of growth in population and income.

Against this backdrop, this Special Focus reviews the literature on the relationship between urbanization and commodity demand and asks the following questions:

- What is the nature of urbanization?
- What are the channels through which urbanization can affect commodity demand?
- What are the empirical effects of urbanization on commodity demand?

The Special Focus finds that there are several channels through which urbanization can change per capita commodity consumption and that these can have positive or negative effects on

[2] In addition to causing an increase in commodity demand, income growth (and industrialization) is also a key driver of urbanization—whereas the agricultural sector is almost by definition rural, manufacturing and service sectors tend to concentrate in urban areas. At the same time, increased urbanization can have beneficial effects on economic growth via agglomeration effects, economies of scale, and reduced transport costs.

[3] Causation may also run in the opposite direction, whereby the development of the automobile facilitated lower-density cities. In the United States, cities established before the rise of the automobile tend to be more compact and denser.

commodity demand. Urbanization has the potential to reduce consumption of commodities through economies of scale and efficiency effects. However, it can also lead to diseconomies of scale resulting from agglomeration, such as congestion. For example, a shift from rural to urban areas can result in shorter journey times and lower energy use in the transport sector, but these can be offset by increased congestion, which can lead to increased energy use and pollution.[4] The impact of these channels depends heavily on the nature of urbanization, especially population density.

Empirical studies estimating the impact of urbanization on commodity demand tend to focus on energy (either directly, or indirectly, via a focus on pollution or greenhouse gas emissions), with a much smaller body of literature for agriculture and even less for metals (Table 1). This special focus is the first study to bring together the available literature on the impact of urbanization and urban density on commodity demand for all commodity groups.[5] It further clarifies the literature by distinguishing between studies that consider the impact of the share of the population living in urban areas, and those that consider the impact of population density of different types of urban areas.

These studies have two main findings. First, an increase in the share of the urban population is associated with increased energy demand beyond that caused by changes in population and income. Second, high density cities are associated with lower per capita energy consumption than low density cities. While urbanization in the aggregate may increase energy consumption, compact, high-density cities have the potential to minimize this increase. These results demonstrate that strategic planning can maximize the beneficial aspects of cities and mitigate their negative externalities. The most successful urban areas are those that connect physical growth to economic demand and support this with good plans, policies, and investments that help avoid uncontrolled sprawl (Lall et al. 2021).

The nature of urbanization

Although the share of the population living in urban areas has risen globally, there is significant heterogeneity in what is considered an urban area. Furthermore, the density of urban areas varies significantly both across and within countries and has changed over time, which can lead to differences in the impact of urbanization on commodity demand.

Defining urban areas. Increased urbanization does not, per se, refer to people moving from sparsely populated rural areas to densely populated cities. One major complication in empirically assessing the impact of urban areas on commodity demand is that definitions of what constitutes an urban area differs greatly between countries. The minimum technical size of an urban area ranges from 200 people or more in Denmark and Sweden, to 50,000 or more in Japan (figure SF.3; United Nations 2019). Furthermore, some countries use metrics such as population density instead of population size. In addition, definitions of what areas to include in urban regions vary substantially across countries. For example, suburban areas may not be a technical part of the city but may be considered an urban area. The size of urban areas also varies considerably, from megacities containing 10 million or more people, to urban areas with fewer than 300,000 people. While a majority of the world's population lives in an urban area, two-fifths live in urban areas of less than 300,000 people.

To facilitate the comparison of urban areas, the United Nations endorsed a new methodology by six international organizations (including the World Bank) to define cities, towns, and rural areas based on total population and population density within population grids (Dijkstra, Florczyk et al. 2020; United Nations 2020). Under this definition, the share of the population

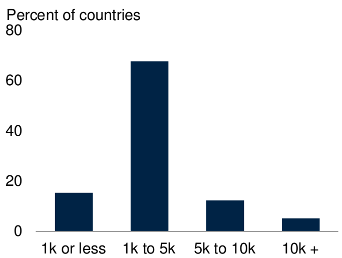
[4] For example, in the United States 3.5 billion gallons of fuel was consumed in 2019 as a result of congestion (around 2.5 percent of total fuel consumption). As traffic levels declined in 2020 due to the COVID-19 pandemic, the amount of fuel consumption due to congestion halved to 1.7 billion gallons (around 1.4 percent of total fuel consumption; Texas A&M Transportation Institute 2021).

[5] Ahlfeldt and Pietrostefani (2019) provide a summary of 180 studies that considered the economic impacts of population density. Of these, only 14 consider the impact on energy consumption, of which 9 are chiefly focused on CO2 emissions, rather than energy consumption.

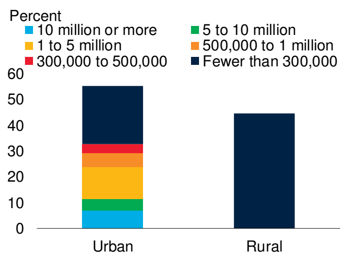
FIGURE SF.3 Urban population share and population density

The definition of an urban area varies greatly among countries. While a majority of the world's population lives in urban areas, these can look significantly different, with the largest share accounted for by "small" cities of less than 300,000 people. Even among the largest cities, their composition can vary enormously—population densities in some of the largest U.S. cities are an order of magnitude lower than the world's densest cities, which tend to be in EMDEs, especially Asia. High-density cities, particularly in advanced economies, are associated with much lower CO2 emissions than their low-density counterparts.

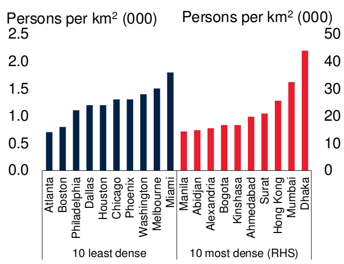
A. Population threshold for "urban area"



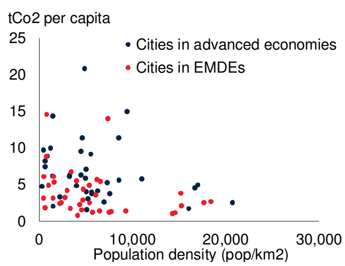
B. Global distribution of population, by city size



C. Population density of cities



D. Population density and carbon emissions in select cities



Sources: C40 Cities; OurWorldInData; United Nations UN Habitat (2020), World Bank.

A. Chart shows the variances in definitions among countries for the minimum number of inhabitants needed for a settlement to classify as an "urban area." Sample includes 100 countries. Some countries do not rely on a population threshold and instead consider other metrics, including population density, and are therefore not included here.

B. Chart shows the percent of the world's population living in urban and rural areas, with urban areas split by size of city.

C. Figure shows the 10 least dense and most dense cities from the world's largest 100 cities. Data from 2014. Hong Kong = Hong Kong SAR, China.

D. Y-axis shows tonnes of CO2 emissions per capita from transport. X-axis shows population density of 40 major cities. Data are from 2016 to 2019.

living in urban areas increases substantially (in 2015, by 22 percentage points), in part because several large countries (including China and India) classify most towns as rural areas (Dijkstra, Hamilton et al. 2020).

Density of urban areas. On average, the larger a city is, the denser it is. However, similar-sized cities can also vary substantially in terms of their density (Dijkstra, Florczyk et al. 2020). For example, cities in Asia have much higher density than cities in the United States—among the 100 largest cities in the world, 9 of the bottom 10 (in terms of population density) are in the U.S., and these have population densities that are orders of magnitude lower than the 10 densest cities, many of which are in India.

Nonetheless, the types of density also vary, because the shape of cities can be vastly different among countries. Richer cities tend to be more "pyramid shaped"—i.e., with more taller buildings and skyscrapers, whereas low- and lower-middle-income cities tend to be "pancake-shaped" or flatter (Lall et al. 2021). Population density can be accommodated either through vertical layering (via taller buildings), which can help increase floor space available to residents, or by crowding, which reduces living space per person. Many cities in LICs are dense because of crowding, which can reduce quality of life.

As such, the channels by which urbanization affects commodity demand may not apply equally to all urban areas and may even have opposite effects. For example, residents of high-density city centers with good mass transit systems are likely to have shorter travel times and lower transport energy requirements compared with suburban areas (Glaeser and Kahn 2010). However, high density cities, unless managed well, can suffer from low quality of living (Mercer 2019; World Bank 2021a). Poor infrastructure, including mass transit and sanitation, could also lead to different impacts of urbanization on commodity demand.

Changes over time. The composition and density of cities is changing over time. Cities can either grow outward, inward (in-fill of undeveloped spaces), or upward. In low-income and lower-middle-income countries, 90 percent of urban built-up area expansion occurred as horizontal or outward growth between 1990-2015; however, in high income countries around one-third occurred as infill (Lall et al. 2021). Population densities have increased as urban populations have grown faster than urban areas have expanded. Between 1990-2015 population densities of cities are estimated to have increased by 8 percent, with larger cities experiencing the biggest increase in density (Dijkstra, Florczyk et al. 2020). In contrast, small cities (less than 250,000 people) experienced declines in population density.[6]

Channels: From urbanization to commodity demand

The literature has identified several channels through which urbanization has affected commodity consumption. These include the impact of urbanization on transport behavior, infrastructure needs, household characteristics, and consumer choice. Most of the channels identified relate to energy consumption. In general, these channels have the potential to either increase or decrease commodity consumption, and may also vary between advanced economies and EMDEs (Madlener and Sunak 2011). While not the primary focus of this study, urbanization can also affect commodity supply, particularly for agriculture, via its impact on land availability and pollution. Developments in commodity markets also have the potential to influence urbanization patterns. For example, sharp falls in agricultural prices could accelerate shifts from rural to urban areas.

Transport. Several studies have investigated the impact of urbanization on transport, and, by association, energy demand. These studies have shown that urbanization can either raise or lower energy demand. A reduction in transport costs is often cited as one of the benefits of urbanization, contributing to improved economic growth. Changes in transport patterns have a particularly large impact, since transport accounts for 29 percent of total final energy consumption at the global level, compared to 21 percent for residential use (in the United States, transport accounts for 40 percent; IEA 2021).

Studies which find urbanization reduces energy demand typically focus on the fact that high density neighborhoods facilitate journeys by foot or by bike, while those with effective mass transit systems provide alternatives to personal motorize vehicles. In Europe, where cities are higher density and public transport is widely available, per capita consumption of gasoline is one-fifth the level in low-density U.S. cities, although this also reflects much higher fuel taxes in Europe (Newman 2006). Within the United States, studies have found that urban households use less transport energy than rural ones (figure SF.4; Kahn 2000; Liddle and Lung 2010). Furthermore, there is variation within U.S. cities. Those with the best public transit, such as New York, have the lowest energy consumption from transport. Similarly, households living in higher-density cities have lower levels of auto transport and fuel consumption than those in lower-density areas (Brownstone and Golob 2009).

In contrast, studies which find that an increase in the urban population increases transport energy demand focus on factors that can result in increased journeys. In the absence of mass transit systems, rising urban populations can result in increased dependence on cars, given residences and workplaces are typically separated in cities (Jones 2004). This issue can be exacerbated by urban sprawl, defined as the spread of low-density urban areas outside of the urban center, which can lead to increased auto use (Burchell et al. 1998; Hankey and Marshall 2010; VandeWeghe and Kennedy 2008). This trend can be observed in the United States, where urban density has declined for the last five decades, leading to an increase in travel distances and therefore energy consumption (Glaeser and Kahn 2010; Marshall 2007).

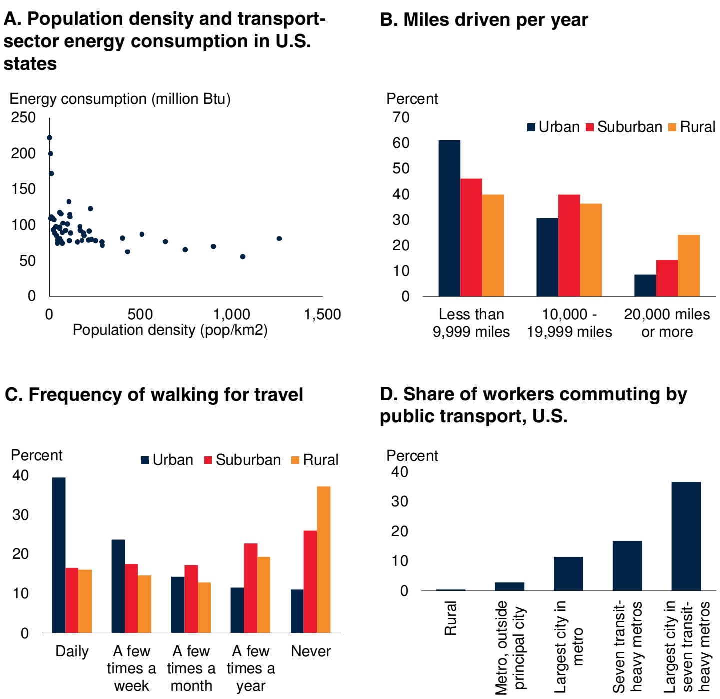
In EMDEs the move from rural to urban areas may lead to a shift from predominantly "muscle-powered" transport (e.g., walking or biking) to motorized transport (e.g., cars, motorcycles, and buses), leading to a net increase in energy use (Parikh and Shukla 1995).[7] This is particularly the case in instances where cities have not been well planned—for example, if urban expansion occurs via informal and unplanned settlements, with poorly designed zones between commuter and

[6] In contrast, earlier studies found that population densities had decreased over time. This was because they had a higher estimate of the increase in urban areas due to different methodologies (Angel et al. 2016; UN Habitat 2020).

[7] Since urbanization facilitates economies of scale and specialization as part of a broader industrialization process, it may result in the increased movement of raw materials and intermediate goods in the production process (Jones 1991, 2004).

FIGURE SF.4 Urban populations and transport-sector energy demand in the United States

Low levels of population density are associated with much higher energy consumption from transportation in the United States. Rural populations tend to drive more and walk less than their urban counterparts. Similarly, high rates of urban density facilitate the use of public transport, with commuter rates much higher in large, dense cities. Household energy use is higher in detached houses compared with apartments, and energy use is also higher in smaller households.



Sources: Federal Highway Administration, National Household Travel Survey 2017; World Bank.
A. Vertical axis presents data for total energy consumption per capita in the transport industry for 50 US states, whereas population density is shown on the horizontal axis. Data for 2019.

residential areas, and insufficient or non-existent infrastructure such as mass transit systems (Wahba 2019). In Nairobi, for example, poor planning and inadequate public transit means that around 10 percent of jobs are accessible by public transport within 45 minutes, compared to 25 percent in Buenos Aires, despite the latter having four times as many people (Quiros-Peralta 2015). Furthermore, the reliance of cities on commodities produced outside their borders, such as food, can result in increased energy use as these products need to be transported; this may not be the case for mostly self-sufficient rural areas (Parikh and Shukla 1995).

Infrastructure requirements. Densely populated cities have vast infrastructure needs, including mass transit, electricity generation, telecommunications, and water and sewerage services (Eberts and McMillen 1999). While large-scale infrastructure projects can be very resource-intensive, particularly in terms of energy and metal consumption, per capita usage of infrastructure can be much higher than in low-density areas. As such, economies of scale arising from network effects may make the provision of the service more efficient (World Bank 2021b). For example, urban access to the internet is 2.3 times higher than access in rural areas globally, as it is easier and cheaper to provide the service to a high-density population (ITU 2020). As a result, per capita resource demand could be lower than would be required to provide the same level of services to rural populations. At the same time, it is possible that urbanization and high-density living creates "new" demand for infrastructure. For example, a high-density urban population may have greater need for sanitation facilities than low-density rural areas. Consequently, the "need" for these services due to urbanization may lead to greater per capita commodity demand than otherwise.

Household size and type of accommodation. An increase in the share of the urban population can lead to differences in household characteristics, with either positive or negative impacts on energy consumption. As a result of higher land costs, apartments are much more common in cities than in rural areas, which are predominantly detached houses. Apartments have smaller energy use than detached houses due to fewer exterior walls, which reduces energy loss from heating and cooling (figure SF.5; Brounen, Kok, and Quigley 2012; Satterthwaite 2011).

However, this may be partly offset by differences in household composition. Average household size tends to be smaller in urban areas, as young people move away from their family home and also marry later (Cole and Neumayer 2004). Smaller households tend to have higher per capita energy consumption as they are less able to benefit from economies of scale in energy consumption compared with larger households (Liu et al. 2003). In a study of 300,000 Dutch households, an additional person per household reduced per capita natural gas consumption by 26 percent and electricity consumption by 18 percent (Brounen, Kok, and Quigley 2012). Urban sprawl has also been shown to lead to increased residential energy use (Ewing and Rong 2010).

Changes in the composition of energy demand. In addition to changes in the overall level of energy demand, urbanization can also lead to changes in the types of fuel consumed within a country, which could affect aggregate energy demand both positively and negatively. As households move from rural to urban areas, they typically move from more basic forms of energy, such as biomass, toward more modern energy forms, such as electricity from centralized power stations fueled by coal or natural gas (Barnes, Krutilla, and Hyde 2005). For example, in sub-Saharan Africa 68 percent of urban households have access to electricity, compared to 15 percent in rural areas (Hommann and Lall 2019). Consumption of natural gas or kerosene for heating and cooking may also rise in place of solid fuels, with the proportion of households cooking with coal and wood falling sharply with population density (Gollin, Kirchberger, and Lagakos 2017). This shift has the potential to reduce commodity demand as the provision of energy in the form of centrally generated electricity or natural gas is typically more efficient than the burning of biomass (Pachauri and Jiang 2009; Poumanyvong and Kaneko 2010).

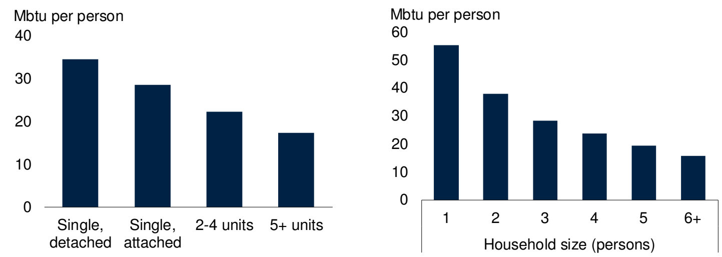
However, greater access to better-quality, cheaper energy such as electricity may lead to increased consumption of energy (Gillingham, Rapson, and Wagner 2015; IEA 2008).

The "heat island" effect. Urban areas give rise to the "heat island" effect, whereby man-made structures such as roads and buildings absorb and re-emit heat from the sun to a greater degree than natural landscapes, and also provide less shade and moisture (Imhoff et al. 2010). This can be exacerbated by a concentration of human activities that emit heat, such as the use of air conditioners. As such, urban areas, particularly cities with larger and more dense populations, tend to be hotter than rural or natural areas, although the effect can vary between cities depending on the extent of green space. Estimates for the United States indicate the annual average temperature of a city can be 1.8 to 5.4°F hotter than its surroundings, although estimates can vary significantly between studies, and also fluctuate between night and day, and summer and winter (EPA 2008). These variations can increase energy demand for cooling in hotter countries and during summer; however, it can reduce energy demand for heating in cooler countries and in winter. The heat island effect is expected to change and increase as global temperatures rise (Hibbard et al. 2017).

FIGURE SF.5 Urban populations and household energy use in the United States

Household energy use is lower in apartments compared to single-family homes due to greater energy efficiency, but is higher in smaller households due to economy of scale effects in heating and lighting.

A. Household energy use, by dwelling type **B. Household energy use, by household size**



Sources: U.S. Energy Information Administration; World Bank.

Increased consumer choice. Consumers living in cities benefit from a larger range of goods and services to consume, which can result in increased consumption (if consumers have access to new products). Access to larger markets enables producers and retailers to specialize and supply a wider variety of goods and services. All else equal, a rise in consumption due to increased choice, beyond that driven by increased income, would result in a net positive increase in commodity demand. For example, urban diets are typically more varied and include a greater share of meat, processed food (including convenience food), and exotic food, which require more energy and other commodities both in their production and transport (Hovhannisyan and Devadoss 2020; Regmi and Dyck 2001). However, empirical studies suggest that the link between increased consumer choice and rising commodity demand is primarily driven by income, not urbanization per se. For example, household survey evidence from China and India shows the quantities of food consumed by rural households and urban households with similar income levels are comparable (Pandey et al. 2020; Stage, Stage, and McGranahan 2010).

Production. In addition to the effects on commodity demand, rapid urbanization can affect agricultural production, although as with commodity consumption, these effects can be either positive or negative. If urbanization leads to people living in higher-density areas, it may reduce the proportion of land used for habitation and increase the availability for agricultural uses (Satterthwaite, McGranahan, and Tacoli 2010). Further, a reduction in population in rural areas can promote the creation of larger farms, allowing efficiency gains and thereby increasing agricultural production (Stage, Stage, and McGranhan 2010).[8] However, high-density cities can also lead to increased levels of localized pollution and degrade water supplies and soil quality, decreasing agricultural supply (Angel, Sheppard, and Civco 2005). The increased share of land used by cities can also result in the loss of agricultural land if cities are located in particularly fertile and irrigated areas. In China, for example, 4.3 million hectares of cropland were converted to built-up land between 1987 and 2010 (Acharya et al. 2021).

Commodity demand and urbanization. Just as urbanization can affect commodity demand, the reverse relationship may also occur: changes in global commodity demand has the potential to impact urbanization via changes in global commodity prices. If commodities are produced in rural areas, such as agricultural products, then an increase (decrease) in global commodity prices which increases (decreases) rural real wages might be expected to slow (accelerate) urbanization as it decreases (increases) the incentives to move to rural areas (Bruckner 2012). In addition, fluctuations in commodity prices such as oil may alter the characteristics of cities within a country by affecting transport costs. In SSA, for example, rising oil prices and transport costs have been shown to increase economic activity in cities near major ports relative to otherwise identical cities that are further away (Storeygard 2013). As a result, future urban growth in SSA may be more likely to occur in large coastal cities.

Empirical effects of urbanization on commodity demand

The literature can be broadly split into two fields: studies that investigated the effect of the overall share of the urban population and studies that considered urban density (differences between high- and low-density urban areas within a country; Table 1). While many studies explore the role of energy on urbanization, far fewer examine agriculture and virtually none for metals. Empirical analysis of the topic is limited by data availability, particularly for commodity consumption at the sectoral level. The considerable differences in the definition of an urban area between countries also present a challenge.

Sample of studies. The majority of the studies focusing on the overall share of urban populations were cross-country studies using panel datasets and focused on aggregate energy consumption, although some looked at individual channels. This group also included some single-country studies, including two studies looking at food consumption. In contrast, the studies examining urban density focused on individual countries (frequently the United States, given greater data availability) and on individual channels, such as energy demand from transport or dwellings. These studies were all in advanced economies (Canada, Japan, the Netherlands, and the United States), likely reflecting the greater data availability of sectoral energy consumption. All of the studies included in the literature review controlled for per capita income.

[8] Causality may also run in the opposite direction, whereby efficiency gains in agriculture can act as a catalyst for urbanization by freeing up labor.

Share of urban populations. Of the cross-country studies examining the impact of the share of the urban population on commodity demand, almost all found a positive, statistically significant relationship whereby a higher urban population share caused higher energy demand.[9] One study found that the relationship varied by income level, with a negative relationship for LICs, but a positive relationship for higher-income countries; this was attributed to efficiency gains arising from shifts to more modern fuels such as centrally-generated electricity (Poumanyvong and Kaneko 2010). Another study of nine Pacific Islands found a positive, significant relationship for four islands, an insignificant relationship for another four, and a negative relationship for one (Mishra, Smyth, and Sharma 2009). The one single-country study also found a positive relationship between urbanization and energy demand (Liu 2009). Only one study found a negative relationship between the urban share of the population and energy consumption (from transport; Liddle 2004).

Two studies investigated food consumption in China and India (Hovhannisyan and Devadoss 2020; Pandey et al. 2020). The studies found little aggregate impact of urban population shares on food consumption after controlling for income. The two studies had different findings in terms of the impact on the composition of diets, however, with the former finding a shift from grains and vegetables to meats, eggs, and fruits, while the latter found little impact. The single study which investigated metals consumption found a positive impact of urbanization on metals demand (Baffes, Kabundi, and Nagle 2021).[10]

Urban density. Of the studies examining the impact of urban density, all found a negative relationship with energy demand. These considered a variety of channels, including transport, dwellings, dwellings and transport together, and consumption from the service sector.[11] Higher-density cities had lower energy demand than lower-density ones, at least in advanced economies. The extent to which these results apply to EMDEs is unclear. Many cities in EMDEs, particularly in sub-Saharan Africa, struggle with high road congestion and commuting costs due to poor planning, inadequate transport infrastructure, and limited public transit options, despite high population density (Hommann and Lall 2019; World Bank 2021b). Indeed, in a study considering the effect of population density on CO_2 emissions, the relationship was found to vary with income. Areas with higher population density were found to have higher CO_2 emissions at very low levels of per capita income, but lower CO_2 emissions at higher income levels (above $1,000 per capita; Dasgupta, Lall, and Wheeler 2021).

Conclusions and policy implications

The share of the global population living in urban areas has risen rapidly over the past 50 years alongside a major increase in commodity consumption. While income and population growth are the primary drivers of commodity demand, urbanization also affects commodity demand through several channels. This is because urban areas have huge resource needs, both in terms of their construction and in their day-to-day use due to high concentrations of population.

In aggregate, an increase in the share of the urban population is associated with increased energy demand. But the impact also depends on the nature of urbanization, with compact, high-density cities having lower per capita energy consumption than low-density cities due to greater resource efficiency and economies of scale, particularly in advanced economies. For food, urbanization appears to change patterns of

[9] See Baffes, Kabundi, and Nagle (2021); Salim and Shafiei (2014); Poumanyvong and Kaneko (2010); Poumanyvong, Kaneko, and Dhakkal (2012); Mishra (2009); Parikh and Shukla (1995); and York (2007).

[10] Urbanization was not the primary focus of this study and was included as a control variable.

[11] These studies considered various channels, including transport (Brownstone and Golob 2009); dwellings (Brounen, Kok, and Quigley 2012; Lariviere and Lafrance 1999); dwellings and transport together (Glaeser and Kahn 2010; Larson and Yezer 2015); and consumption from the service sector (Morikawa 2012).

consumption, but there is less evidence that it causes an overall increase in demand. In the case of metals, the limited research available shows a positive relationship between urbanization and metals demand. An important avenue for further research would be to explore the impact of urban density on a broader range of commodities—and importantly account for differences in income levels (extending the analysis in Dasgupta, Lall, and Wheeler 2021). Since growth in cities is expected across EMDEs, this could help in assessing the impact of different types of city design on resource use.

Cities are on the frontlines of the climate change and the energy transition; although they occupy less than 3 percent of global land, they consume over two-thirds of the world's energy and account for 70 percent of global greenhouse gas (GHG) emissions. They are also particularly at risk from climate change, with 90 percent of the world's urban areas situated on coastlines and therefore at risk from rising sea levels. With urban populations expected to continue to increase rapidly, strategic urban planning that integrates transport and land use will become even more important in limiting the impact of urbanization on commodity consumption, and, crucially, GHG emissions.[12] It is not urbanization alone that causes an increase in GHG emissions, but rather differences in the design of cities, the methods of transport used, the choice of fuel for energy, and the efficiency and means by which buildings are heated and cooled (World Bank 2010).

Critical policy measures will include the expansion of the capacity, affordability, and access of public mass transport systems, as well as investment in energy efficiency measures for buildings. Fiscal policies can also play an important role. For example, fuel taxes have been shown to increase population density and preserve open space (Creutzig 2014, Creutzig et al. 2015). Zoning laws are also important for boosting population density. They can, for example, encourage "building up" instead of out, which can help reduce long commutes, increase usage of public transit, and lower energy use and greenhouse gas emissions (Lall et al. 2021). Early planning and installation of transportation infrastructure is particularly crucial in rapidly growing cities such as in Sub-Saharan Africa, as it can help guide and shape future urban growth, and prevent urban sprawl (Hommann and Lall 2019).

[12] The development of green and sustainable cities is a key component of the World Bank's Climate Change Action Plan, and in line with the UN's Sustainable Development Goal 11 to make cities and human settlements inclusive, safe, resilient, and sustainable (World Bank 2021c).

TABLE SF.1 Literature review of urbanization and commodity demand

Author(s)	Data	Main topic	Main findings
Baffes, Kabundi, and Nagle (2021)	Panel of 63 advanced economies and EMDEs, 1965-2017	Aggregate energy and metal consumption	Urbanization has a positive effect on energy and metal consumption (positive on coal and natural gas consumption but negative effect on oil).
Dasgupta, Lall, and Wheeler (2021)	1,236 cities in 138 countries, 2014-2020	CO_2 emissions	Urban areas with higher population density have higher CO_2 emissions at very low levels of per capita income, but lower CO_2 emissions at higher income levels (above $1,000 per capita).
Hovhannisyan and Devadoss (2020)	Panel data on consumer food expenditure in China, 2005-12	Food consumption	Urbanization has reduced demand for grains, vegetables, and fats and oils while increasing demand for meats, fruit, and eggs.
Pandey et al. (2020)	Consumer expenditure survey data covering 124 food commodities at the household, district, and state level in India	Food consumption	Although urbanization leads to varied diets, most of the change in food consumption patterns between urban and rural areas is due to income, not urbanization.
Larson and Yezer (2015)	Theoretical model calibrated with empirical estimates of model parameters with calibration target of 10 U.S. cities.	Energy use from transport and dwellings	A doubling in urban population leads to a 2.6 percent reduction in energy use from transport and dwelling use.
Salim and Shafiei (2014)	Panel of 29 OECD countries, 1980-2011	Aggregate energy use (renewable and non-renewable)	Urbanization has a positive effect on non-renewable energy use (due to changing consumer needs and increased transport demand) but little effect on renewable energy use.
Sadorsky (2013)	Unbalanced panel of 76 developing countries, 1980-2010	Energy intensity	Urbanization has an insignificant effect on energy use in most versions of the model; income is a statistically significant negative driver of energy intensity.
Brounen, Kok, and Quigley (2012)	Sample of 300,000 households in the Netherlands, 2008-09	Energy use from dwellings	Apartments and row homes had significantly lower energy consumption than detached and semi-detached homes. An additional person per household reduced per capita natural gas and electricity consumption by 26 percent and 18 percent, respectively.
Morikawa (2012)	Microdata covering up to 66,000 service sector firms in Japan, 2007-08	Energy use by service sector	The efficiency of energy consumption in service companies is higher in densely populated cities. Energy efficiency increases by 12 percent when density doubles.
Poumanyvong and Kaneko (2010)	Panel dataset of 92 countries (low- medium- and high-income), 1975-2005	Aggregate energy consumption	Urbanization results in lower energy use in low-income countries (perhaps due to switching from inefficient to efficient fuels). Urbanization leads to increased energy use in middle- and high-income countries.
Poumanyvong, Kaneko, and Dhakal (2012)	Panel dataset of 92 countries (low- medium- and high-income), 1975-2005	Energy use from transport	Urbanization leads to more energy use in transport for all income groups, especially high-income countries.
Glaeser and Kahn (2010)	Single-year survey and census data for U.S. metropolitan areas	GHG emissions from energy use	Higher-density cities have lower emissions than low-density cities. This is due to lower emissions from driving and electricity, while emissions from public transport and heating are higher.
Brownstone and Golob (2009)	Single-year survey data for California, U.S.	Energy use from transport	Lower-density households travel more and consume more fuel, both a result of increased travel time, as well as self-selection of less efficient cars.
Liu (2009)	China, 1978-2008	Aggregate energy consumption	Urbanization has a positive effect on energy consumption – much smaller than that of income and decreasing over time.
Mishra (2009)	Nine Pacific island countries, 1980-2005	Aggregate energy consumption	In aggregate, a 1 percent increase in the rate of urbanization generates a 2.4 percent increase in energy consumption. However, the effect was positive in only 4 of the 9 countries (negative in 1, and insignificant in the other).
York (2007)	Panel of 14 EU countries, 1960-2000	Aggregate energy consumption	Urbanization leads to more energy consumption.
Liddle (2004)	Panel data, 23 OECD countries, 1960-2000	Energy consumption by transport	Highly urbanized and more densely populated countries have lower personal transport consumption.
Lariviere and Lafrance (1999)	Single-year data on electricity consumption, 45 cities in Canada	Electricity consumption	High-density cities use slightly less electricity than lower-density ones.
Parikh and Shukla (1995)	Panel dataset of 72 countries, 1965-87	Aggregate energy consumption	A 1 percent rise in urbanization leads to a 0.28 percent rise in energy use. This is driven by transport and is attributed to greater intra-urban commuting and congestion.

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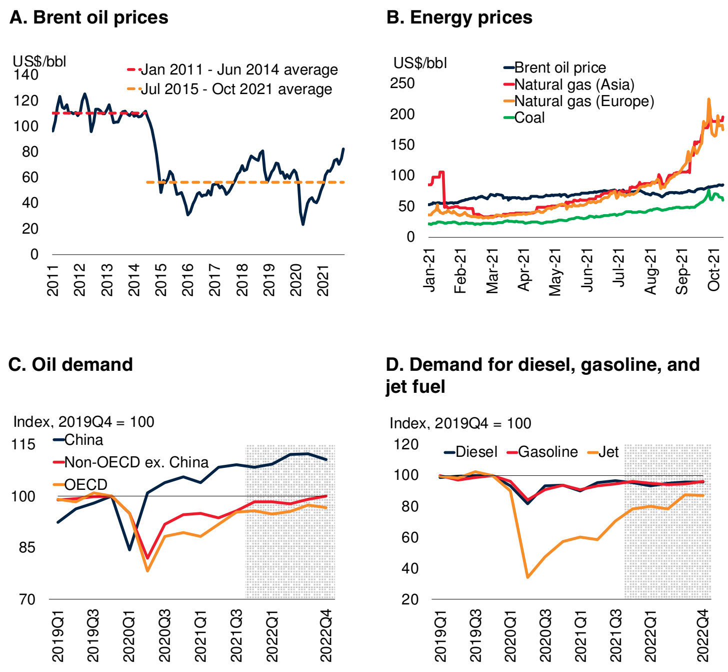
Commodity Market Developments and Outlook

Energy

Energy prices soared in 2021Q3, especially coal and natural gas, with some price benchmarks reaching record highs. Demand for fossil fuels rebounded as a result of firming global economic activity as well as adverse weather which increased energy use for heating and cooling and reduced hydroelectric power generation. Adverse weather also disrupted coal production in several countries. Crude oil prices rose in 2021Q3 as oil supply recovered more slowly than expected due to supply disruptions and production constraints. High natural gas prices also encouraged the use of oil as a substitute. After rising 70 percent in 2021, crude oil prices are expected to average $74/bbl in 2022 as global production recovers, while natural gas and coal prices are expected to fall in 2022 as production constraints ease.

FIGURE 2 Oil market developments

Crude oil prices have risen sharply this year, with Brent reaching a seven-year high. The price of oil has been supported by soaring natural gas and coal prices, which have made crude oil increasingly competitive as a substitute in heating and electricity generation. Oil demand has continued to recover, albeit unevenly, and this is expected to continue. Jet fuel consumption remains well below its pre-pandemic level, reflecting still subdued international travel.



Sources: Bloomberg; International Energy Agency; World Bank.
A. Monthly data of Brent oil prices. Last observation is October 2021. Dashed red and orange lines indicates average Brent oil prices from January 2011 to June 2014, and July 2015 to now, respectively.
B. Daily prices. Last observation is October 19, 2021. Prices are adjusted using EIA conversion factors for their thermal content.
C.D. Quarterly data. Shaded areas indicate forecasts from IEA. Jet fuel includes kerosene.

Crude oil

Recent developments

Crude oil prices have risen rapidly over the past few months, with the price of Brent reaching a seven-year high of almost $85/bbl by mid-October (figure 2.A). Prices have been lifted by production disruptions in the United States due to Hurricane Ida as well as an announcement by OPEC+ at its meeting in October that the group intends to maintain its previously announced production increases. Some oil-importing countries had called for larger increases, as the group continues to hold significant amounts of production capacity off the market. Oil prices have also been supported by higher natural gas prices as oil is becoming more competitive as a substitute in heating and electricity generation (figure 2.B).

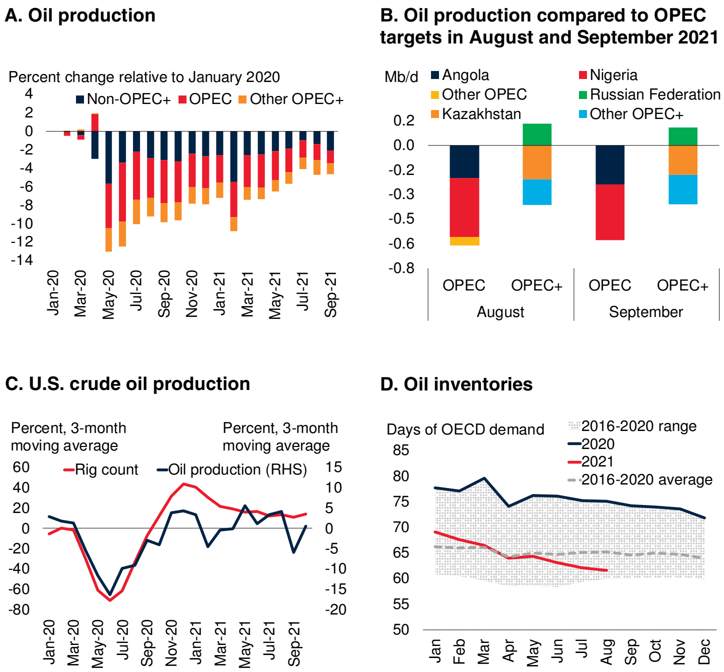
Global consumption of crude oil continued to recover, rising by an estimated 3 percent in 2021Q3 (q/q), and is now just 3 percent below its pre-pandemic peak.[1] Demand among OECD countries rose 4 percent in 2021Q3, with rapid growth in Canada and some European countries (e.g., France), as lockdown measures eased and transport rose. However, demand remains below its pre-pandemic level in both OECD and non-OECD countries excluding China (figure 2.C). In contrast, demand in China was more than 10 percent higher than its pre-pandemic level in 2021Q3 due to its faster economic recovery. The recovery in consumption remains vulnerable to the pandemic, however, as renewed outbreaks of COVID-19 in 2021Q3 weighed on oil consumption growth, especially in Asia.

Among oil products, the gap relative to pre-pandemic levels was largest in jet fuel, as the pandemic continued to affect business and leisure

[1] *Oil Market Report—September 2021.* International Energy Agency, Paris.

FIGURE 3 Oil production developments

After a gradual recovery since March 2021, crude oil production declined in August and September due to supply disruptions. OPEC+ production was significantly lower than allowed under its quotas, largely due to unplanned outages, persistently weak investment in Angola and Nigeria, and maintenance issues in Kazakhstan. Crude oil production in the United States fell sharply as a result of Hurricane Ida. With consumption recovering more rapidly than production, oil inventories have fallen sharply and are below their five-year average.



Sources: Baker Hughes; Energy Information Administration; International Energy Agency; OPEC; World Bank.

A. Last observation is September 2021.

B. Difference between production targets and supply for August and September 2021 for OPEC and other OPEC+ countries.

C. Weekly frequency data. Data as of October 8 for oil production and October 15 for rig count.

D. Monthly data, last observation August 2021. Shown as a percent of OECD demand in the relevant quarter.

air travel. Jet fuel consumption was still about 30 percent below pre-pandemic levels in advanced economies in 2021Q3, compared to 3 percent for diesel (figure 2.D). However, this is also expected to recover in coming quarters as vaccination rollouts continue and air travel picks up.

Global oil production declined in August and September, after reaching a post-pandemic high in July, as output was disrupted by maintenance, weather, and production constraints (figure 3.A). Compared to the previous year, however, production was up by 6 percent. Reflecting the faster recovery in consumption than production, oil inventories have also continued to fall.

OPEC and its partners (OPEC+) gradually increased production through the first half of 2021, and at their July meeting the group decided to increase production at the rate of 0.4 mb/d per month from August 2021 until September 2022, at which point their initial cuts would be fully unwound. The group (excluding the Islamic Republic of Iran) currently has spare production capacity of about 6.6 mb/d, of which OPEC (excluding the Islamic Republic of Iran) accounts for 5.5 mb/d. Despite the planned increase in production among the group, however, output was almost 1 mb/d below their target in August and September. The shortfall was primarily due to maintenance and unplanned outages in some countries due to COVID-19 restrictions, and partly due to persistently weak investment, with some countries producing at or near capacity.

Among OPEC countries, the shortfall was mainly due to Nigeria and Angola, whose combined output was almost 0.6 mb/d lower than their quota (figure 3.B). Production in both countries has been affected by a combination of operational issues and insufficient investment to replace declining output. In contrast, in Saudi Arabia crude oil production has been rising steadily, up by 1 mb/d in 2021Q3 compared to the previous quarter, taking production to 9.7mb/d, its highest level since April 2020. The Islamic Republic of Iran, which is outside the OPEC+ agreement, saw an additional small rise in production to 2.5 mb/d in 2021Q3, its highest level since 2019Q1. The Islamic Republic of Iran remains under sanctions, and progress on a new agreement appears to have stalled. Among the OPEC+ partner countries, Kazakhstan saw a sharp fall in production in August due to maintenance, but this partially recovered in September. In contrast, production in Russia was above target.

Among non-OPEC+ producers, production also fell in August and September. The largest decline was in the United States, where total oil production dropped by 4 percent in September relative to July, due to the impact of Hurricane

Ida on production in the Gulf of Mexico (figure 3.C). The impact was particularly severe compared to previous hurricanes.[2] Abstracting from the impact of the hurricane, production in the United States has continued to recover, although more slowly than during previous recoveries. The U.S. shale industry has undergone significant consolidation, and firms are focusing on returning cash to shareholders rather than increasing production. In addition, supply chain disruptions, higher prices for equipment, and labor shortages are increasing the cost of production. Among other non-OPEC+ producers, output in Canada has risen sharply and is expected to regain its pre-pandemic peak by the end of 2021.

As oil demand recovered more rapidly than supply, oil inventories fell sharply, dropping by just over 1 percent per month since August 2020 (figure 3.D). On-land OECD industry inventories stood at 2.8 billion barrels in July 2021, around 4 percent below their five-year average. In response to concerns about persistently high oil prices, China announced it would sell some of its strategic oil reserves. India also began selling oil from its strategic reserves to state-run oil refiners.

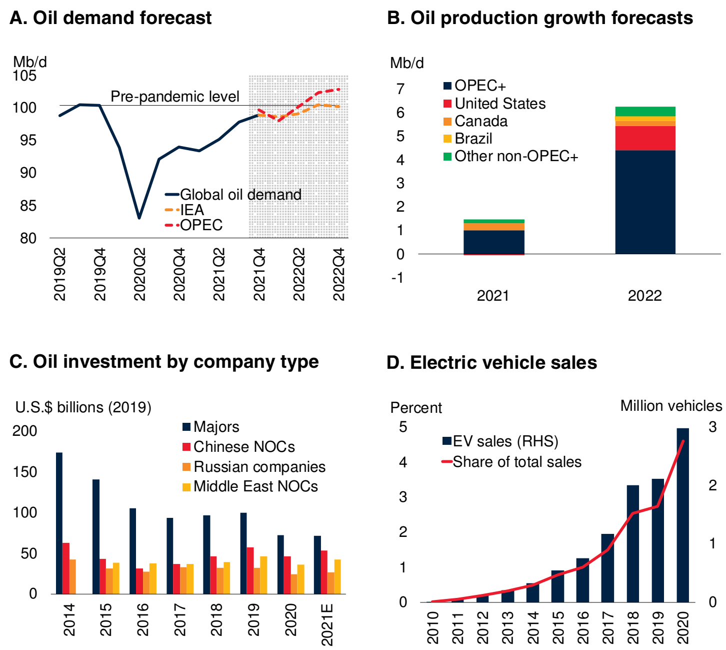
Price forecasts and risks

Outlook. Crude oil prices (an average of Brent, Duabi, and WTI) are expected to average $74/bbl in 2022, up from a projected $70/bbl in 2021, and then decline to $65/bbl in 2023. The forecast is a significant upgrade compared to the April projections, reflecting an improved global growth outlook, as well as a much weaker than expected supply response in 2021 to date.

Oil demand is expected to reach its pre-pandemic level in 2022, although estimates for the speed of recovery vary among forecasters (figure 4.A). Large EMDEs, notably China, India, and Russia, account for most of the rise in demand, while demand in several advanced economies remains subdued and may not recover to pre-pandemic levels. Prior to the pandemic, demand in most

FIGURE 4 Oil market outlook

Oil demand is expected to exceed its pre-pandemic level in 2022, although estimates of the speed of recovery vary. A robust recovery in oil production is anticipated as OPEC+ unwinds the last of its cuts and production increases elsewhere. A risk to the forecast is persistently weak investment, particularly by large international oil companies, which could see production failing to keep pace with demand. Longer-term, the growing popularity of electric vehicles will dampen oil demand.



Source: International Energy Agency; OPEC; World Bank.

A. Dashed lines are forecasts, taken from the IEA's September Oil Market Report report and OPEC's September Monthly Oil Market Report.

B. Chart shows IEA forecasts for oil production 2021 and 2022 from the October OMR.

C. NOC stands for national oil companies. Upstream oil investment based on company reporting. "Majors" comprises Royal Dutch Shell, BP, Eni, ExxonMobil, Chevron, Total, and Conoco Phillips. Data from *World Energy Investment 2021*, International Energy Agency, Paris.

D. EV stands for electric vehicles and includes battery electric vehicle and plug-in hybrid electric vehicles. Data from *Global EV Outlook 2021*, International Energy Agency, Paris.

advanced economies, particularly in Europe, had been declining for several years. Oil demand is expected to be boosted by increasing substitution for natural gas in heating and electricity generation, with estimates that it could raise demand by about 0.5 mb/d.

Oil production is forecast to see a robust recovery of around 6mb/d in 2022 (figure 4.B). The increase is mostly from OPEC+, which would see the group fully unwind their production cuts by 2022Q3. While some OPEC+ countries such as Angola may struggle to reach their previous production levels due to weak investment, other countries, especially Saudi Arabia, are investing in

[2] *Oil Market Report—September 2021*. International Energy Agency, Paris.

new projects to increase production capacity. Indeed, as the production cuts are unwound the remaining spare capacity will increasingly be concentrated in a small number of countries, including the Islamic Republic of Iran, Saudi Arabia, and UAE. Outside of OPEC+ most production growth is accounted for by the United States, where output is expected to rise by 1mb/d in 2022 as drilling activity picks up. Production in Canada and Brazil is also expected to grow.

Risks. Continued use of crude oil as a substitute for natural gas presents an upside risk to the demand outlook, while downside risks include the potential for higher energy prices to weigh on growth, as well as renewed outbreaks of COVID-19. For supply, the impact of persistently weak investment on new crude oil production presents the biggest upside risk, while a new nuclear deal for Islamic Republic of Iran, which would lift the country's exports, offers a downside risk.

The increasing use of crude oil as a substitute for natural gas in heating and electricity generation is an emerging risk to the forecast. Industry estimates suggest that this could lead to an increase in oil demand of about 0.5 mb/d, although this could increase if supply constraints persist. Conversely, the surge in energy prices could weigh on global growth in 2022, particularly for oil-importers, dampening demand for oil. Additional outbreaks of COVID-19 remain a downside risk to oil demand, as highlighted by recent outbreaks in Asia. The impact of these outbreaks on mobility and therefore oil demand, however, has been much smaller than during the initial months of the pandemic, as lockdowns have become more targeted, and households and businesses adapt.

On the supply side, a return to the Joint Comprehensive Plan of Action for the Islamic Republic of Iran and the removal of sanctions on its oil exports could see the country's production increase rapidly (by more than 1 mb/d). To the upside, insufficient investment in new production raises the risk that future supply growth will be weaker than demand. Investment in new oil production has been relatively weak since the 2014 oil price collapse, and investment fell sharply in 2020, particularly among oil majors (figure 4.C). Shifts in investor preferences and company strategies, including the growth of Environmental, Social, and Governance (ESG) investing, is likely to limit these companies' investments in traditional new projects going forward. Instead, new projects are likely to be dominated by state-owned oil companies.

The speed and extent of the energy transition is highly uncertain and estimates for future oil demand vary widely depending on government policies. Estimates by the International Energy Agency and OPEC expect that, under current policies, oil demand may see a further modest increase for several years before plateauing.[3] While adoption of renewable technologies, including electric vehicles, is accelerating rapidly, the speed at which oil consumption recovered after the pandemic, particularly in large EMDEs, highlights the difficulty in reducing its use (figure 4.D). The International Energy Agency has stated that new investment in fossil fuel production must be curtailed to meet the goals of the Paris Accord. To avoid future price spikes it will be necessary to ensure that either demand for fossil fuels falls commensurately or that supply of low-carbon alternatives is sufficient.

Natural gas and coal

Natural gas and coal prices surged throughout 2021Q3 and continued increasing into October (figure 5.A, B). Australian thermal coal prices and European and Asian spot natural gas prices reached all-time highs in October, with prices three, four, and two times higher than in January, respectively. The surge reflects a sharp increase in demand, especially in China, and constrained supply exacerbated by some disruptions, with adverse weather events playing a key role.

The synchronized nature of the increase across natural gas and coal price benchmarks demonstrates how these markets have become increasingly integrated. This is largely due to the

[3] See: *World Energy Outlook 2021*. International Energy Agency, Paris; W*orld Oil Outlook 2021*. OPEC, Vienna.

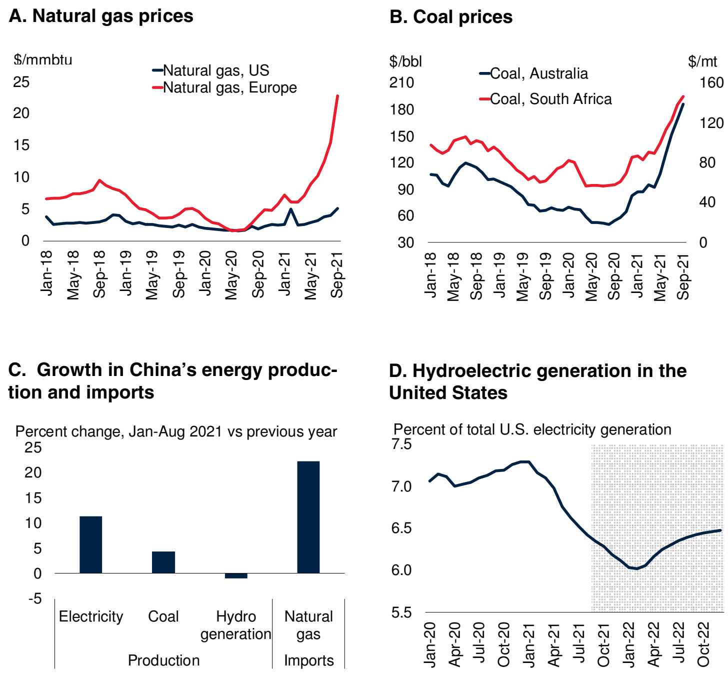
increase in availability and trade of liquefied natural gas (LNG), which has become both a key source of fuel in many countries, but also an important backup fuel in others. In 2020, LNG accounted for over half of all natural gas traded, up from just under one-quarter in 2000. As a result, a shortage of a fuel in one region, such as coal, can not only lead to higher coal prices elsewhere, but can also exert upward pressure on prices of substitute commodities such as natural gas. For example, as China increases imports of LNG as a substitute for coal, competition for LNG in other regions rises. Previously, there was less substitution across markets separated by large distances or other physical barriers, as gas was primarily exported by pipeline, while coal is expensive to transport as it is bulky.

Demand. As the global economy has started to recover from the pandemic, demand for natural gas and coal rebounded, both for electricity generation as well as for industrial purposes, including coking coal for steel generation. In China, electricity use rose 11 percent in January-August 2021 compared to the previous year, while in India it was up 17 percent y/y in August 2021 (figure 5.C). Hotter-than-normal weather boosted demand for electricity for cooling in major economies including China and the United States. On the supply side, drought reduced hydroelectric power generation in several countries, notably Brazil, China, Turkey, and the United States (figure 5.D). Low wind speeds also reduced wind power generation in Europe. Together, these developments further increased demand for fossil fuels, often in the form of LNG.

Production. Production of *coal* fell 5 percent in 2020 and has been slower to pick up than consumption. In China, the world's largest coal producer (as well as consumer), safety regulations introduced earlier this year have limited the ability of coal mines to raise production. Coal production in China—up 4 percent between January to August 2021 compared to the previous year—has been broadly flat since the first quarter, while electricity demand soared. This has contributed to power supplies being rationed in some parts of China. Recent flooding has also shut down some mines, exacerbating the supply crunch. Seaborne coal supplies remain below pre-pandemic levels, with production and exports from Australia and Indonesia also affected by adverse weather including storms and heavy rains.

FIGURE 5 Energy price developments

Natural gas and coal prices soared in the second half of 2021, with some benchmarks reaching all-time highs, driven by a combination of supply and demand factors. Demand for electricity surged as the global economy recovered, especially in China. Production of coal has been slower to recover, such that China's imports of natural gas soared. Weak renewable production, especially hydro power in China, the United States, and Brazil also contributed to higher demand for coal and natural gas.

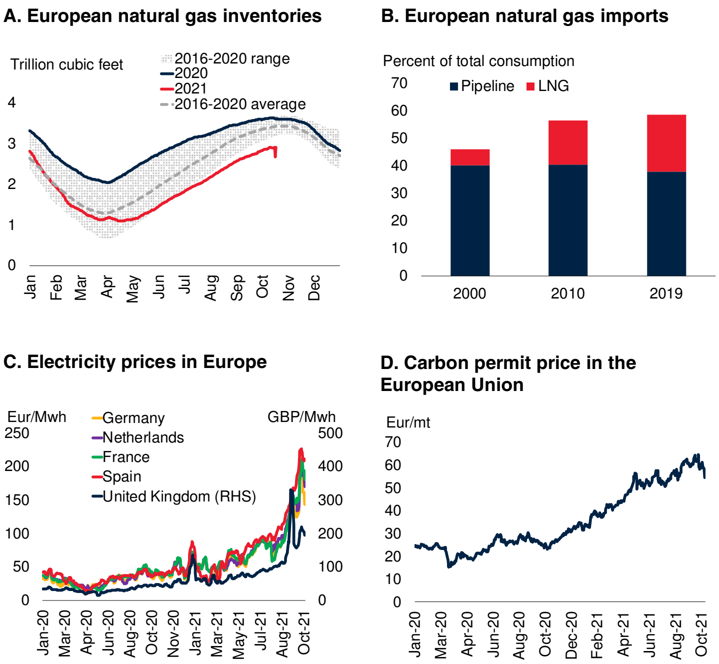


Sources: Bloomberg; Energy Information Administration; General Administration of Customs of the People's Republic of China; National Bureau of Statistics of China; World Bank.
A.B. Monthly data. Last observation is September 2021.
C. Chart shows growth in China's domestic energy production and imports for the period January to August 2021 vs. the same period a year earlier. Imports are in quantities.
D. Shaded area indicates U.S. Energy Information Administration forecast.

China's import ban on Australian coal in late 2020 has also disrupted the international trade of coal. Australia is the world's largest exporter of coking coal (typically used in steel manufacturing) and second-largest exporter of thermal coal (used in electricity generation), accounting for 46 percent and 27 percent of total coking and thermal coal exports, respectively, in 2019. The ban has resulted in significant trade diversion, with China importing more from other coal-

FIGURE 6 Energy market developments in Europe

In Europe, inventories of natural gas dropped well below their five-year average. Europe has become increasingly dependent on natural gas imports, especially liquefied natural gas. The jump in natural gas and coal prices also led to soaring electricity prices, particularly in Europe, while carbon permit prices also rose, in part due to increased use of coal in electricity generation.



Sources: Gas Infrastructure Europe (AGSI+); U.S. Energy Information Administration; World Bank.
A. Sample contains 20 countries including United Kingdom. Last observation is October 18, 2021.
B. LNG stands for liquefied natural gas.
C. Daily data. Five-day moving averages of electricity prices. Last observation is October 19, 2021.
D. Carbon permit prices refer to the cost of an allowance to emit one tonne of carbon under the EU Emissions Trading System for select industries in the EU. Daily data. Last observation is October 19, 2021.

exporting countries, while other coal-importing countries switch to importing more from Australia. For example, China's imports of coal from Australia declined while those from Russia and the United States rose sharply in the first eight months of 2021. In contrast, India's imports of coal from Australia reached an all-time high in July, while South Korea's imports were up 64 percent in September (y/y). While import bans and tariffs typically even out as exporters and importers rearrange trade patterns, they can cause significant short-term disruptions and have permanent additional costs, such as transport costs (see October 2019 CMO).

Global production of *natural gas* fell 3 percent in 2020 and has also been slow to recover. Natural gas production in the United States has been broadly flat throughout 2021, and the rig count has been nearly unchanged at 100 since May 2021, around 40 percent lower than its average in 2019. Similar to shale oil producers, natural gas producers have prioritized returning cash to shareholders rather than investing in new production. Production of natural gas in Russia has been affected by some maintenance issues.

Inventories. Natural gas inventories typically rise in summer and are run down in winter, reflecting differences between seasonal demand and production. Global inventories are currently at very low levels relative to previous years, particularly in Europe. A cold winter led to inventories falling below their five-year average in February 2021, exacerbated by disruptions to U.S. natural gas production which led to lower exports of LNG to Europe (figure 6.A). Over subsequent months, Europe was unable to rebuild inventories, in part due to constrained supplies from Russia, and increased competition with Asia for LNG, which resulted in a decline in European imports of LNG. Over the past decade, Europe has become increasingly reliant on imports of LNG as domestic production has dwindled (figure 6.B).[4] As a result, European inventories are now well below their range over the past five years. The surge in natural gas prices also led to soaring electricity prices, as well as increased use of coal in electricity generation (figure 6.C). The latter also put upward pressure on carbon permit prices as coal emits twice as much carbon dioxide as natural gas when burnt (figure 6.D).

Outlook. Natural gas and coal prices are expected to remain at high levels through the start of 2022 but then decline as supply constraints ease and production increases. However, additional bouts of price volatility remain a distinct possibility. European natural gas prices and Australian coal prices are forecast to each decline 14 percent in 2022 and then fall a further 27 percent and 25

[4] The Dutch Groningen gas field—which was once the largest in Europe—is also due to close in 2022 because of the risk of earthquakes associated with gas production and drilling.

percent, respectively, in 2023. In contrast, after doubling in 2021 natural gas prices in the United States are expected to see only a very small decline, given continued high demand for U.S. LNG exports. Asian delivered natural gas prices, which saw the smallest rise in 2021, are expected to see a relatively modest fall in 2022. Asian natural gas prices are primarily contract-based and are less susceptible to the volatility seen in spot prices.

Coal production is also expected to increase as some of the supply disruptions seen this year ease. China's coal production is expected to rise in response to government efforts to raise output. Natural gas production is expected to rise in the United States, alongside the recovery in shale oil production, and the U.S. EIA forecast a 6 percent increase in U.S. LNG exports. Exports from Russia and Azerbaijan are also expected to rise, facilitated by new pipelines in the region.

Risks. In the short-term, natural gas and coal markets remain particularly vulnerable to weather-related shocks. A particularly cold winter could see further price surges as both supply and demand are price inelastic in the short term. For example, unseasonably cold weather in Texas in the United States in February 2021 both reduced natural gas production and increased consumption, which resulted in U.S. natural gas prices temporarily doubling. The impact on regional electricity prices was particularly severe, with Texas wholesale prices temporarily rising 75-fold in February.

More broadly, the events of this year have highlighted that evolving weather patterns due to climate change are a growing risk to natural gas and coal markets. They can affect demand for these commodities by increasing energy use for cooling and heating as extreme temperatures become more common. They could also affect demand for these fuels by causing fluctuations in renewable energy generation, requiring the use of back-up generating capacity. Finally, extreme weather can also affect the production of natural gas and coal. Examples include the flooding of coal mines (as occurred in Indonesia and China this year) and shutdown of natural gas production because of freezing temperatures or hurricanes (which have occurred in the United States).

From an energy transition perspective, concerns about the intermittent nature of renewable energy production highlight the importance of the need for reliable baseload and backup electricity generation. At present, this tends to take the form of natural gas- and coal-powered electricity plants. In order to reduce greenhouse gas emissions, however, baseload and backup sources of energy will increasingly need to be from low-carbon sources, such as hydropower or nuclear power, or from new and better methods of storing renewable power.[5,6] At the same time, high natural gas and coal prices observed this year make solar and wind power, which were already a cost-effective substitute, even more competitive as a source of energy. Countries may benefit from accelerating the installation of renewable energy to reduce their dependency on fossil fuels.

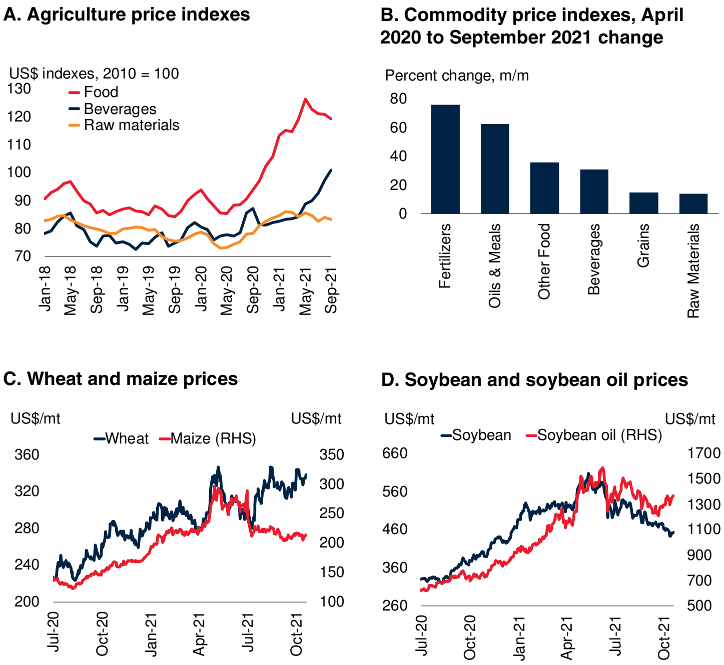
Spillover risks. High energy prices could contribute to higher inflation in many countries, especially energy importers, both directly in terms of higher electricity, transport, and heating costs, as well as indirectly via their impact on the production costs of other commodities and products. Indeed, higher energy prices are already impacting the production of other commodities. In Europe, several fertilizer plants have closed or reduced production in response to higher natural gas prices—natural gas is a key input into fertilizer production—causing fertilizer prices to rise sharply (see Fertilizer section). In China, its "dual policies" on energy intensity and overall consumption has led to government restrictions on aluminum production, which is particularly energy intensive. Industrial production in China and India has been negatively impacted by electricity shortages amid insufficient electricity availability. Higher energy prices could therefore also weigh on economic growth, which would in turn reduce demand for natural gas and coal.

[5] See "It's Critical to Tackle Coal Emissions," by F. Birol and D. Malpass. *Voices* (blog), October 8, 2021. World Bank.

[6] Nuclear power is a reliable source of baseload electricity but is less useful as a back-up for renewables as it is hard to rapidly increase or decrease output.

FIGURE 7 Agricultural price developments

Most food prices stabilized during the past two quarters following healthy assessments for the current crop season. The World Bank's Food Price Index remains more than 30 points higher than a year ago. Beverage prices made large gains led by coffee following a weather-related production shortfall in Brazil.



Sources: Bloomberg; World Bank.
A.B. Monthly data. Last observation is September 2021.
C.D. Last observation is October 19, 2021.

Agriculture

The World Bank's Agricultural Price Index stabilized in 2021Q3 but remains 25 percent higher than a year ago; most sub-groups exceeded pre-pandemic levels by a wide margin. The price surge earlier in the year (the index reached an 8-year high in 2021Q2) reflected supply shortfalls, input cost increases (especially coal, natural gas, and fertilizers), and strong demand for animal feed commodities in China. Among key food commodities, maize experienced the largest increase (64 percent higher in 2021Q3 compared to a year ago) followed by soybeans (47 percent); in contrast, rice prices declined 18 percent. Beverage prices made large gains as well (led by coffee due to weather-related production shortfalls in Brazil), while raw material prices have been relatively stable. The outlook appears favorable, with global supplies of most grains and edible oils set to increase during the 2021-22 crop season. Following a projected increase of 22 percent in 2021 compared to 2020, agricultural prices are expected to stabilize in 2022. Risks to the price outlook include the path of input costs and, in the longer term, biofuel policies. Both risks are linked to the energy transition away from fossil fuels.

Grains, oils, and meals

Recent developments

The World Bank's ***Grain Price Index*** declined 9 percent in the third quarter of 2021 (q/q) but stands more than 25 percent higher than a year ago, while the broader *Food Price Index* reached an eight-year high in 2021Q2 (figure 7). Production shortfalls and stronger-than-expected feed demand fueled a rally earlier in the year that pushed some food commodity prices to record highs. Maize prices, for example, exceeded $300/mt in May for the first time since early 2013. Most food prices edged lower recently, following healthy assessments for the ongoing season's (September 2021 to August 2022) production prospects. The U.S. Department of Agriculture's (USDA) October assessment estimated that global production of the three main grains—wheat, maize, and rice—is set to grow by 3.7 percent this season, or 88 million metric tons (mmt), which is more than twice the 30-year average growth of 35 mmt. However, because of strong consumption growth, the stocks-to-use ratio (a rough measure of supply relative to projected demand) is expected to decline by one percentage point this season. Despite such moderation, these ratios remain at historically elevated levels for most food commodities.

Wheat prices have been relatively stable during the past two quarters, following considerable gains since the summer of 2020 when weather problems affected production of some key exporters. Despite some downward revisions, production during the ongoing season appears favorable as good crops in the Southern Hemisphere are expected to compensate for lower-than-expected yields in parts of Canada, Kazakhstan, Russian Federation, and the United States. Global production of wheat is expected to reach nearly 776 mmt this season, marginally higher than last season's crop. However, because global consumption is projected to grow at 1.5 percent, the stocks-to-use ratio (expected at 0.35) will be two percentage points lower than last season, which is still high by historical standards.

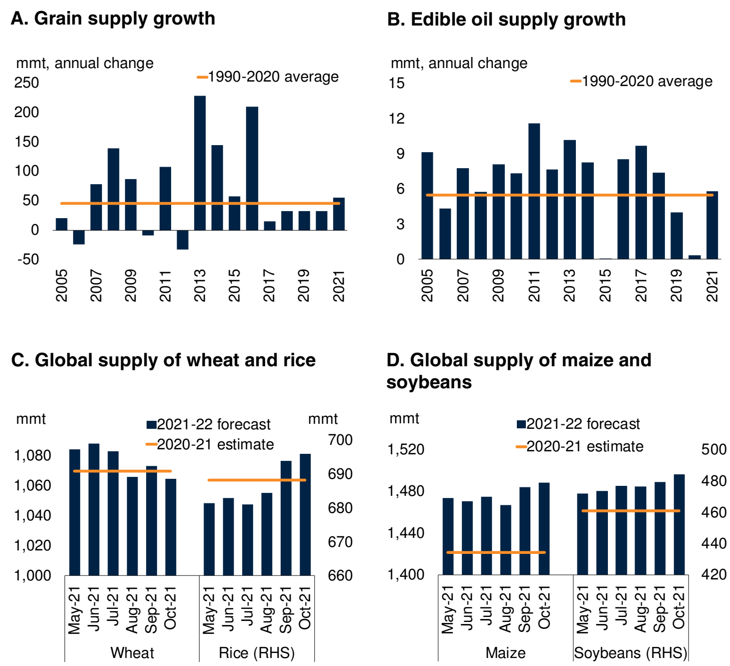
Maize prices fell to $230/mmt in September after surging earlier in the year. The decline reflects a good, completed harvest in the Northern Hemisphere, favorable growing conditions in the Southern Hemisphere, and weakening animal feed demand by China as the country gradually recovers from African Swine Fever by rebuilding its hog population. Global maize production is expected to grow 7.4 percent this season compared to 2020-21, while consumption is projected to increase 2.5 percent. Thus, the stocks-to-use ratio is set to reach 0.26, marginally higher than last season's ratio.

Rice prices averaged $406/mt in 2021Q3, down 18 percent from the previous quarter. The decline followed a seven-year high reached earlier in the year due to heightened concerns regarding global supplies and announcements of export restrictions (which did not materialize). According to the October USDA assessment, global rice production is expected to be marginally higher than last year's output following improvements in growing conditions in both China and India—which account for more than half of global supplies—as well as in Thailand, which along with India accounts for nearly half of world exports. Because global consumption is set to grow at nearly 2 percent, the stocks-to-use ratio will decline to 0.36, one percentage point lower than last season's but very high by historical norms.

The ***Oils and Meal Price Index*** has been broadly stable during the past two quarters but stood more than 40 percent higher in 2021Q3 compared to a year ago. Some of its components, including palm oil and soybean oil, reached 10-year highs in 2021Q2. The recent price stability followed positive news on this season's outlook. The

FIGURE 8 Supply conditions for grains and edible oils

Supply growth for most grains and edible oils is at historical levels. Apart from wheat, supply assessments since May have been revised upward, further confirming a healthy global production outlook.



Sources: USDA; World Bank.
A.B. Years represent crop season (for example, 2019 refers to 2019-20). Supply is the sum of beginning stocks and production. Data updated on October 12, 2020.
C.D. Blue bars denote revisions to the 2021-22 supply assessment (based on monthly USDA updates); orange lines denote the latest (October 12, 2020) estimate for the 2020-21 season.

previous season saw production shortfalls due to poor weather in South America (soybeans) and East Asia (palm oil) amid strong soybean demand in China.

This season's global supply for the eight most important edible oils (including soybean and palm oil, which together account for two-thirds of global supplies) is expected to grow nearly 4 percent, or 8.4 mmt (figure 8). This growth is on par with historical averages. Most of the supply growth is expected to come from palm oil (up 5 percent) and soybean oil (up 3.4 percent).

Similarly, global supply of the seven major oilseeds is projected to increase by 38 mmt (or 4.8 percent) in 2021-22, most of which will come from soybeans and sunflower seed. High prices earlier in the year incentivized growers to increase land allocated to soybeans. Thus, the global soybean area is expected to increase 3.4 percent this season, led by all major exporters, including Argentina (2.6 percent), Brazil (4.7 percent), the United States (4.6 percent), and Paraguay (9.5 percent).

Price forecasts and risks

The ***Grain Price Index*** is expected to stabilize in 2022, following a projected increase of 22 percent in 2021 (an upward revision from April's report). However, considerable heterogeneity in price paths is expected among its key commodities. Maize is expected to average more than 50 percent higher this year and decline 10 percent in 2022. Wheat is expected to be broadly stable in 2022, following a 21 percent increase this year, while rice is projected to decline both this year and next. The ***Oils and Meals Index*** is projected to average 40 percent higher in 2021 (also an upward revision from April) and remain flat in 2022.

These forecasts are subject to a number of risks, including volatile input prices (especially energy and fertilizers), biofuel policies, the emerging La Niña weather pattern, and macroeconomic uncertainties. The diversion of food commodities to biofuels is a key medium-term risk with regard to facilitating the energy transition away from fossil fuels.

Energy costs. Energy is an important cost component to most grain and oilseed crops, with both direct (fuel prices) and indirect channels (chemical and fertilizer prices). Energy prices surged in 2021 and are expected to stay elevated in the medium term (figure 9, also see *Energy* section). For example, the world's three natural gas barometers (Europe, United States, and LNG in Asia) are projected to average 350, 103, and 43 percent higher, respectively, this year compared to 2020 before stabilizing in 2022. Similarly, fertilizer prices are projected to increase almost 60 percent in 2021, followed by a further 6 percent increase in 2022 (see *Fertilizer* section). Energy market developments have already taken a toll on fertilizer markets this year. A number of chemical companies were forced to curtail output or temporarily shut down production facilities due to surging input prices or unavailability of feedstocks. If energy and fertilizer prices do not stabilize next year as expected, food prices would be subject to upward pressures.

Biofuels. Production of biofuels is projected to increase in the medium term, which could impact several food commodities, notably sugarcane and maize (for ethanol production) and edible oils (for biodiesel production). Although Brazil, the European Union, and the United States account for more than two-thirds of global biofuel production, the share of other producers (including China, Indonesia, and Thailand) has been growing—reaching 30 percent in 2020, up from 13 percent a decade ago. Biofuel production declined nearly 7 percent in 2020 in response to lower energy use due to the lockdowns. However, it will likely reach pre-pandemic levels this year and grow further in 2022. Indeed, the August 2021 edition of the *Agricultural Outlook*—published jointly by the Organization of Economic Cooperation and Development (OECD) and the Food and Agriculture Organization (FAO)—projected global ethanol and biodiesel production to increase 7.6 and 6.2 percent, respectively, in 2021.

Biofuel production could continue to rise in coming years, with numerous countries announcing plans to increase output as part of efforts to meet climate change targets. China, for example, intends to double its ethanol production over the next five years. Other countries have also set ambitious targets, including India, Indonesia, and Malaysia. According to some estimates, global biofuel production could increase as much as 50 percent during the next five years. If such targets materialize, food prices could increase further, given that an additional 2 percent of world agricultural land would need to be allocated for biofuel crops. Another biofuel-related risk is the price of crude oil. Today most of world's biofuel production is possible because of policy mandates. However, if crude oil prices continue to increase, biofuel production from some crops could become profitable, in which case energy prices could act as a floor to the prices of food commodities.

Weather. In addition to poor weather conditions that have affected South America's soybean crop and North America's maize crop, the emerging La Niña weather pattern may pose an additional risk. According to the National Oceanic Atmospheric Administration, the Northern Hemisphere will transition to the La Niña phase in November, with an 87 percent probability of a La Niña winter this year. These patterns could increase yields of some crops in the Northern Hemisphere, such as maize and wheat, but also reduce yields of crops grown in the Southern Hemisphere due to drier weather conditions. Historically, La Niña's impact on agriculture is milder and more mixed than El Niño (see the *Special Focus* of the October 2015 *Commodity Markets Outlook* for a discussion on the effects of El Niño on commodity markets).

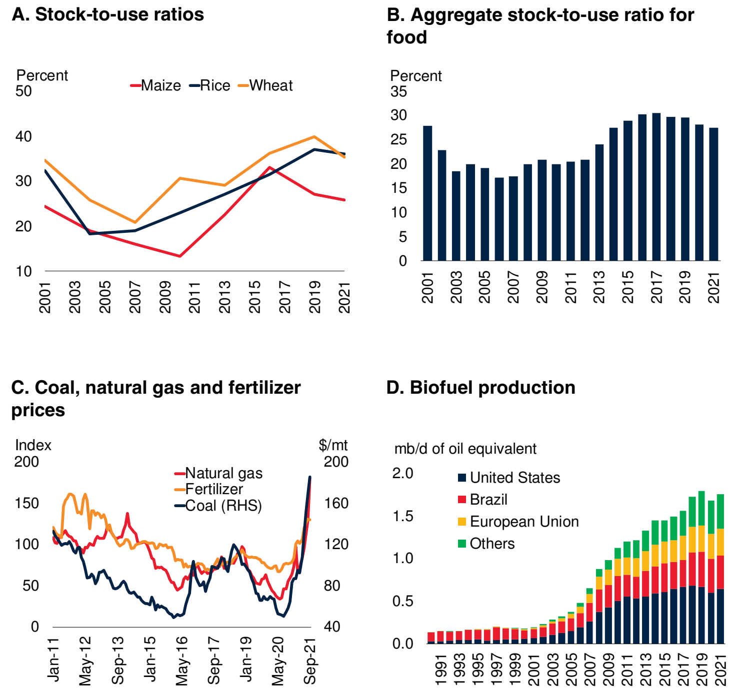
Macroeconomic conditions. Prices of most agricultural commodities often move inversely with the U.S. dollar. This is especially true for those highly traded and invoiced in U.S. dollars (including key grains and most edible oils). A weak U.S. dollar lowers commodity prices in domestic currencies (compared to dollar terms) which, in turn, induces supply contractions and increases demand. Such demand and supply changes depend on the degree of the relevant currency movement and the share of trade of particular commodities. When the dollar fell almost 10 percent against a broad index of currencies between April 2020 and January 2021, the World Bank's *Food Price Index* increased by almost one-third. With an estimated elasticity of unity, the fall of the U.S. dollar may have accounted for almost one-third of the food price increase (see the *Special Focus* of the July 2016 *Commodity Markets Outlook*). Although the U.S. dollar has been relatively flat during the past two quarters (which also corresponded to the relative stability of most food commodity prices), upward pressure on global food prices would ensue should the currency resume its decline.

Inflation and food insecurity

Global food price increases along with reduced incomes may pose risks to domestic food price inflation and food insecurity, especially in low-income countries.

FIGURE 9 Risks to the food commodity outlook

The aggregate stocks-to-use ratio, an approximate measure of supply relative to demand, has declined during the past four crop seasons but is still high by historical norms. High input prices along with projected growth for biofuels demand, however, pose significant upside risks to the food price outlook.



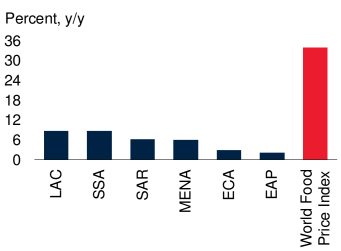
Sources: Bloomberg; BP Statistical Review; OECD; U.S. Department of Agriculture; World Bank.
A.B. Years represent crop season (for example, 2019 refers to 2019-20).
C. Last observation is October 2021.
D. Last year (2021) is projection.

Domestic food price inflation. Local food prices have surged this year in response to the ongoing spike in energy and fertilizer prices, COVID-induced supply-chain constraints, and depreciation of some currencies. The net effect is elevated food price inflation in several EMDEs, especially in Latin America and the Caribbean (e.g., Argentina, Suriname) and Sub-Saharan Africa (e.g., Ethiopia, Zambia, Zimbabwe) regions (figure 10). Among EMDE regions, median food price inflation ranged between 2 and 9 percent during January-August 2021 (y/y). During this period, global food prices increased 34 percent. Given the long lags between world and domestic food price changes, there is considerable risk that food prices in some EMDEs could increase further.

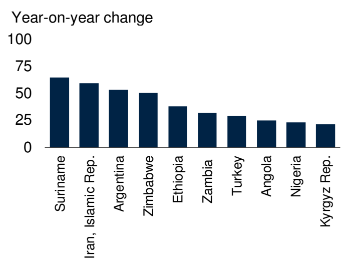
FIGURE 10 Domestic food price inflation and food insecurity

Reduced incomes and lost wages due to the pandemic, combined with higher domestic food prices and supply constraints, have exacerbated the problem of undernourishment. Several EMDEs, especially in Latin America and the Caribbean (e.g., Argentina, Suriname) and Sub-Saharan Africa (e.g., Ethiopia, Zambia, and Zimbabwe) regions face elevated food price inflation. On the other hand, globally, as many as 768 million people faced hunger in 2020 (up from 650 million in 2019), essentially undoing most of the progress achieved during the past 15 years.

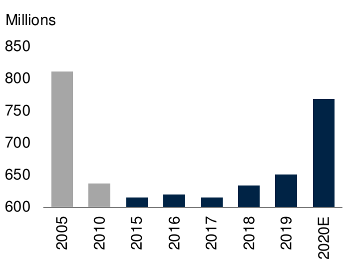
A. Domestic food price inflation and world food prices, Jan-Aug 2020 average (y/y)



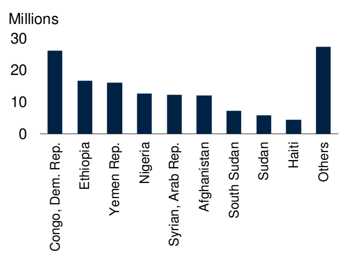
B. Food price inflation in selected countries



C. Number of undernourished people in the world, 2005-2020



D. Number of people in acute food insecurity in selected countries



Sources: Food and Agriculture Organization of the United Nations; World Bank; World Food Program.

A. EAP = East Asia and Pacific, ECA = Europe and Central Asia, LAC = Latin America and the Caribbean, MNA = Middle East and North Africa, SAR = South Asia, SSA = Sub-Saharan Africa.

B. Year-on-year change of food price inflation for 10 countries with the highest rates. República Bolivariana de Venezuela and Lebanon, not shown in the figure, have year-on year changes of 2,190 and 290 percent, respectively. Data for Angola and Nigeria are from *Hunger Hotspots – FAO-WEP Early Warnings on Acute Food Insecurity: August to November 2021 Outlook*.

C. Data and estimate for 2020 are from FAO et al. *The State of Food Security and Nutrition in the World 2021*.

D. Bars represent the sum of IPC Acute Food Insecurity phases 3 (crisis), 4 (emergency), and 5 catastrophe/famine), as well as severely and modestly food insecure categories. “Others” includes the following countries: Burkina Faso, Central African Republic, Chad, Guatemala, Honduras, Kenya, Liberia, Madagascar, Mali, Mozambique, Nicaragua, Nigeria, Somalia, and Sierra Leone.

Food insecurity. Reduced incomes and lost wages due to the pandemic, combined with higher domestic food prices and supply constraints, have exacerbated the problem of undernourishment. The latest assessment by the United Nations (*The State of Food Security and Nutrition in the World*) confirms that, globally, as many as 768 million people faced hunger in 2020 (up from 650 million in 2019), essentially undoing most of the progress achieved during the past 15 years. (In 2005 there were 811 million people facing food insecurity.) In 2020, as many 155 million people were facing crisis or worse according to the latest joint Food and Agriculture (FAO)/World Food Program (WFP) assessment. Most food insecure people are in low-income countries (often plagued by conflict), including Afghanistan, Democratic Republic of Congo, Nigeria, and the Republic of Yemen.

Beverages

The World Bank’s ***Beverage Price Index*** increased 11 percent 2021Q3 (q/q) and stands 16 percent higher than a year ago, reflecting a surge in coffee prices (linked to a supply shortfall) and, to a lesser extent, cocoa (figure 11). Tea prices weakened. Following a projected increase of 13 percent this year, the index is expected to stabilize in 2022.

Arabica and ***Robusta coffee*** prices, which gained about 20 percent each in 2021Q3 (q/q), stand nearly 40 percent higher than a year ago. Arabica prices exceeded $4/kg in the past five months—a seven-year record. The surge in Arabica prices has been driven mainly by a production shortfall in Brazil due to a frost that afflicted the country’s coffee producing regions. Dry weather in southern Vietnam is likely to reduce its 2021-22 harvest, while recently imposed mobility restrictions there may add logistical challenges to the Robusta market. Brazil (the world’s dominant Arabica supplier) and Vietnam (the world’s main Robusta producer) account for 40 and 17 percent of global coffee supplies, respectively. Global production is expected to drop to 161 million bags during the 2021-22 season, almost 10 percent lower than last season’s record crop of 178 million bags. With consumption projected to exceed 172 million bags, a sharp drawdown of inventories is expected in 2021-22. Thus, Arabica and Robusta prices are expected to average about 30 percent higher in 2021 compared to 2020 before stabilizing in 2022 as production in Brazil recovers and mobility restrictions in Vietnam ease.

Cocoa prices have been broadly stable during the past four quarters, fluctuating within a narrow band of $2.30/kg and $2.55/kg. Global cocoa production in the season that just ended is up nearly 10 percent from last season's crop due to exceptionally good weather conditions in West Africa, especially Côte d'Ivoire, the world's largest supplier. Global grindings, a measure of demand, which picked up in 2021 following a slump in the early stages of the pandemic, are projected to increase more than 3 percent, helping push stocks to more than 2 mmt (up from 1.7 mmt in 2019-20). Cocoa prices are expected to remain fairly stable in 2021 and 2022, as the global market appears adequately supplied and as COVID-related disruptions steadily ease.

Tea prices have been relatively stable during the past two quarters, with declines at the Colombo (Sri Lanka) and Kolkata (India) auctions offset by increases in Mombasa (Kenya). The firming in Mombasa reflects weather-related production shortfalls in East Africa, especially in Kenya, the world's largest tea exporter, whose tea production in 2021 may be as much as 10 percent lower compared to 2020. However, production of other key exporters has increased considerably so far this year. For example, production in India and Sri Lanka increased nearly 20 percent during January-August 2021 compared to 2020. In view of the generally adequate supplies, prices (three-auction average) are expected to decline by 2 percent in 2021 and 2022. Risks to the outlook relate to mobility restrictions due to COVID-19 outbreaks in key exporting countries.

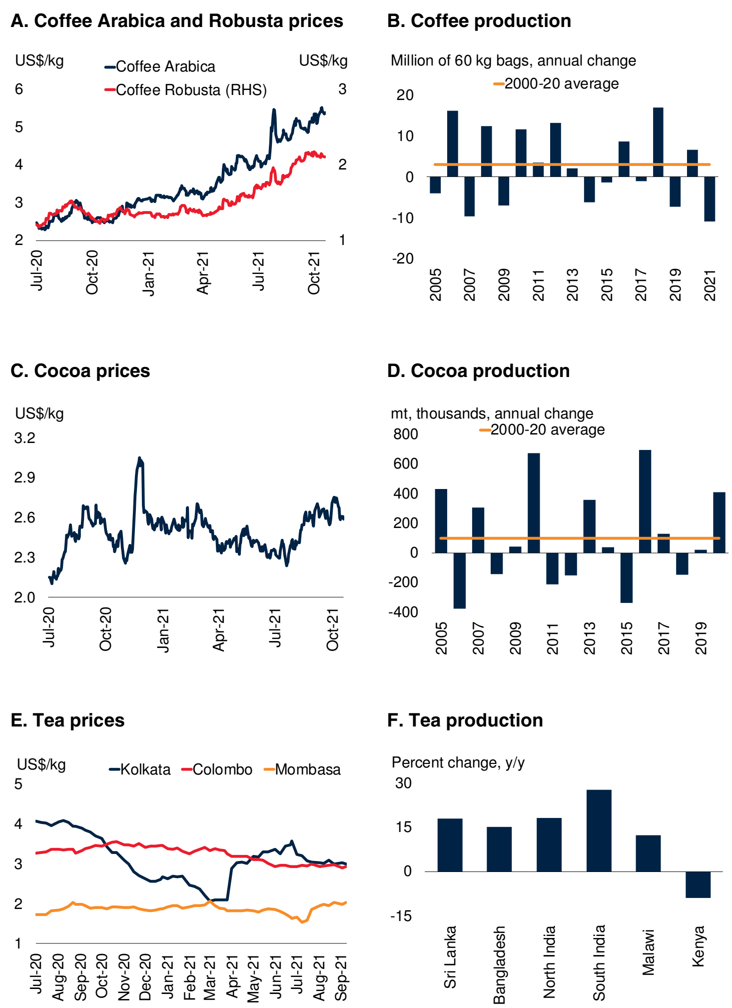
Agricultural raw materials

The World Bank's ***Raw Material Price Index*** has been relatively stable during the past two quarters, but its two key components—cotton and natural rubber—have followed diverging paths in response to reduced supply of cotton and weakening demand for natural rubber (figure 12). The index is expected stabilize in 2022, following a projected 8 percent increase in 2021. Risks to the outlook emanate from weakening demand from potential COVID-19 outbreaks.

Cotton prices continued their upward trend that began in May of last year to reach a 10-year high in September. Prices have increased in 15 of the past 17 months. The overall price strength reflects gradual improvement in the outlook for global consumption, which is expected to average 25.9 mmt in the current season, 1 percent higher than 2020-21 and marginally less than the 30-year average increase of 1.2 percent. The outlook for

FIGURE 11 Beverage commodity market developments

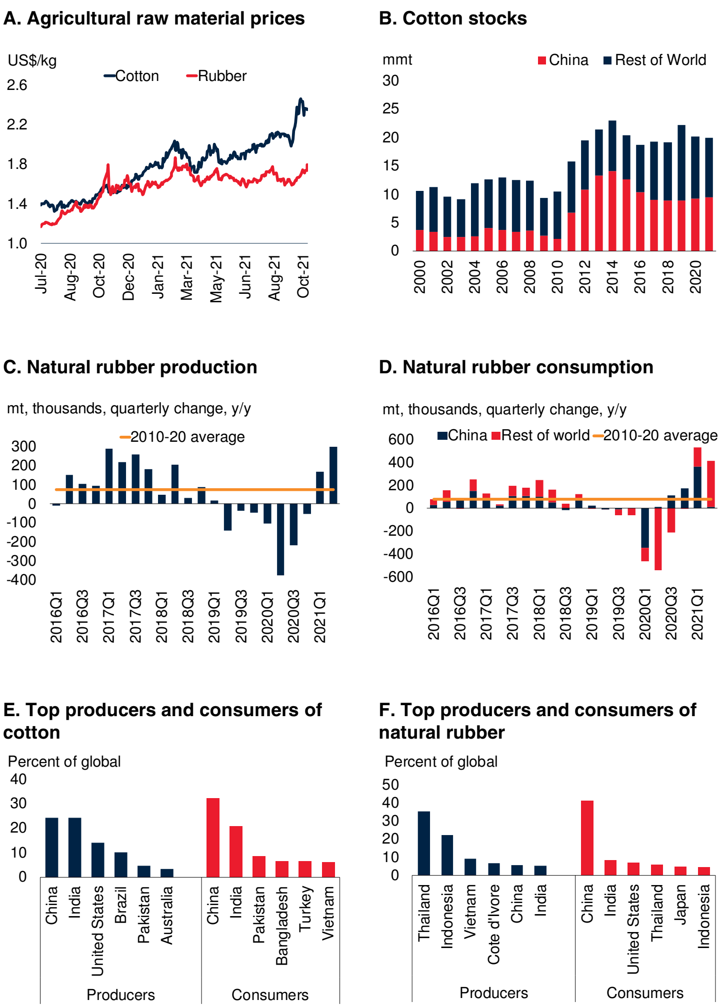
Beverage prices increased 11 percent 2021Q3 (q/q) as a group and stand 16 percent higher than a year ago, reflecting a surge in coffee prices (linked to a supply shortfall) and, to a lesser extent, cocoa. Tea prices weakened in response to good supplies in South Asia.



Sources: Africa Tea Brokers Limited; Bloomberg; International Cocoa Organization; Tea Board India; Tea Exporters Association Sri Lanka, USDA; World Bank.
A.C. Last observation is October 19, 2021.
B.D. Years represent crop seasons (for example, 2020, refers to 2020-21). Data updated through October 12, 2021.
E. Weekly data. Last observation is September 14, 2021.
F. Percent change in tea production from January-August 2020 to January-August 2021.

FIGURE 12 Agricultural raw materials market developments

Following last year's surge, agricultural raw material prices have followed diverging paths in response to reduced supply (cotton) and weakening demand (natural rubber).



Sources: Bloomberg; International Cotton Advisory Committee; International Rubber Study Group; USDA; World Bank.
A. Daily data. Last observation is October 19, 2021.
B. Years represent crop season (for example, 2020 refers to 2020-21 crop season).
C.D. Last observation is 2021Q2.
E.F. Shares are based on the average values of 2019 and 2020.

consumption is a marked improvement over the previous season's pandemic-related contraction of nearly 13 percent. On the supply side, global production is projected to increase 6.4 percent, led by the world's largest exporters—Brazil (16 percent) and the U.S. (27 percent). Cotton prices are expected to gain 5 percent in 2022, following a projected increase of 32 percent in 2021.

After surging earlier in the year to reach a seven-year high in March, natural rubber prices retreated to $1.85/kg in 2021Q3, down 15 percent from the previous quarter but still 10 percent higher than 2020Q3. After staging a remarkable recovery late last year and early 2021, demand for natural rubber weakened in recent months in response to lower-than-expected vehicle sales stemming from a semiconductor shortage (see *Precious Metals* section). Two-thirds of natural rubber is used to manufacture tires. On the supply side, global output increased—up 4.2 percent in the 12 months to August 2021 compared to a year earlier. Indonesia and Vietnam led the recovery whereas Thailand's output experienced a small decline. These three producers account for two-thirds of global supplies. Natural rubber prices are expected to decline 10 percent in 2022, following a projected gain of 19 percent in 2021. This forecast, however, is subject to upside and downside risks. On the demand side are risks related to how quickly the semiconductor sector for automobiles returns to pre-COVID levels, while on the supply side, risks relate to how long the mobility restrictions recently introduced in key South East Asia countries persist.

Fertilizers

The World Bank's Fertilizer Price Index rose by 18 percent in the third quarter of 2021 (q/q), following large increases in the first half of the year. The price surge was driven by strong demand, rising input costs, production curtailments, and trade policies. Following a projected increase of nearly 60 percent in 2021, the index is projected to remain at elevated levels in 2022. Upside risks to the outlook include further supply disruptions while downside risks include an intensification of environmental policies restricting fertilizer use.

Nitrogen (urea) prices surged 24 percent in 2021Q3, building on gains that began in the second half of last year. The surge largely reflected supply disruptions due to high input costs in

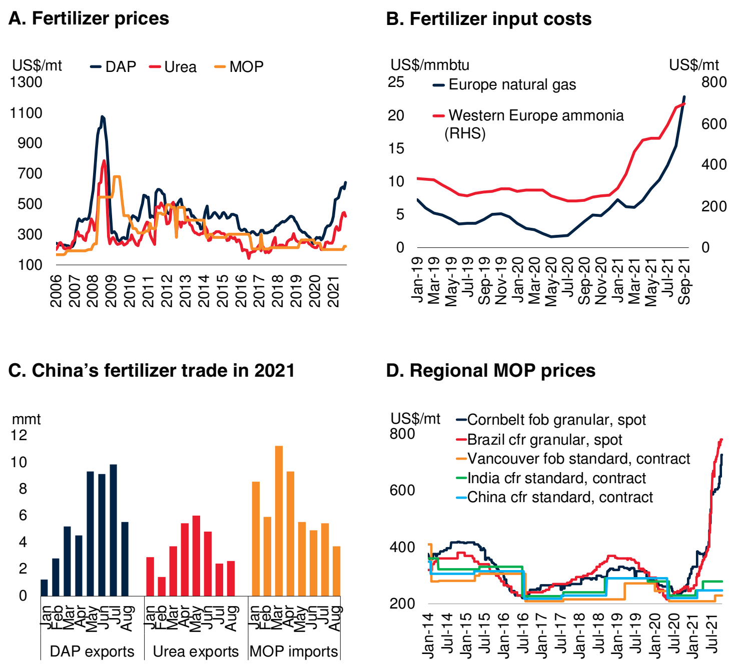
Europe and China and adverse weather in the United States. Record-high European natural gas prices resulted in widespread production cutbacks in ammonia—an important input for nitrogen fertilizers—while escalating coal prices in China led to a rationing of electricity use in some provinces and forced fertilizer factories to cut production. Urea prices were also lifted by the temporary suspension of Chinese exports to ensure domestic availability amid food security concerns. In the United States, several large producers had to declare force majeure as Hurricane Ida shuttered nitrogen plants along the U.S. Gulf Coast. Urea prices are expected to stabilize in 2022 as feedstock prices moderate, following a projected 66 percent increase in 2021.

DAP (diammonium phosphate) prices continued to rise in 2021Q3, following large increases that began in the second half of last year. In early October, prices reached levels unseen since the global financial crisis in 2008. Prices have been supported by strong demand in Brazil and the United States, especially for maize and soybeans, both of which are phosphate-intensive crops. Demand in China is strong and feed demand continues to increase in response to the country's rebuilding of its hog herd population following the culling of large numbers to control the African swine fever outbreak. Rising raw material costs—particularly phosphoric rock, ammonia, and sulfur—have also contributed to the price surge. In addition, countervailing duties imposed by the United States on DAP imports from Morocco and Russia came into effect in April, which helped to raise prices. China's recent suspension of phosphate exports until at least June 2022 put even more pressure on DAP prices; the country accounts for 30 percent of global trade in DAP. Following a nearly doubling in 2021, DAP prices are expected to experience a modest increase in 2022 on expectations of continued tight supply.

MOP (muriate of potash, or potassium chloride) prices increased by 6 percent in 2021Q3, after the Vancouver f.o.b benchmark fell to a 13-year low in June 2020. Prices have been supported by sanctions on Belarus—the world's second largest producer—imposed by the European Union in

FIGURE 13 Fertilizer market developments

Fertilizer prices continued to surge in the third quarter of 2021, driven by a confluence of factors—strong demand, production cuts, escalating input costs, extreme weather, Chinese export restrictions, and sanctions. Urea prices reached levels unseen since 2008 and DAP prices climbed to the highest since 2012, while potash prices saw historically large divergence across regional markets.



Sources: Bloomberg; General Administration of Customs of the People's Republic of China; World Bank.

A.B. Last observation is September 2021.

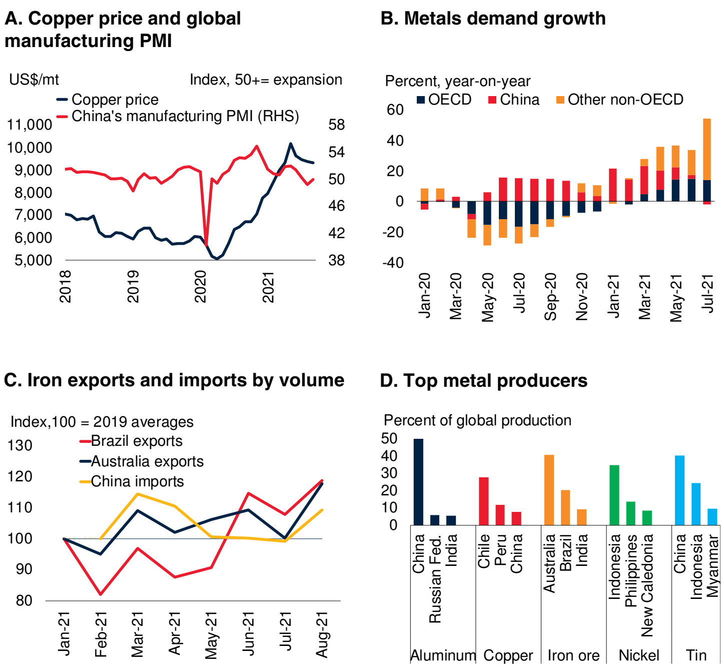
A.C. DAP = diammonium phosphate. MOP = muriate of potash.

D. cfr = cost and freight; fob = free on board. Last observation is October 15, 2021.

June, and the United Kingdom, the United States, and Canada in August. Supply disruptions have also buoyed prices in some markets, including North America which has been hampered by Hurricane Ida. A spike in barge shipping costs has led to near record-high potash spot prices for delivery to Brazil in early October. Although contract prices typically follow a multi-quarter lag to spot prices, recent contracts in India were closed at substantially higher prices than those agreed in April. Potash prices (based on Vancouver f.o.b. contract) are expected to increase by more than 50 percent in 2022 as the historically large divergence across markets subsides.

FIGURE 14 Metals and minerals market developments

Most base metal prices continued to rise, due to supply curtailments, electricity shortages, and China's policies to reduce energy consumption and pollution from metal refining. Iron ore prices, on the other hand, plunged nearly 60 percent during the quarter owing to steel production cuts in China and increasing iron ore exports from Australia and Brazil. Furthermore, soaring shipping costs and port delays have made it difficult to move ores and refined metals across the world. Following a 48 percent increase in 2021, metal prices are expected to decline 5 percent in 2022.



Sources: Haver Analytics; National authorities; World Bank; World Bureau of Metal Statistics.

A. PMI = purchasing managers' index, is a leading indicator of global manufacturing. Index above 50 indicates expansion, below 50 contractions. Last observation is September 2021.

C. Last observation is August 2021 for three countries. For Australia, quantity measure is using exports value divided by monthly price. 100 indicates average for 2019 for the three countries.

D. Mine production data for metals in 2019 except for Aluminum which is refined aluminum production. Data for iron ore is of 2017.

Metals and Minerals

The World Bank's Metals and Minerals Price Index was broadly stable in 2021Q3 (q/q) but remained 46 percent higher than a year earlier. Most base metal prices continued to rise, due to supply curtailments, electricity shortages, and China's policies to reduce energy consumption from metal processing. Iron ore prices, on the other hand, plunged nearly 60 percent during the quarter owing to steel production cuts in China and increasing iron ore exports from Australia and Brazil. Following an estimated 48 percent increase in 2021, metal prices are expected to decline 5 percent in 2022. These forecasts represent substantial upward revisions relative to April's outlook. Upside risks remain in the near term, including further energy-related supply disruptions, additional lockdowns due to COVID-19, and restrictive environmental policies. On the downside, a deterioration in China's real estate sector could limit demand for some metals. Over the longer term, the global energy transition away from fossil fuels is expected to increase demand for most metals, particularly for aluminum, copper, nickel, and tin.

Aluminum prices continued their upward climb, jumping 10 percent in 2021Q3 (q/q), and reaching a 13-year high. The surge was due to supply reductions in China, higher input costs, and energy supply shortages. China introduced "dual policies" aimed at limiting energy intensity and overall energy consumption. This further curtailed smelter capacity in an industry already aggravated by electricity rationing due to coal shortages. Outside China, production also fell—in India, aluminum companies faced energy shortages due to limited coal supplies, and in Brazil output was curtailed by weak hydroelectric power generation (see Energy section). The price of alumina, the main input to aluminum refining, has also risen as a result of supply disruptions in Brazil and Jamaica. Aluminum prices are forecast to increase 6 percent in 2022 after a projected jump of 50 percent in 2021, but ease going forward as energy constraints dissipate.

Copper prices declined 3 percent in 2021Q3 (q/q), the only base metal to fall, and stood 7 percent below its May 2021 peak. The softening in prices reflected a slowdown in China's real estate market along with weaker global auto production. On the supply side, mine output continued to edge higher despite a three-week strike in Chile, and China released part of its state-owned stockpiles. Copper prices are forecast to fall 5 percent in 2022, after an estimated increase of 51 percent in 2021 as supply increases. Mine supplies are expected to increase strongly over the next two years, notably from the new Kamoa-Kakula mine in the Democratic Republic of Congo, as well as in Chile, Indonesia, Peru, Russia and Serbia. Copper is set to be a main beneficiary of the energy transition, with usage expected to increase for electric vehicles, charging, renewables generation, and grid storage.

Iron ore prices declined to $125/mt in September, down 40 percent since reaching an all-time high in June 2021. The plunge reflected a sharp drop in steel production and easing of supply constraints among key ore exporters. Since July, China sharply curtailed steel production to meet government orders to fix steel output at 2020 levels to limit emissions and energy consumption. In addition, government winter curtailment plans require steel production to be 30 percent lower (y/y) between January 1 to March 15, 2022. Meanwhile, iron ore exports increased, especially from Brazil, where exports reached an 11-month high in August and are expected to continue to strengthen. Similarly, Australian authorities project mine production to increase 7 percent in coming quarters from new mines in the Pilbara region. Iron ore prices are forecast to fall 21 percent in 2022 after a projected surge of 51 percent in 2021.

Lead prices rose 10 percent in 2021Q3 (q/q) and stood almost 25 percent higher than a year ago. Demand for lead-acid batteries (where most lead is used) has increased as the boom in used cars sales led to replacement of old batteries. At the same time, battery demand for new vehicles has been constrained by a microchip shortage that has limited auto production in China and elsewhere. Secondary smelting from recycled batteries in China has been increasing, largely from e-bikes where lithium batteries are gaining market share. Lead will be negatively impacted by the energy transition as demand for electric vehicles (which use nickel/lithium batteries) expands and gas-powered cars (which use lead-acid batteries) recedes. Meanwhile, lead supply is expected to increase given its by-product output from zinc mines, further weighing on prices. Lead prices are forecast to fall by 5 percent in 2022 after a projected increase of 21 percent in 2021.

Nickel prices rose 10 percent in 2021Q3 and stand one-third higher than a year earlier. Prices have been supported by strong demand from stainless-steel and battery markets and the impact of supply disruptions in Canada (strikes) and Russia (flooding) earlier in the year. Power shortages in China and covid-restrictions in New Caledonia also provided support. Indonesian production continues to increase, and growth is expected to accelerate going forward for both nickel pig iron (NPI) production and high-pressure-acid-leach processing of low-grade ore. In the longer term, nickel is expected to benefit from the energy transition, notably electric vehicle batteries. Despite strong growth prospects for both batteries and stainless steel, nickel supply growth is expected to be adequate. Nickel prices are forecast to decline 4 percent in 2022 after a projected gain of 34 percent in 2021.

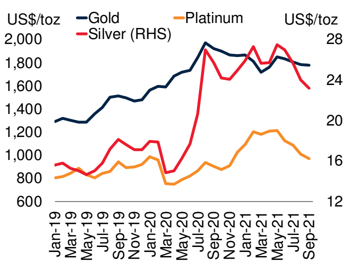
Tin prices gained 12 percent in 2021Q3 (q/q) to reach a record high. Prices increased for 16 consecutive months through August 2021, before a slight fall in September. Growth in electronics and photovoltaic installations significantly increased demand for tin. On the supply side, lockdowns interrupted mine production in Indonesia and Malaysia. In the near term, pandemic-related issues may further disrupt mining, but in the longer term several new tin mining projects are underway, although environmental policies could limit their scope. Demand continues to grow rapidly, and global supply may struggle to keep pace. Tin prices are expected to record an 82 percent jump in 2021 and decline only slightly in 2022.

Zinc prices rose 3 percent in 2021Q3 (q/q) and were 28 percent higher than a year earlier. Prices were driven by strong demand, power shortages in key producing regions, including China and Europe, and supply disruptions in Mexico. In the region of Yunnan, China, power shortages limited both zinc mining and smelting. In response, Chinese authorities released state stockpiles to shore up supply. Zinc mine supply has increased strongly this year, and recovery in Peru and Bolivia will augment supply. Further large increases are coming in 2022 from Brazil, China, India, Kazakhstan and Mexico. The slowdown in the property sector in China and a government cap on steel production could curtail demand for zinc—a key input for galvanizing steel. Zinc prices are expected to decline by 4 percent in 2022 after increasing an estimated 30 percent in 2021.

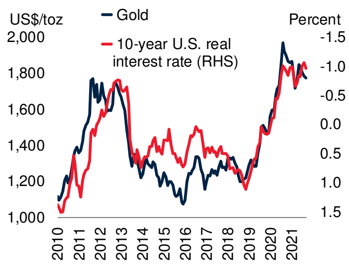
FIGURE 15 Precious metals market developments

Precious metal prices declined in 2021Q3, driven by weak investment and physical demand. Gold prices were weighed down by outflows from gold-backed exchange traded funds and slow central bank buying. Silver prices slumped on waning demand in industrial silver applications. Platinum prices plunged as a shortage in semiconductors hampered global auto production and weakened autocatalyst demand.

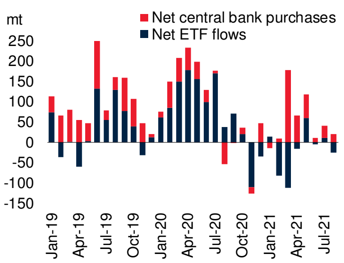
A. Precious metals prices



B. Gold prices and interest rates



C. Gold ETFs and central bank purchases



D. Car production in major markets

Sources: Bloomberg; Federal Reserve Bank of St. Louis; Haver Analytics; Silver Institute; World Bank; World Gold Council; World Platinum Investment Council.

A. Last observation is September 2021.

B. Interest rate is the 10-year U.S. Treasury inflation-indexed security with constant maturity (not seasonally adjusted). Last observation is September 2021.

C. Monthly changes in gold-backed exchange-traded funds (ETFs). Monthly reported changes in central bank reserve holdings of gold. Last observation is August 2021.

D. Major markets are China, Japan, Germany, and the United States. Last observation is August 2021.

Precious Metals

The World Bank's Precious Metals Index fell by 3 percent in the third quarter of 2021 (q/q) due to declining investor sentiment stemming from higher real interest rates and a stronger U.S. dollar, as well as lower physical demand. Gold prices declined modestly, whereas silver and platinum prices recorded larger losses but were still at much higher levels compared to last year. The index is projected to average 5 percent higher in 2021 but fall by nearly 3 percent in 2022 on expectations of a tightening of monetary policy. Upside risks to this outlook include the threat of new virus variants, amplified geopolitical tensions, and more persistent inflation than anticipated.

Gold prices fell by 1.4 percent in 2021Q3, in part driven by a slump in investment demand amid a rise in interest rate yields. The yield on 10-year Treasury Inflation-Protected Securities (TIPS) increased by 10 basis points in September and the U.S. dollar strengthened after the U.S. Federal Reserve signaled that it would begin to taper off its bond purchases before the end of the year. Holdings of gold-backed exchange-traded funds (ETFs) fell sharply in the quarter, led by outflows from North American investors. Central banks have also reduced gold purchases in recent months. On the other hand, firm jewelry demand in China and India provided some reprieve to gold prices. Gold prices are anticipated to average nearly 1.5 percent higher in 2021, before falling by 2.5 percent in 2022, weighed down by higher yields.

Silver prices declined by 9 percent in 2021Q3, driven by similar factors as gold. There are early signs that industrial demand for silver, which had been supportive of prices since the second half of 2020, has started to wane. China's manufacturing PMI fell to below 50 in August and September, indicating a contraction in industrial activity, while Japan's PMI reading has trended lower and well below the global average. China and Japan are major producers of products containing silver, such as electronics, solar panels, and photographic equipment. Silver prices are projected to decline nearly 3 percent in 2022, following an expected increase of 24 percent in 2021.

Platinum prices plunged by 14 percent in 2021Q3 due to weak demand from the auto sector. A shortage of semiconductors has caused a slump in global auto production, and hence autocatalyst demand, which accounts for more than a third of platinum demand. Automobile manufacturers have warned that the global semiconductor chip shortage is likely to extend well into 2022. On the supply side, South African mines have been operating normally after production was hampered by pandemic-related shutdowns and plant outages last year. The rebound in supply alongside waning demand is likely to exert downward pressure on prices. Platinum prices are forecast to fall by 9 percent in 2022, following a projected increase of 25 percent in 2021.

APPENDIX A

Historical commodity prices
Price forecasts

TABLE A.1 Commodity prices

Commodity	Unit		2019	2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Jul 2021	Aug 2021	Sep 2021
Energy												
Coal, Australia	$/mt	*	77.9	60.8	52.1	68.6	89.5	109.7	169.1	152.0	169.6	185.7
Coal, South Africa	$/mt		71.9	65.7	57.2	71.9	86.8	100.5	135.4	122.3	137.9	146.1
Crude oil, average	$/bbl		61.4	41.3	42.0	43.6	59.3	67.1	71.7	73.3	68.9	72.8
Crude oil, Brent	$/bbl	*	64.0	42.3	42.7	44.5	60.6	68.6	73.0	74.4	70.0	74.6
Crude oil, Dubai	$/bbl	*	63.2	42.2	42.5	43.8	59.5	66.4	71.4	73.0	68.9	72.2
Crude oil, WTI	$/bbl	*	57.0	39.3	40.9	42.6	57.8	66.1	70.6	72.5	67.7	71.6
Natural gas, Index	2010=100		60.9	45.6	42.3	59.6	78.6	83.2	140.8	112.5	129.8	180.0
Natural gas, Europe	$/mmbtu	*	4.80	3.24	2.87	5.19	6.52	8.79	16.93	12.51	15.43	22.84
Natural gas, U.S.	$/mmbtu	*	2.55	2.02	1.99	2.49	3.42	2.91	4.32	3.79	4.05	5.11
Liquefied natural gas, Japan	$/mmbtu	*	10.56	8.31	6.67	6.90	8.93	8.94	11.67	10.36	10.80	13.87
Non-Energy												
Agriculture												
Beverages												
Cocoa	$/kg	**	2.34	2.37	2.30	2.35	2.42	2.38	2.46	2.33	2.48	2.56
Coffee, Arabica	$/kg	**	2.88	3.32	3.50	3.38	3.63	4.02	4.75	4.50	4.77	4.97
Coffee, Robusta	$/kg	**	1.62	1.52	1.57	1.56	1.60	1.76	2.16	2.08	2.10	2.31
Tea, average	$/kg		2.56	2.70	3.09	2.81	2.55	2.69	2.70	2.65	2.72	2.73
Tea, Colombo	$/kg	**	3.10	3.40	3.35	3.46	3.33	3.07	2.99	2.99	2.99	2.98
Tea, Kolkata	$/kg	**	2.38	2.69	3.97	3.02	2.32	3.12	3.06	3.20	3.00	2.98
Tea, Mombasa	$/kg	**	2.21	2.01	1.95	1.97	2.01	1.89	2.05	1.76	2.16	2.22
Food												
Oils and Meals												
Coconut oil **	$/mt	**	736	1,010	968	1,317	1,483	1,682	1,521	1,584	1,494	1,485
Fishmeal **	$/mt		1,448	1,433	1,479	1,460	1,484	1,501	1,497	1,504	1,504	1,483
Groundnuts	$/mt		1,338	1,839	1,859	1,692	1,797	1,442	1,458	1,457	1,443	1,475
Groundnut oil	$/mt	**	1,407	1,672	1,878	1,878	…	…	…	…	…	…
Palm oil **	$/mt	**	601	752	750	918	1,014	1,073	1,129	1,063	1,142	1,181
Palmkernel oil **	$/mt		665	824	730	1,035	1,402	1,473	1,348	1,274	1,341	1,427
Soybean meal **	$/mt	**	347	394	380	486	532	471	469	470	470	468
Soybean oil **	$/mt	**	765	838	865	972	1,169	1,493	1,434	1,468	1,434	1,399
Soybeans **	$/mt	**	369	407	396	488	580	620	581	600	586	558
Grains												
Barley	$/mt	**	128.1	97.6	80.4	…	…	…	…	…	…	…
Maize	$/mt	**	170.1	165.5	156.0	192.0	241.6	288.7	255.3	278.4	256.6	230.8
Rice, Thailand 5%	$/mt	**	418.0	496.8	497.3	493.3	542.3	484.7	405.7	414.0	403.0	400.0
Rice, Thailand 25%	$/mt		410.4	481.8	480.3	483.7	528.3	474.0	396.7	407.0	392.0	391.0
Rice, Thailand A1	$/mt		393.5	474.6	474.5	473.2	517.6	459.6	386.4	397.0	381.0	381.3
Rice, Vietnam 5%	$/mt		351.9	428.0	451.9	468.7	496.6	480.0	402.6	436.2	384.5	387.3
Sorghum	$/mt		161.5	171.6	182.2	…	…	…	…	…	…	…
Wheat, U.S., HRW	$/mt	**	201.7	212.0	…	…	…	…	…	…	…	…
Wheat, U.S., SRW	$/mt		211.3	227.7	213.8	248.1	275.2	271.9	264.8	254.7	276.2	263.6
Other Food												
Bananas, EU	$/kg		0.88	0.90	0.89	0.90	0.95	0.96	0.88	0.85	0.89	0.91
Bananas, U.S.	$/kg	**	1.14	1.22	1.25	1.14	1.23	1.23	1.22	1.23	1.23	1.18
Meat, beef	$/kg	**	4.76	4.67	4.64	4.41	4.61	5.44	5.62	5.59	5.61	5.66
Meat, chicken	$/kg	**	2.00	1.63	1.50	1.67	1.83	2.34	2.38	2.38	2.38	2.38
Meat, sheep	$/kg		…	…	…	…	…	…	…	…	…	…
Oranges	$/kg	**	0.56	0.60	0.63	0.63	0.61	0.61	0.72	0.69	0.72	0.74
Shrimp	$/kg		12.60	12.67	12.31	11.52	11.99	12.85	15.43	15.86	15.76	14.67
Sugar, EU	$/kg	**	0.37	0.37	0.38	0.39	0.39	0.39	0.38	0.39	0.38	0.38
Sugar, U.S.	$/kg	**	0.58	0.59	0.59	0.63	0.65	0.71	0.78	0.80	0.76	0.79
Sugar, World	$/kg	**	0.28	0.28	0.28	0.31	0.35	0.37	0.42	0.39	0.43	0.43

TABLE A.1 Commodity prices (*continued*)

Commodity	Unit		2019	2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Jul 2021	Aug 2021	Sep 2021
Raw Materials												
Timber												
Logs, Africa	$/cum		391.9	399.5	409.3	417.4	422.0	421.8	412.6	413.8	412.0	412.0
Logs, S.E. Asia	$/cum	**	273.1	278.9	280.5	285.0	281.1	272.0	270.4	270.0	271.0	270.2
Plywood	¢/sheets		500.9	511.6	514.6	522.8	515.6	498.9	496.0	495.2	497.1	495.7
Sawnwood, Africa	$/cum		611.8	615.2	619.3	632.8	660.7	670.0	660.3	661.5	661.2	658.2
Sawnwood, S.E. Asia	$/cum	**	695.9	699.7	704.4	719.8	751.5	762.1	751.0	752.4	752.1	748.7
Other Raw Materials												
Cotton	$/kg	**	1.72	1.59	1.54	1.72	1.99	2.03	2.22	2.15	2.23	2.29
Rubber, RSS3	$/kg	**	1.64	1.73	1.68	2.27	2.34	2.19	1.85	1.87	1.90	1.79
Rubber, TSR20	$/kg		1.41	1.33	1.30	1.55	1.67	1.66	1.65	1.63	1.71	1.63
Fertilizers												
DAP	$/mt		306.4	312.4	335.1	368.4	494.8	574.3	620.0	613.0	603.1	643.8
Phosphate rock	$/mt	**	88.0	76.1	77.1	81.9	89.8	107.5	136.5	125.0	136.9	147.5
Potassium chloride	$/mt	**	255.5	217.8	202.5	202.5	202.5	202.5	214.8	202.5	221.0	221.0
TSP	$/mt	**	294.5	265.0	273.7	300.8	416.5	518.5	561.3	555.0	555.0	573.8
Urea, E. Europe	$/mt	**	245.3	229.1	238.1	245.0	317.6	351.0	435.7	441.5	446.9	418.8
Metals and Minerals												
Aluminum	$/mt	**	1,794	1,704	1,708	1,919	2,091	2,400	2,645	2,498	2,603	2,835
Copper	$/mt	**	6,010	6,174	6,525	7,185	8,477	9,706	9,382	9,451	9,370	9,325
Iron ore	$/dmt	**	93.8	108.9	117.8	133.2	167.2	200.7	166.9	214.1	162.2	124.5
Lead	$/mt	**	1,997	1,825	1,876	1,904	2,014	2,128	2,333	2,338	2,414	2,248
Nickel	$/mt	**	13,914	13,787	14,266	15,957	17,618	17,359	19,112	18,819	19,141	19,377
Tin	$/mt	**	18,661	17,125	17,690	18,810	25,099	31,026	34,644	34,020	35,024	34,887
Zinc	$/mt	**	2,550	2,266	2,343	2,631	2,747	2,916	2,990	2,948	2,988	3,036
Precious Metals												
Gold	$/toz	***	1,392	1,770	1,912	1,875	1,798	1,815	1,789	1,808	1,785	1,775
Platinum	$/toz	***	864	883	904	939	1,160	1,182	1,023	1,086	1,009	973
Silver	$/toz	***	16.2	20.5	24.5	24.4	26.3	26.7	24.3	25.7	24.0	23.2
Commodity Price Indexes (2010=100)												
Energy			75.9	51.9	52.0	56.3	76.1	85.9	99.79	97.7	95.7	106.0
Non-energy			81.7	84.1	84.9	92.8	103.8	112.7	112.54	113.7	112.6	111.3
Agriculture			83.3	87.1	86.6	94.2	103.0	108.5	107.92	107.6	108.4	107.7
Beverages			76.1	80.4	83.7	81.6	83.1	87.7	96.88	92.6	97.1	100.9
Food			87.0	92.5	91.0	101.7	114.3	122.6	120.35	121.1	120.9	119.1
Oils and Meals			77.5	89.8	88.8	108.7	123.1	128.1	126.53	126.1	127.2	126.3
Grains			89.0	93.1	89.9	99.1	116.1	124.8	113.52	118.5	113.5	108.6
Other Food			97.7	95.5	94.8	94.7	101.2	113.4	118.40	116.8	119.3	119.1
Raw Materials			78.0	77.6	77.3	82.4	85.5	84.9	83.34	82.7	84.0	83.3
Timber			85.6	86.4	87.0	88.7	91.3	91.6	90.45	90.5	90.6	90.2
Other Raw Materials			69.8	67.9	66.7	75.5	79.1	77.5	75.55	74.1	76.8	75.8
Fertilizers			81.4	73.2	74.2	77.5	95.7	109.1	129.06	127.0	130.7	129.5
Metals and minerals			78.4	79.1	82.6	91.8	106.5	121.8	120.13	124.5	119.0	116.8
Base Metals		**	81.6	80.2	83.0	91.9	104.6	118.1	121.45	119.3	120.9	124.1
Precious Metals			105.4	133.5	146.3	144.0	141.2	142.8	138.56	141.2	138.0	136.5

Source: See Appendix C.
Note: (*) Included in the energy index; (**) Included in the non-energy index; (***) Included in the precious metals index; (****) Metals and Minerals excluding iron ore.
Monthly updates posted at https://www.worldbank.org/commodities.
Download Table A.1 data.

TABLE A.2 Commodity prices forecasts in nominal U.S. dollars

Commodity	Unit	2019	2020	Forecasts 2021	2022	2023	2024	2025	2030	2035
Energy										
Coal, Australia	$/mt	77.9	60.8	140.0	120.0	90.0	86.4	82.9	67.5	55.0
Crude oil, avg	$/bbl	61.4	41.3	70.0	74.0	65.0	65.4	65.8	67.9	70.0
Natural gas, Europe	$/mmbtu	4.8	3.2	14.6	12.6	9.2	8.9	8.7	7.5	6.5
Natural gas, U.S.	$/mmbtu	2.5	2.0	4.1	4.0	3.9	3.9	3.9	4.0	4.0
Liquefied natural gas, Japan	$/mmbtu	10.6	8.3	11.9	11.4	10.0	9.8	9.5	8.5	7.5
Non-Energy										
Agriculture										
Beverages										
Cocoa	$/kg	2.34	2.37	2.40	2.45	2.50	2.53	2.56	2.73	2.90
Coffee, Arabica	$/kg	2.88	3.32	4.30	4.20	4.15	4.21	4.28	4.63	5.00
Coffee, Robusta	$/kg	1.62	1.52	1.95	2.00	1.90	1.92	1.95	2.07	2.20
Tea, average	$/kg	2.56	2.70	2.65	2.60	2.55	2.58	2.62	2.80	3.00
Food										
Oils and Meals										
Coconut oil	$/mt	736	1,010	1,525	1,560	1,570	1,580	1,591	1,645	1,700
Groundnut oil	$/mt	1,407	1,698	2,050	1,950	2,000	2,016	2,032	2,114	2,200
Palm oil	$/mt	601	752	1,100	1,075	1,050	1,054	1,058	1,079	1,100
Soybean meal	$/mt	347	394	485	490	475	481	487	517	550
Soybean oil	$/mt	765	838	1,375	1,425	1,350	1,363	1,377	1,447	1,520
Soybeans	$/mt	369	407	580	585	550	555	560	584	610
Grains										
Barley	$/mt	128	93	120	118	115	117	119	129	140
Maize	$/mt	170	165	250	225	235	237	239	249	260
Rice, Thailand, 5%	$/mt	418	497	455	400	410	418	427	471	520
Wheat, U.S., HRW	$/mt	202	211	255	250	245	247	249	259	270
Other Food										
Bananas, U.S.	$/kg	1.14	1.22	1.23	1.24	1.25	1.25	1.26	1.28	1.30
Meat, beef	$/kg	4.76	4.67	5.30	5.45	5.35	5.37	5.39	5.49	5.60
Meat, chicken	$/kg	2.00	1.63	2.20	2.25	2.20	2.22	2.23	2.31	2.40
Oranges	$/kg	0.56	0.60	0.66	0.68	0.70	0.71	0.72	0.76	0.80
Shrimp	$/kg	12.60	12.67	14.00	15.00	14.50	14.62	14.74	15.36	16.00
Sugar, World	$/kg	0.28	0.28	0.39	0.37	0.38	0.38	0.39	0.40	0.42
Raw Materials										
Timber										
Logs, Africa	$/cum	392	399	415	420	420	422	425	437	450
Logs, S.E. Asia	$/cum	273	279	275	280	285	289	292	310	330
Sawnwood, S.E. Asia	$/cum	696	700	755	760	765	774	782	827	875
Other Raw Materials										
Cotton A, Index	$/kg	1.72	1.59	2.10	2.20	2.15	2.16	2.17	2.24	2.30
Rubber, RSS3	$/kg	1.64	1.73	2.05	1.85	1.90	1.94	1.98	2.18	2.40
Tobacco	$/mt	4,579	4,336	4,200	4,225	4,275	4,293	4,312	4,405	4,500
Fertilizers										
DAP	$/mt	306	312	590	600	450	400	350	397	450
Phosphate rock	$/mt	88	76	120	130	110	100	102	115	130
Potassium chloride	$/mt	256	218	210	325	275	277	279	289	300
TSP	$/mt	295	265	525	520	400	360	320	358	400
Urea, E. Europe	$/mt	245	229	380	375	300	275	280	304	330
Metals and Minerals										
Aluminum	$/mt	1,794	1,704	2,550	2,700	2,500	2,400	2,409	2,454	2,500
Copper	$/mt	6,010	6,174	9,300	8,800	8,200	7,500	7,544	7,769	8,000
Iron ore	$/dmt	93.8	108.9	165.0	130.0	120.0	100.0	98.0	88.5	80.0
Lead	$/mt	1,997	1,825	2,200	2,100	2,000	2,008	2,016	2,058	2,100
Nickel	$/mt	13,914	13,787	18,500	17,750	17,000	17,081	17,163	17,576	18,000
Tin	$/mt	18,661	17,125	31,250	31,000	29,500	28,000	27,713	26,322	25,000
Zinc	$/mt	2,550	2,266	2,950	2,822	2,400	2,408	2,416	2,458	2,500
Precious Metals										
Gold	$/toz	1,392	1,770	1,795	1,750	1,730	1,719	1,708	1,653	1,600
Silver	$/toz	16.2	20.5	25.5	24.8	24.4	24.0	23.6	21.7	20.0
Platinum	$/toz	864	883	1,100	1,000	1,015	1,033	1,051	1,146	1,250

Source and *Note*: See Appendix C. Next update: April 2022.

Download forecast data (Tables A.2 - A.4).

TABLE A.3 Commodity prices forecasts in constant U.S. dollars (2010=100)

Commodity	Unit			Forecasts						
		2019	2020	2021	2022	2023	2024	2025	2030	2035
Energy										
Coal, Australia	$/mt	78.3	61.4	139.2	117.4	86.5	81.6	76.9	57.0	46.4
Crude oil, avg	$/bbl	61.7	41.7	69.6	72.4	62.5	61.8	61.0	57.2	59.0
Natural gas, Europe	$/mmbtu	4.8	3.3	14.5	12.3	8.8	8.4	8.1	6.3	5.5
Natural gas, U.S.	$/mmbtu	2.6	2.0	4.1	3.9	3.7	3.7	3.6	3.3	3.4
Liquefied natural gas, Japan	$/mmbtu	10.6	8.4	11.8	11.1	9.6	9.2	8.8	7.1	6.3
Non-Energy										
Agriculture										
Beverages										
Cocoa	$/kg	2.35	2.39	2.39	2.40	2.40	2.39	2.38	2.30	2.45
Coffee, Arabica	$/kg	2.89	3.36	4.28	4.11	3.99	3.98	3.97	3.90	4.22
Coffee, Robusta	$/kg	1.63	1.53	1.94	1.96	1.83	1.82	1.81	1.75	1.86
Tea, average	$/kg	2.58	2.73	2.63	2.54	2.45	2.44	2.43	2.36	2.53
Food										
Oils and Meals										
Coconut oil	$/mt	740	1,021	1,516	1,526	1,509	1,493	1,476	1,387	1,434
Groundnut oil	$/mt	1,415	1,715	2,038	1,907	1,923	1,904	1,885	1,783	1,856
Palm oil	$/mt	605	759	1,094	1,051	1,009	995	981	910	928
Soybean meal	$/mt	349	398	482	479	457	454	451	436	464
Soybean oil	$/mt	769	846	1,367	1,394	1,298	1,288	1,277	1,220	1,282
Soybeans	$/mt	371	411	577	572	529	524	519	493	515
Grains										
Barley	$/mt	129	93	119	115	111	110	110	109	118
Maize	$/mt	171	167	249	220	226	224	222	210	219
Rice, Thailand, 5%	$/mt	420	502	452	391	394	395	396	397	439
Wheat, U.S., HRW	$/mt	203	213	254	244	236	233	231	219	228
Other Food										
Bananas, U.S.	$/kg	1.15	1.23	1.22	1.21	1.20	1.18	1.17	1.08	1.10
Meat, beef	$/kg	4.79	4.71	5.27	5.33	5.14	5.07	5.00	4.63	4.72
Meat, chicken	$/kg	2.01	1.65	2.19	2.20	2.11	2.09	2.07	1.95	2.02
Oranges	$/kg	0.56	0.61	0.66	0.66	0.67	0.67	0.66	0.64	0.67
Shrimp	$/kg	12.67	12.80	13.92	14.67	13.94	13.81	13.67	12.95	13.50
Sugar, World	$/kg	0.28	0.29	0.39	0.36	0.37	0.36	0.36	0.34	0.35
Raw Materials										
Timber										
Logs, Africa	$/cum	394	404	413	411	404	399	394	369	380
Logs, S.E. Asia	$/cum	275	282	273	274	274	272	271	262	278
Sawnwood, S.E. Asia	$/cum	700	707	751	743	735	731	726	698	738
Other Raw Materials										
Cotton A	$/kg	1.73	1.60	2.09	2.15	2.07	2.04	2.02	1.89	1.94
Rubber, RSS3	$/kg	1.65	1.75	2.04	1.81	1.83	1.83	1.83	1.84	2.02
Tobacco	$/mt	4,603	4,381	4,176	4,132	4,109	4,055	3,999	3,715	3,796
Fertilizers										
DAP	$/mt	308	316	587	587	433	378	325	335	380
Phosphate rock	$/mt	88	77	119	127	106	94	95	97	110
Potassium chloride	$/mt	257	220	209	318	264	262	259	244	253
TSP	$/mt	296	268	522	509	385	340	297	302	337
Urea, E. Europe	$/mt	247	231	378	367	288	260	259	256	278
Metals and Minerals										
Aluminum	$/mt	1,804	1,721	2,536	2,640	2,403	2,267	2,234	2,070	2,109
Copper	$/mt	6,042	6,237	9,247	8,606	7,882	7,083	6,997	6,553	6,748
Iron ore	$/dmt	94.3	110.0	164.1	127.1	115.4	94.4	90.9	74.7	67.5
Lead	$/mt	2,007	1,844	2,188	2,054	1,923	1,897	1,870	1,736	1,771
Nickel	$/mt	13,987	13,928	18,395	17,358	16,341	16,132	15,919	14,825	15,182
Tin	$/mt	18,759	17,299	31,073	30,316	28,357	26,444	25,704	22,201	21,086
Zinc	$/mt	2,564	2,290	2,933	2,760	2,307	2,274	2,241	2,073	2,109
Precious Metals										
Gold	$/toz	1,400	1,788	1,785	1,711	1,663	1,623	1,584	1,394	1,350
Silver	$/toz	16.3	20.7	25.4	24.3	23.5	22.7	21.9	18.3	16.9
Platinum	$/toz	869	892	1,094	978	976	975	975	967	1,054

Source and *Note*: See Appendix C. Next update: April 2022.
Download forecast data (Tables A.2 - A.4).

TABLE A.4 Commodity price index forecasts (2010=100)

Commodity				Forecasts						
		2019	2020	2021	2022	2023	2024	2025	2030	2035
Nominal U.S. dollars (2010=100)										
Energy		75.9	51.9	95.2	97.3	84.3	84.4	84.6	85.4	86.6
Non-energy commodities		81.7	84.1	110.2	107.6	103.8	101.8	102.4	106.2	110.4
Agriculture		83.3	87.1	106.3	104.8	104.1	105.1	106.1	111.2	116.7
Beverages		76.1	80.4	91.0	90.7	90.0	91.3	92.6	99.2	106.2
Food		87.0	92.5	118.5	116.3	115.0	115.9	116.9	122.0	127.3
Oils and Meals		77.5	89.8	125.7	126.1	121.5	122.5	123.5	128.8	134.3
Grains		89.0	93.1	114.6	105.1	107.3	108.5	109.8	116.2	123.0
Other food		97.7	95.5	112.6	113.5	113.4	114.1	114.7	118.2	121.9
Raw materials		78.0	77.6	84.2	84.1	84.7	85.6	86.5	91.3	96.4
Timber		85.6	86.4	91.2	92.0	92.9	94.0	95.0	100.6	106.6
Other Raw Materials		69.8	67.9	76.7	75.3	75.8	76.5	77.2	81.1	85.3
Fertilizers		81.4	73.2	116.1	123.7	99.9	92.6	91.5	99.8	108.9
Metals and minerals	*	78.4	79.1	117.5	111.7	103.5	96.1	96.2	96.8	97.5
Base Metals	**	81.6	80.2	118.6	116.9	108.5	102.5	102.9	105.1	107.5
Precious Metals		105.4	133.5	140.2	136.5	134.9	133.8	132.8	127.7	123.0
Constant 2010 U.S. dollars (2010=100), deflated by the MUV Index										
Energy		76.3	52.4	94.7	95.2	81.1	79.8	78.4	72.1	73.0
Non-energy commodities		82.1	85.0	109.5	105.3	99.7	96.1	95.0	89.6	93.1
Agriculture		83.7	88.0	105.7	102.5	100.0	99.2	98.4	93.8	98.4
Beverages		76.5	81.2	90.5	88.7	86.6	86.2	85.9	83.6	89.6
Food		87.4	93.4	117.8	113.7	110.5	109.5	108.4	102.9	107.3
Oils and Meals		77.9	90.7	125.0	123.3	116.8	115.7	114.6	108.6	113.3
Grains		89.4	94.0	114.0	102.8	103.2	102.5	101.8	98.0	103.8
Other food		98.2	96.5	111.9	111.0	109.0	107.7	106.4	99.7	102.8
Raw materials		78.5	78.4	83.8	82.2	81.4	80.9	80.3	77.0	81.3
Timber		86.0	87.3	90.7	90.0	89.3	88.7	88.2	84.9	89.9
Other Raw Materials		70.2	68.6	76.2	73.7	72.8	72.3	71.6	68.4	71.9
Fertilizers		81.8	73.9	115.4	120.9	96.0	87.4	84.8	84.2	91.9
Metals and minerals	*	78.8	80.0	116.9	109.2	99.5	90.7	89.2	81.6	82.3
Base Metals	**	82.0	81.0	117.9	114.3	104.3	96.8	95.4	88.7	90.6
Precious Metals		106.0	134.9	139.4	133.5	129.7	126.4	123.2	107.7	103.7
Inflation indexes, 2010=100										
MUV index	***	99.5	99.0	100.6	102.3	104.0	105.9	107.8	118.6	118.6
% change per annum		(2.3)	(0.5)	1.6	1.7	1.7	1.8	1.8	2.0	2.0
U.S. GDP deflator		116.0	118.1	120.5	122.9	125.4	127.9	130.4	144.0	144.0
% change per annum		1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0

Source: See Appendix C.

Note: (*) Base metals plus iron ore; (**) Includes aluminum, copper, lead, nickel, tin and zinc; (***) MUV is the unit value index of manufacture exports. Next update: April 2022. For other notes see Appendix C.

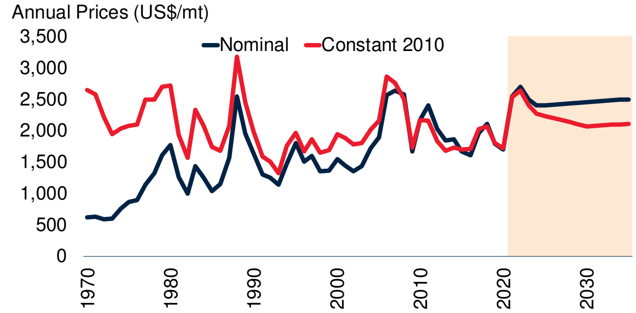
Download forecast data (Tables A.2 - A.4).

APPENDIX B

Supply-Demand balances

Aluminum

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.



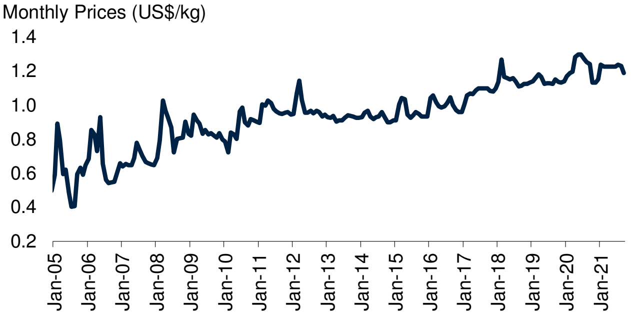
Source: World Bank.
Note: 2021-35 are forecasts.

	1970	1980	1990	2000	2010	2017	2018	2019	2020
				(thousand metric tons)					
Bauxite Production									
Australia	9,256	27,179	41,391	53,801	68,535	89,421	95,948	105,544	103,627
Guinea	2,600	13,911	16,150	17,992	17,633	51,702	59,574	70,173	87,766
China	500	1,700	3,655	7,900	36,837	68,393	70,751	70,751	69,600
Brazil	510	4,632	9,749	14,379	32,028	38,242	32,377	31,938	32,898
Indonesia	1,223	1,249	1,164	1,151	27,410	2,900	13,243	16,593	25,860
India	1,370	1,785	4,853	7,562	12,662	22,776	23,229	22,307	20,172
Jamaica	12,010	11,978	10,965	11,127	8,540	8,245	10,058	9,022	7,546
Russia	n/a	n/a	n/a	5,000	5,475	5,523	5,651	5,574	5,570
Saudi Arabia	5	n/a	n/a	n/a	n/a	4,117	5,061	5,127	4,946
Kazakhstan	989	n/a	n/a	3,729	5,310	4,846	6,104	4,118	4,058
Vietnam	n/a	n/a	n/a	16	80	2,700	3,570	3,600	3,500
Turkey	n/a	n/a	n/a	459	1,311	1,719	678	2,255	2,400
Greece	2,292	3,259	2,511	1,991	1,902	1,927	1,559	1,379	1,368
Others	*n/a*	*n/a*	*n/a*	*13,784*	*11,078*	*9,681*	*9,809*	*10,161*	*7,427*
World	**57,280**	**93,268**	**115,099**	**138,889**	**228,802**	**312,191**	**337,612**	**358,543**	**376,736**
Refined Aluminum Production									
China	127	350	854	2,647	16,244	35,189	36,447	36,447	37,080
Russia	n/a	n/a	n/a	3,258	3,947	3,742	3,621	3,896	3,856
India	161	185	433	647	1,610	3,062	2,934	3,524	3,467
Canada	963	1,068	1,567	2,373	2,963	3,212	2,923	2,854	3,113
United Arab Emirates	n/a	35	174	536	1,400	2,600	2,640	2,579	2,511
Norway	530	653	867	1,026	1,090	1,253	1,295	1,279	1,430
Vietnam	n/a	n/a	n/a	0	12	501	1,310	1,374	1,395
Australia	206	303	1,234	1,761	1,928	1,488	1,574	1,570	1,585
Bahrain	n/a	126	213	509	851	981	1,011	1,365	1,549
United States	3,607	4,654	4,048	3,668	1,728	741	891	1,093	1,027
Saudi Arabia	5	n/a	n/a	0	0	916	932	967	1,011
Brazil	n/a	n/a	n/a	1,271	1,536	802	659	650	685
Malaysia	1	n/a	n/a	0	60	760	760	760	751
Others	*n/a*	*n/a*	*n/a*	*6,607*	*8,151*	*7,639*	*7,611*	*7,262*	*7,208*
World	**9,645**	**16,099**	**19,275**	**24,304**	**41,520**	**62,885**	**64,608**	**65,620**	**66,665**
Refined Aluminum Consumption									
China	225	550	861	3,352	15,854	31,908	35,521	36,648	39,005
United States	3,488	4,454	4,330	6,161	4,242	5,615	4,669	4,891	4,327
Germany	825	1,272	1,379	1,632	1,912	2,160	2,139	1,988	1,767
Vietnam	162	234	433	21	102	200	1,253	1,405	1,639
India	n/a	n/a	n/a	601	1,475	2,253	1,750	1,829	1,568
Japan	911	1,639	2,414	2,223	2,025	1,950	1,979	1,765	1,433
Korea, Rep.	15	68	369	823	1,255	1,420	1,151	1,157	1,062
Turkey	14	45	152	211	703	961	954	971	1,062
Malaysia	n/a	n/a	59	106	329	288	364	569	854
Others	*4,387*	*7,037*	*9,255*	*9,874*	*12,666*	*13,441*	*13,748*	*13,334*	*12,099*
World	**10,027**	**15,298**	**19,252**	**25,004**	**40,563**	**60,195**	**63,527**	**64,558**	**64,817**

Sources: British Geological Survey, Metallgesellschaft, U.S. Geological Survey, World Bureau of Metals Statistics, World Bank.
Note: n/a implies data not available.

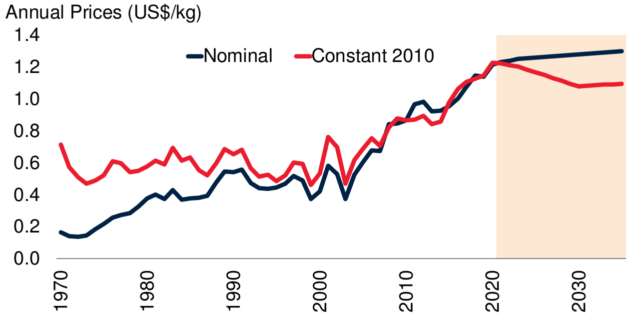
Bananas

Monthly Prices (US$/kg)



Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/kg)



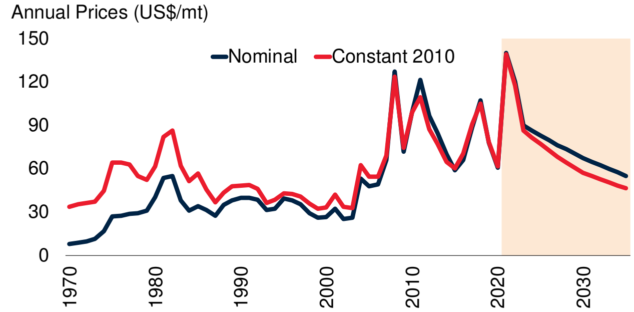
Source: World Bank.
Note: 2021-35 are forecasts.

	1970	1980	1990	2000	2010	2016	2017	2018	2019
				(thousand metric tonnes)					
Exports									
Ecuador	1,246	1,291	2,157	3,994	5,156	5,974	6,415	6,554	6,668
Guatemala	200	371	360	802	1,388	2,238	2,343	2,360	2,586
Philippines	107	923	840	1,600	1,590	1,397	2,668	3,388	2,420
Costa Rica	856	973	1,434	2,079	1,909	2,365	2,525	2,484	2,382
Colombia	262	692	1,148	1,564	1,692	1,842	1,885	1,748	1,896
Netherlands	1	7	43	49	136	506	684	804	925
Belgium	n/a	n/a	n/a	967	1,219	1,130	1,284	1,156	924
United States	191	205	337	400	503	573	594	584	594
Honduras	799	973	781	375	471	659	605	633	593
Mexico	1	16	154	81	176	448	561	552	572
Côte d'Ivoire	140	122	94	243	266	364	387	377	411
Myanmar	n/a	n/a	n/a	n/a	n/a	109	233	176	410
Dominican Republic	4	10	11	79	340	383	499	125	374
Panama	600	504	745	489	271	250	288	298	341
Vietnam	3	8	3	5	32	36	51	78	291
Germany	5	3	29	105	384	357	343	247	284
Turkey	n/a	n/a	0	0	0	0	0	0	242
Peru	n/a	n/a	n/a	n/a	1	202	203	232	222
France	0	3	26	242	322	253	250	250	205
Others	*1,103*	*672*	*867*	*1,262*	*1,633*	*2,109*	*2,154*	*2,332*	*2,420*
World	**5,519**	**6,772**	**9,030**	**14,336**	**17,491**	**21,197**	**23,974**	**24,379**	**24,760**
Imports									
United States	1,846	2,423	3,099	4,031	4,115	4,597	4,814	4,778	4,677
China	29	21	48	647	739	958	1,113	1,619	2,012
Russia	n/a	n/a	n/a	503	1,068	1,356	1,544	1,556	1,512
Germany	548	614	1,232	1,115	1,234	1,391	1,417	1,256	1,303
Netherlands	81	114	142	160	222	771	909	1,073	1,262
Belgium	n/a	n/a	n/a	1,027	1,351	1,282	1,406	1,327	1,146
Japan	844	726	758	1,079	1,109	956	986	1,003	1,045
United Kingdom	335	322	470	743	979	1,148	1,133	1,021	1,011
Italy	288	279	429	605	658	712	758	777	731
France	435	446	497	341	550	560	669	725	671
Canada	199	246	341	399	496	570	579	572	581
Poland	3	47	8	285	245	305	446	460	444
Argentina	164	195	73	340	351	433	488	449	433
Turkey	n/a	n/a	62	124	201	209	208	155	373
Korea, Rep.	3	15	22	184	338	365	437	427	368
Spain	n/a	n/a	n/a	143	158	274	308	365	359
Ukraine	n/a	n/a	n/a	60	152	192	238	251	247
Chile	76	87	63	193	176	207	222	219	246
Iraq	3	16	1	0	1	107	279	306	228
Greece	12	0	46	82	120	152	180	219	209
Algeria	11	0	0	0	58	197	96	60	207
Others	*707*	*1,127*	*1,591*	*2,377*	*3,610*	*3,596*	*3,956*	*3,864*	*3,927*
World	**5,584**	**6,678**	**8,879**	**14,435**	**17,932**	**20,337**	**22,186**	**22,484**	**22,992**

Source: Food and Agriculture Organization.
Note: FAOSTAT (February 9, 2021 update).

Coal

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

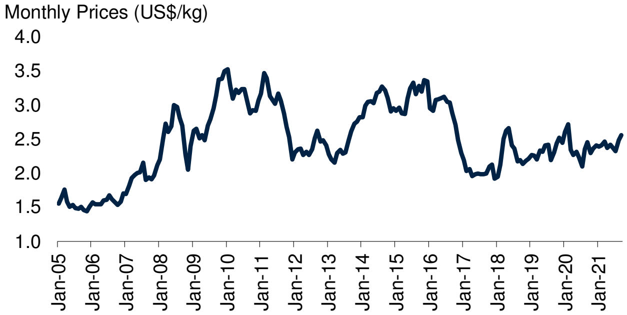


Source: World Bank.
Note: 2021-35 are forecasts.

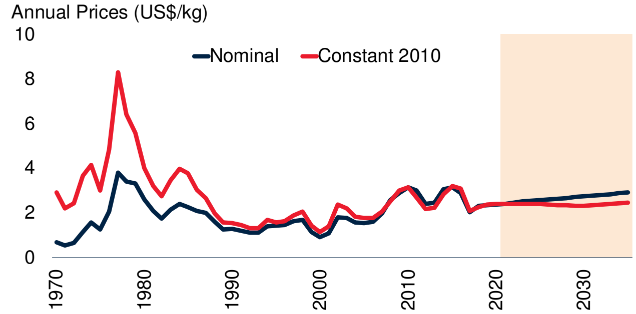
	1981	1990	2000	2005	2010	2017	2018	2019	2020
				(million metric tonnes oil equivalent)					
Production									
China	311	540	707	1242	1665	1748	1836	1905	1933
Indonesia	0	6	45	90	162	272	329	363	331
India	64	106	152	190	253	286	306	301	303
Australia	68	115	172	215	251	299	313	316	297
United States	440	538	544	555	528	374	368	341	256
Russia	n/a	186	122	136	151	206	220	220	200
South Africa	75	100	127	138	144	143	144	148	143
Kazakhstan	n/a	57	32	37	47	48	51	49	49
Poland	103	100	72	69	55	50	47	45	40
Colombia	3	14	26	41	51	62	58	58	35
Vietnam	3	3	7	19	25	22	24	26	27
Germany	149	125	61	57	46	39	38	28	23
Canada	23	40	39	35	35	32	29	27	21
Mongolia	2	3	2	3	11	23	25	26	20
Turkey	7	12	12	11	18	15	17	17	14
Ukraine	n/a	87	36	35	32	14	14	14	13
Czech Republic	43	36	25	24	21	15	15	13	10
Serbia	n/a	n/a	n/a	n/a	7	7	7	7	7
Bulgaria	5	5	4	4	5	6	5	5	4
Mexico	2	3	5	6	7	7	7	6	4
Pakistan	1	1	1	2	2	2	2	3	3
Thailand	0	4	5	6	5	4	4	4	3
Romania	9	8	6	6	6	4	4	4	3
Others	*n/a*	*174*	*100*	*93*	*75*	*77*	*85*	*83*	*73*
World	**1,844**	**2,264**	**2,304**	**3,014**	**3,603**	**3,755**	**3,945**	**4,009**	**3,812**
Consumption									
China	303	527	706	1325	1749	1925	1937	1953	1965
India	64	110	164	211	291	417	444	444	419
United States	381	459	541	546	499	331	317	271	220
Japan	65	78	95	115	116	122	119	117	109
South Africa	51	67	75	80	93	89	84	87	83
Russia	n/a	182	106	95	91	84	87	85	78
Indonesia	0	3	13	24	39	57	68	82	78
Korea, Rep.	15	24	43	55	77	86	87	82	72
Vietnam	3	2	5	9	15	28	38	49	50
Germany	144	132	85	81	77	72	69	54	44
Australia	29	38	51	55	52	45	44	42	40
Poland	91	78	56	55	55	50	50	44	40
Turkey	7	16	22	22	31	39	41	42	40
Kazakhstan	n/a	39	18	27	33	36	41	40	39
Taiwan, China	4	11	28	36	39	41	41	40	39
Others	*n/a*	*459*	*350*	*374*	*354*	*338*	*338*	*333*	*300*
World	**1,819**	**2,227**	**2,358**	**3,110**	**3,612**	**3,759**	**3,804**	**3,765**	**3,617**

Source: BP Statistical Review (June 2021 update).
Note: n/a implies data not available. Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal, and other commercial solid fuels.

Cocoa



Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

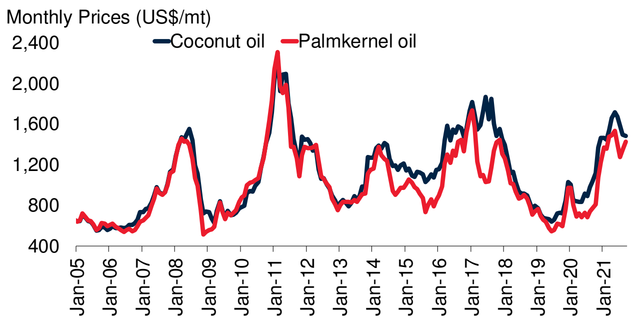


Source: World Bank.
Note: 2021-35 are forecasts.

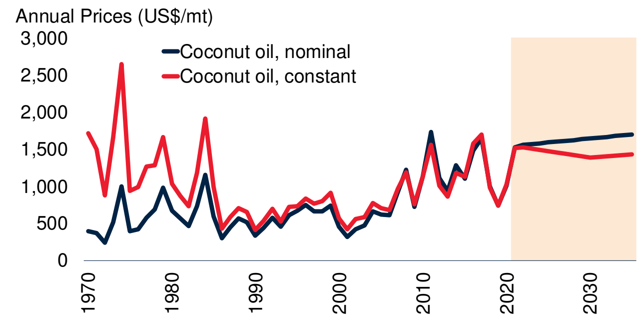
	1970/71	1980/81	1990/91	2000/01	2010/11	2017/18	2018/19	2019/20	2020/21
				(thousand metric tons)					
Production									
Côte d'Ivoire	180	417	804	1,212	1,511	1,964	2,154	2,105	2,225
Ghana	406	258	293	395	1,025	905	812	800	950
Ecuador	72	87	111	89	161	287	322	328	340
Cameroon	112	117	115	133	229	250	280	280	280
Nigeria	305	156	160	180	240	250	270	250	270
Indonesia	2	12	150	385	440	240	220	200	200
Brazil	182	353	368	163	200	204	176	201	180
Peru	2	7	11	17	54	135	141	151	150
Dominican Republic	35	35	42	45	54	85	75	75	75
Others	*233*	*252*	*452*	*233*	*396*	*328*	*331*	*338*	*354*
World	**1,528**	**1,694**	**2,507**	**2,852**	**4,309**	**4,647**	**4,781**	**4,728**	**5,024**
Grindings									
Côte d'Ivoire	35	60	118	285	361	559	605	614	620
Netherlands	116	140	268	452	540	585	600	600	600
Indonesia	1	10	32	83	190	483	487	480	495
Germany	151	180	294	227	439	448	445	430	430
United States	279	186	268	445	401	385	400	380	400
Malaysia	n/a	n/a	n/a	n/a	n/a	236	327	318	335
Ghana	48	27	30	70	212	310	320	292	300
Others	*801*	*964*	*1,315*	*1,480*	*1,796*	*1,578*	*1,600*	*1,557*	*1,629*
World	**1,431**	**1,566**	**2,325**	**3,041**	**3,938**	**4,585**	**4,784**	**4,671**	**4,809**
Exports									
Côte d'Ivoire	138	406	688	903	1,079	1,531	1,567	1,786	n/a
Ghana	348	182	245	307	694	525	649	516	n/a
Cameroon	75	96	96	102	204	178	273	336	n/a
Ecuador	46	19	56	57	136	288	314	303	n/a
Nigeria	216	76	142	149	219	218	347	204	n/a
Dominican Republic	29	27	36	34	52	82	65	74	n/a
Malaysia	3	40	148	17	21	104	109	71	n/a
Others	*265*	*255*	*326*	*417*	*590*	*259*	*297*	*286*	*n/a*
World	**1,119**	**1,100**	**1,737**	**1,987**	**2,996**	**3,183**	**3,621**	**3,576**	**n/a**
Imports									
Netherlands	116	167	267	549	806	827	1,181	952	n/a
Germany	155	187	300	228	434	411	462	394	n/a
Malaysia	1	n/a	1	110	320	314	364	392	n/a
United States	269	246	320	355	472	340	373	387	n/a
Belgium	18	28	50	101	194	211	257	375	n/a
Indonesia	n/a	n/a	n/a	n/a	n/a	259	259	193	n/a
France	42	59	74	157	149	153	139	159	n/a
Turkey	1	2	6	39	71	94	111	124	n/a
United Kingdom	n/a	n/a	n/a	n/a	n/a	50	86	110	n/a
Others	*537*	*509*	*744*	*870*	*911*	*813*	*800*	*903*	*n/a*
World	**1,139**	**1,198**	**1,761**	**2,409**	**3,357**	**3,472**	**4,032**	**3,991**	**n/a**

Source: Quarterly Bulletin of Cocoa Statistics (Cocoa year 2020/21 Volume XLVII No. 2 update).
Note: n/a implies data not available. 1970/71 data are average of 1968-1972.

Coconut oil and Palm kernel oil



Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.



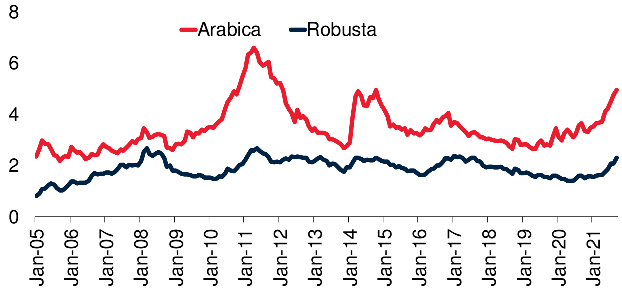
Source: World Bank.
Note: 2021-35 are forecasts.

	1970/1971	1980/1981	1990/1991	2000/2001	2010/2011	2018/2019	2019/2020	2020/2021	2021/2022
				(thousand metric tons)					
Coconut oil production									
Philippines	620	1,256	1,263	1,753	1,820	1,700	1,615	1,542	1,668
Indonesia	373	740	795	833	943	975	937	961	964
India	223	207	250	448	376	474	474	474	474
Vietnam	13	25	77	149	89	180	184	192	192
Bangladesh	n/a	n/a	n/a	17	15	83	69	69	69
Sri Lanka	131	78	67	62	43	71	54	42	42
Thailand	16	22	40	46	46	30	30	30	30
Others	*820*	*451*	*376*	*190*	*168*	*130*	*125*	*125*	*125*
World	**2,196**	**2,779**	**2,868**	**3,498**	**3,500**	**3,643**	**3,488**	**3,435**	**3,564**
Coconut oil consumption									
Philippines	214	204	348	375	728	665	691	587	700
European Union	n/a	n/a	n/a	739	710	620	570	570	615
India	223	278	255	454	380	470	465	468	468
United States	397	474	407	446	486	421	471	415	465
Indonesia	372	742	585	336	378	374	380	383	385
Vietnam	14	25	72	142	95	178	178	193	192
China	29	24	20	189	197	177	148	172	180
Bangladesh	n/a	9	30	24	19	69	74	80	72
Malaysia	84	63	12	9	53	46	52	64	63
Others	*n/a*	*n/a*	*n/a*	*410*	*421*	*434*	*493*	*431*	*440*
World	**2,117**	**2,856**	**2,769**	**3,124**	**3,467**	**3,454**	**3,522**	**3,363**	**3,580**
Palmkernel oil production									
Indonesia	n/a	48	305	1,050	2,680	4,720	4,866	4,958	5,065
Malaysia	49	235	784	1,520	2,072	2,325	2,158	1,975	2,167
Nigeria	31	75	122	127	305	350	385	356	393
Thailand	n/a	2	19	77	245	395	347	360	391
Colombia	4	8	20	48	75	142	133	125	130
Honduras	n/a	n/a	2	15	38	67	80	58	74
Papua New Guinea	n/a	6	14	31	54	80	73	74	74
Others	*291*	*172*	*168*	*210*	*354*	*515*	*489*	*496*	*493*
World	**375**	**546**	**1,434**	**3,078**	**5,823**	**8,594**	**8,531**	**8,402**	**8,787**
Palmkernel oil consumption									
Indonesia	n/a	42	125	559	1,120	2,950	3,025	3,300	3,300
Malaysia	44	n/a	154	778	1,401	1,520	1,320	1,265	1,270
China	n/a	1	15	103	421	890	783	670	820
European Union	n/a	n/a	n/a	446	547	668	688	698	708
Nigeria	5	30	132	128	310	365	395	365	405
United States	43	83	164	116	282	321	375	370	378
Brazil	n/a	n/a	15	47	186	260	278	312	347
Thailand	n/a	12	19	20	160	295	305	312	330
India	n/a	18	1	57	155	156	122	149	149
Others	*n/a*	*n/a*	*n/a*	*383*	*678*	*884*	*883*	*904*	*910*
World	**425**	**592**	**1,346**	**2,637**	**5,260**	**8,309**	**8,174**	**8,345**	**8,617**

Sources: U.S. Department of Agriculture (October 12, 2021 update).
Note: All quantities are for the crop year (beginning October 1). For example, 2001/02 refers to October 2001 to September 2002. European Union includes EU-15 for 1970-1991.

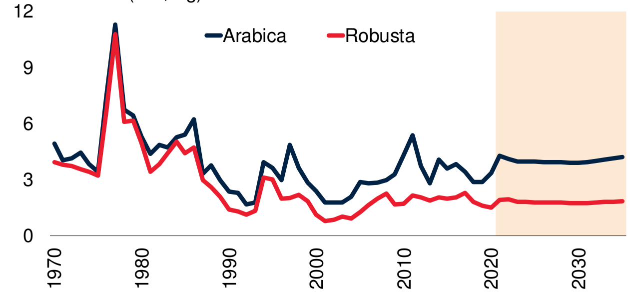
Coffee

Monthly Prices (US$/kg)



Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/kg)

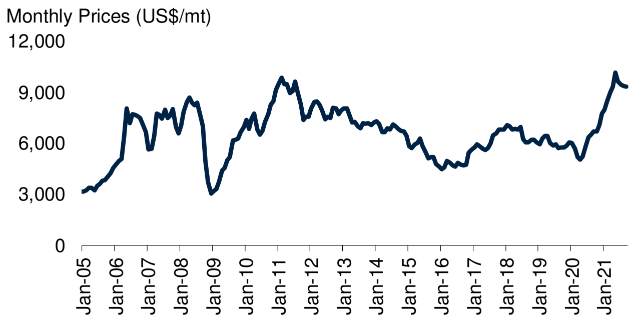


Source: World Bank.
Note: 2021-35 are forecasts.

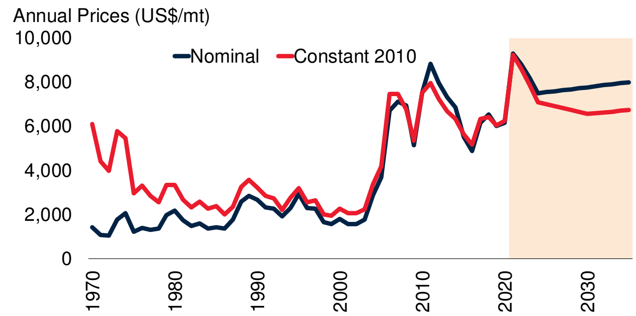
	1970/1971	1980/1981	1990/1991	2000/2001	2010/2011	2018/2019	2019/2020	2020/2021	2021/2022
				(thousand 60kg bags)					
Production									
Brazil	11,000	21,500	31,000	34,100	54,500	66,500	60,500	69,900	56,300
Vietnam	56	77	1,200	15,333	19,415	30,400	31,300	29,000	30,830
Colombia	8,000	13,500	14,500	10,500	8,525	13,870	14,100	14,300	14,100
Indonesia	2,330	5,365	7,480	6,495	9,325	10,600	10,700	10,700	10,630
Ethiopia	2,589	3,264	3,500	2,768	6,125	7,350	7,475	7,600	7,620
Uganda	2,667	2,133	2,700	3,097	3,212	4,650	5,475	6,000	5,950
Honduras	545	1,265	1,685	2,821	3,975	7,515	5,600	6,236	5,500
India	1,914	1,977	2,970	5,020	5,035	5,325	4,967	5,150	5,410
Peru	1,114	1,170	1,170	2,824	4,100	4,390	3,925	3,369	3,950
Mexico	3,200	3,862	4,550	4,800	4,000	3,550	3,700	3,530	3,590
Guatemala	1,965	2,702	3,282	4,564	3,960	3,770	3,645	3,330	3,470
Nicaragua	641	971	460	1,610	1,740	2,950	2,755	2,630	2,780
Malaysia	66	88	75	700	1,100	2,100	1,900	2,000	2,000
China	n/a	n/a	n/a	n/a	827	2,200	1,900	1,800	1,800
Costa Rica	1,295	2,140	2,565	2,502	1,575	1,250	1,466	1,472	1,485
Cote d'Ivoire	3,996	6,090	3,300	5,100	1,600	2,000	1,725	1,060	1,470
Tanzania	909	1,060	763	809	1,050	1,300	1,250	1,350	1,400
Kenya	999	1,568	1,455	864	710	850	750	700	750
Papua New Guinea	401	880	964	1,041	865	965	825	700	715
Others	*15,515*	*16,562*	*16,562*	*12,269*	*9,770*	*5,089*	*5,358*	*4,984*	*5,089*
World	**59,202**	**86,174**	**100,181**	**117,217**	**141,409**	**176,624**	**169,316**	**175,811**	**164,839**
Consumption									
European Union	n/a	n/a	n/a	n/a	41,350	42,124	40,270	40,435	41,400
United States	305	297	229	183	22,383	27,140	26,030	25,800	26,400
Brazil	8,890	7,975	9,000	13,100	19,420	23,200	22,994	23,307	23,655
Japan	n/a	n/a	n/a	n/a	7,015	7,897	7,610	7,572	7,740
Philippines	496	432	810	900	2,825	6,125	6,120	6,175	6,250
Canada	n/a	n/a	n/a	n/a	4,245	4,885	4,830	4,980	5,025
Indonesia	888	1,228	1,295	1,335	1,650	4,300	4,900	4,450	4,700
Russia	n/a	n/a	n/a	n/a	4,355	4,945	4,625	4,200	4,150
China	n/a	n/a	n/a	n/a	1,106	3,300	3,700	3,900	4,000
United Kingdom	n/a	n/a	n/a	n/a	n/a	3,995	3,870	3,635	3,650
Ethiopia	1,170	1,600	1,900	1,667	2,860	3,193	3,140	3,550	3,500
Vietnam	31	35	100	417	1,337	2,940	3,100	3,150	3,220
Korea, Rep.	n/a	n/a	n/a	n/a	1,910	2,770	2,980	3,050	3,050
Mexico	1,512	1,500	1,400	978	2,620	2,580	2,550	2,610	2,600
Algeria	n/a	n/a	n/a	n/a	1,815	2,340	2,040	2,240	2,090
Colombia	1,349	1,825	1,615	1,530	1,120	1,950	1,800	2,000	2,050
Australia	n/a	n/a	n/a	n/a	1,445	2,040	1,960	2,000	1,925
Switzerland	n/a	n/a	n/a	n/a	1,570	1,460	1,470	1,550	1,550
Turkey	n/a	n/a	n/a	n/a	340	1,205	1,215	1,325	1,225
Others	*n/a*	*n/a*	*n/a*	*n/a*	15,694	17,466	17,079	17,212	16,791
World	**19,408**	**20,438**	**22,265**	**26,303**	**135,060**	**165,855**	**162,283**	**163,141**	**164,971**

Source: U.S. Department of Agriculture (June 21, 2021 update).
Note: n/a implies data not available. European Union includes EU-15 for 1970-1991.

Copper



Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

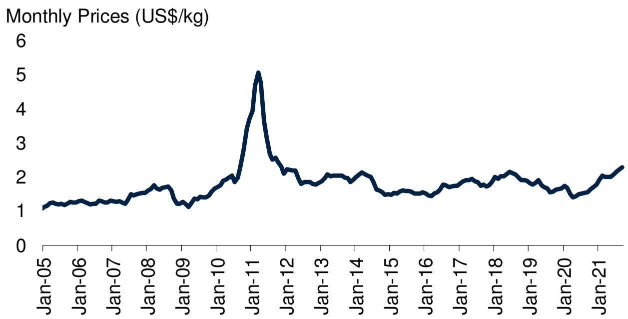


Source: World Bank.
Note: 2021-35 are forecasts.

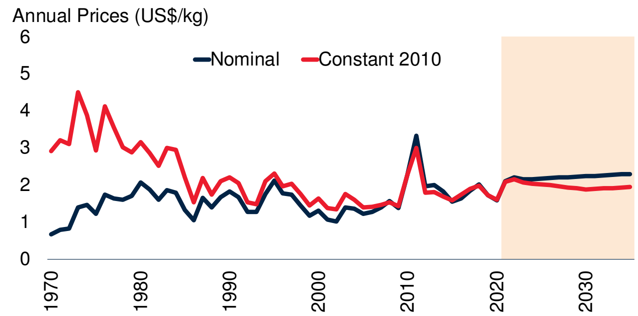
	1970	1980	1990	2000	2010	2017	2018	2019	2020
				(thousand metric tons)					
Mine Production									
Chile	686	1068	1588	4,602	5,419	5,504	5,832	5,787	5,732
Peru	220	367	323	553	1,247	2,446	2,437	2,455	2,154
China	n/a	165	300	549	1,180	1,656	1,507	1,601	1,673
Congo, Dem. Rep.	386	n/a	n/a	33	378	1,095	1,225	1,433	1,400
United States	1560	1181	1588	1,440	1,129	1,258	1,216	1,257	1,199
Australia	158	244	330	832	870	849	911	925	880
Zambia	684	610	546	249	732	794	854	790	861
Russia	n/a	n/a	n/a	580	703	722	773	791	791
Mexico	61	175	299	365	270	742	751	770	750
Kazakhstan	n/a	n/a	n/a	433	404	745	621	711	721
Canada	610	716	794	634	522	597	548	561	585
Indonesia	0	59	162	1,006	871	666	651	400	492
Poland	83	343	370	454	425	419	401	449	442
Others	*1,755*	*2,811*	*3,027*	*1,486*	*1,988*	*2,700*	*2,678*	*2,830*	*2,811*
World	**6,202**	**7,739**	**9,327**	**13,217**	**16,139**	**20,193**	**20,404**	**20,761**	**20,491**
Refined Production									
China	120	295	558	1,312	4,540	8,889	8,949	9,447	10,021
Chile	647	811	1,192	2,669	3,244	2,430	2,461	2,269	2,329
Japan	603	1,014	1,008	1,437	1,549	1,488	1,595	1,495	1,583
Russia	n/a	n/a	n/a	824	900	949	1,020	1,028	1,028
United States	1,489	1,730	2,017	1,802	1,093	1,079	1,111	1,030	918
Congo, Dem. Rep.	683	n/a	n/a	29	254	699	821	842	850
Germany	134	425	532	709	704	695	670	600	656
Korea, Rep.	5	88	192	471	556	664	665	638	638
Poland	69	357	346	486	547	522	502	566	561
Kazakhstan	n/a	n/a	n/a	395	323	429	443	477	483
Australia	n/a	n/a	n/a	484	424	386	377	427	427
Mexico	n/a	n/a	n/a	399	247	411	422	448	412
Spain	n/a	n/a	n/a	316	347	420	429	383	387
Others	*2,978*	*4,755*	*4,829*	*3,429*	*4,484*	*4,420*	*4,188*	*3,816*	*3,653*
World	**6,729**	**9,475**	**10,675**	**14,761**	**19,214**	**23,479**	**23,652**	**23,467**	**23,947**
Refined Consumption									
China	180	286	512	1,869	7,385	11,790	12,482	12,800	14,527
United States	1,860	1,868	2,150	2,979	1,760	1,771	1,814	1,829	1,706
Germany	788	870	1,028	1,309	1,312	1,180	1,200	1,017	1,059
Japan	821	1,158	1,577	1,351	1,060	998	1,039	1,011	891
Korea, Rep.	10	85	324	862	856	767	717	633	619
Italy	274	388	475	674	619	635	552	556	475
Turkey	14	33	103	248	369	445	482	464	438
India	55	77	135	246	514	486	512	527	432
Mexico	54	117	127	464	274	361	407	442	405
Others	*3,236*	*4,502*	*4,349*	*5,094*	*5,197*	*4,902*	*4,729*	*4,728*	*4,284*
World	**7,291**	**9,385**	**10,780**	**15,096**	**19,347**	**23,335**	**23,936**	**24,005**	**24,837**

Sources: British Geological Survey, Metallgesellschaft, U.S. Geological Survey, World Bureau of Metals Statistics, World Bank.
Note: n/a implies data not available. Refined production and consumption include significant recycled material.

Cotton



Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.



Source: World Bank.
Note: 2021-35 are forecasts.

	1970/71	1980/81	1990/91	2000/01	2010/11	2018/19	2019/20	2020/21	2021/22
				(thousand metric tons)					
Production									
India	909	1,322	1,989	2,380	5,865	5,661	6,205	6,026	5,900
China	1,995	2,707	4,508	4,505	6,600	6,040	5,800	5,910	5,730
United States	2,219	2,422	3,376	3,742	3,942	3,999	4,336	3,181	4,030
Brazil	594	623	717	939	1,960	2,779	3,002	2,341	2,710
Pakistan	543	714	1,638	1,816	1,948	1,670	1,320	890	981
Uzbekistan	n/a	1,671	1,593	975	910	637	531	1,028	940
Australia	19	99	433	804	926	485	134	562	764
Turkey	400	500	655	880	817	977	815	656	656
Mali	20	41	115	102	103	276	299	62	340
Benin	14	6	59	141	60	295	311	317	323
Greece	110	115	213	421	180	277	355	321	305
Others	*4,916*	*3,611*	*3,656*	*2,823*	*2,558*	*2,866*	*3,022*	*2,900*	*3,073*
World	**11,740**	**13,831**	**18,951**	**19,527**	**25,869**	**25,961**	**26,129**	**24,194**	**25,753**
Stocks									
China	412	476	1,589	3,755	2,167	8,885	8,938	9,248	9,424
Brazil	321	391	231	755	1,400	2,340	2,787	2,018	2,022
India	376	491	539	922	1,886	1,878	3,430	2,682	1,773
Turkey	24	112	150	292	542	911	1,172	1,283	1,328
Uzbekistan	n/a	n/a	n/a	233	299	601	308	528	618
Bangladesh	n/a	14	37	50	176	422	458	553	583
Argentina	65	61	123	114	232	320	410	473	537
Others	*3,407*	*3,605*	*4,091*	*4,502*	*3,801*	*3,757*	*4,641*	*3,327*	*3,675*
World	**4,605**	**5,151**	**6,761**	**10,622**	**10,503**	**19,114**	**22,144**	**20,111**	**19,960**
Exports									
United States	848	1,290	1,697	1,467	3,130	3,365	3,381	3,626	3,345
Brazil	220	21	167	68	435	1,310	1,946	2,398	2,009
India	34	140	255	24	1,086	765	696	1,348	1,122
Australia	4	53	329	849	545	791	295	349	588
Benin	14	8	58	140	64	292	224	357	370
Greece	72	13	86	270	147	295	319	325	300
Mali	19	35	114	134	92	300	229	154	283
Others	*2,665*	*2,854*	*2,363*	*2,844*	*2,134*	*2,181*	*1,934*	*2,200*	*2,275*
World	**3,875**	**4,414**	**5,069**	**5,797**	**7,634**	**9,299**	**9,024**	**10,757**	**10,291**
Imports									
China	108	773	480	52	2,609	2,100	1,554	2,801	2,648
Bangladesh	n/a	45	80	248	896	1,544	1,500	1,695	1,654
Vietnam	33	40	31	84	350	1,510	1,459	1,580	1,556
Pakistan	1	1	0	101	314	600	890	873	1,180
Turkey	1	n/a	46	381	729	786	1,017	1,160	1,131
Indonesia	36	106	324	570	471	664	547	502	540
India	155	n/a	n/a	350	87	392	496	184	204
Others	*3,862*	*4,363*	*4,739*	*4,031*	*4,957*	*3,726*	*2,774*	*4,224*	*4,026*
World	**4,086**	**4,555**	**5,220**	**5,764**	**7,804**	**9,222**	**8,684**	**10,217**	**10,291**

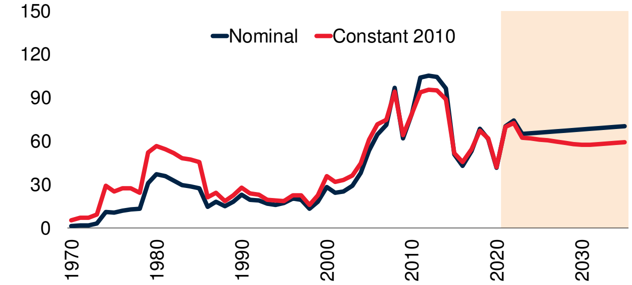
Source: International Cotton Advisory Committee (October 1, 2021 update).
Note: n/a implies data not available.

Crude oil

Monthly Prices (US$/mt)

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/bbl)



Source: World Bank.
Note: 2021-35 are forecasts.

	1970	1980	1990	2000	2010	2017	2018	2019	2020
				(thousand barrels per day)					
Production									
United States	11,297	10,170	8,914	7,733	7,559	13,154	15,334	17,072	16,476
Saudi Arabia	3,851	10,270	7,106	9,121	9,865	11,892	12,261	11,832	11,039
Russia	n/a	n/a	10,342	6,583	10,379	11,374	11,562	11,679	10,667
Canada	1,473	1,764	1,968	2,703	3,332	4,813	5,244	5,372	5,135
Iraq	1,549	2,658	2,149	2,613	2,469	4,538	4,632	4,779	4,114
China	616	2,122	2,778	3,257	4,077	3,846	3,798	3,836	3,901
United Arab Emirates	780	1,735	1,985	2,599	2,937	3,910	3,912	3,999	3,657
Iran	3,848	1,479	3,270	3,850	4,421	4,854	4,608	3,399	3,084
Brazil	167	188	651	1,276	2,125	2,721	2,679	2,876	3,026
Kuwait	3,036	1,757	964	2,244	2,564	3,009	3,050	2,976	2,686
Norway	n/a	528	1,716	3,331	2,139	1,971	1,851	1,737	2,001
Mexico	487	2,129	2,941	3,456	2,959	2,224	2,068	1,918	1,910
Kazakhstan	n/a	n/a	571	740	1,676	1,838	1,904	1,919	1,811
Qatar	363	476	434	851	1,630	1,882	1,898	1,863	1,809
Nigeria	1,083	2,058	1,787	2,174	2,533	1,969	2,007	2,102	1,798
Algeria	1,054	1,134	1,367	1,549	1,689	1,540	1,511	1,487	1,332
Angola	103	150	475	746	1,812	1,671	1,519	1,420	1,324
United Kingdom	4	1,676	1,933	2,710	1,358	1,005	1,092	1,118	1,029
Oman	332	285	695	955	865	971	978	971	951
Colombia	226	131	446	687	786	854	865	886	781
India	140	193	715	726	901	885	869	830	771
Indonesia	854	1,577	1,539	1,456	1,003	838	808	781	743
Azerbaijan	n/a	n/a	254	281	1,037	793	796	775	716
Others	*n/a*	*n/a*	*10,025*	*12,901*	*13,178*	*10,016*	*9,605*	*9,333*	*7,633*
World	**48,075**	**62,942**	**65,022**	**74,543**	**83,293**	**92,568**	**94,852**	**94,961**	**88,391**
Consumption									
United States	14,697	17,056	16,940	19,594	18,322	18,878	19,447	19,475	17,178
China	554	1,707	2,297	4,697	9,390	13,137	13,576	14,005	14,225
India	390	643	1,212	2,287	3,308	4,724	4,974	5,148	4,669
Saudi Arabia	435	592	1,136	1,627	3,124	3,799	3,617	3,635	3,544
Japan	3,876	4,987	5,277	5,696	4,424	3,953	3,824	3,689	3,268
Russia	n/a	n/a	5,042	2,540	2,878	3,271	3,320	3,393	3,238
Korea, Rep.	162	476	1,041	2,156	2,312	2,738	2,720	2,703	2,560
Brazil	513	1,080	1,229	1,843	2,271	2,481	2,392	2,438	2,323
Canada	1,472	1,943	1,755	2,063	2,386	2,423	2,501	2,537	2,282
Germany	2,765	3,014	2,685	2,741	2,373	2,374	2,255	2,270	2,045
Iran	220	565	949	1,347	1,685	1,644	1,717	1,841	1,715
Singapore	138	179	444	696	1,157	1,406	1,431	1,401	1,332
Mexico	441	1,072	1,611	1,952	2,040	1,883	1,836	1,698	1,312
France	1,860	2,220	1,895	1,986	1,703	1,540	1,538	1,528	1,305
Thailand	103	233	424	744	1,104	1,390	1,400	1,405	1,271
Others	*n/a*	*n/a*	*22,407*	*24,526*	*28,092*	*30,459*	*30,717*	*30,432*	*26,209*
World	**45,328**	**61,454**	**66,343**	**76,495**	**86,568**	**96,099**	**97,265**	**97,598**	**88,477**

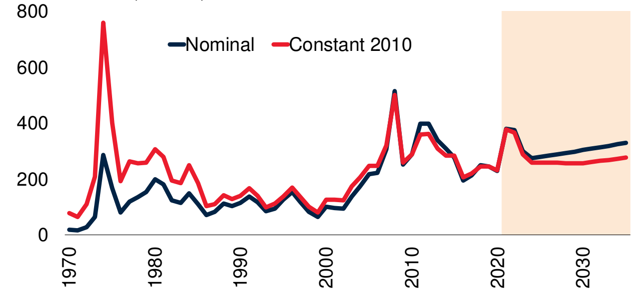
Source: BP Statistical Review (June 2021 update).
Note: n/a implies data not available. Production includes crude oil and natural gas liquids but excludes liquid fiels from other sources such as biomass and derivatives of coal and natural gas include in consumption.

Fertilizers—Nitrogen

Monthly Prices (US$/mt)

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/mt)

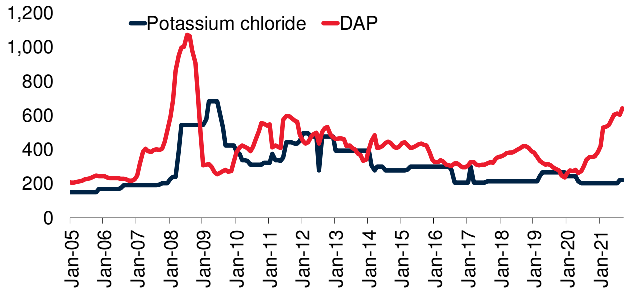


Source: World Bank.
Note: 2021-35 are forecasts.

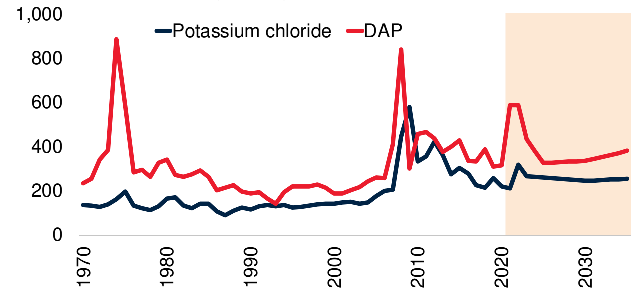
	1970	1980	1990	2000	2010	2015	2016	2017	2018
				(thousand tonnes nutrients)					
Production									
China	1,200	9,993	14,637	22,175	35,678	39,073	33,356	30,003	28,943
United States	8,161	12,053	10,816	8,352	9,587	9,011	10,327	11,579	13,617
India	838	2,164	6,993	10,943	12,178	13,476	13,377	13,423	13,337
Russia	n/a	n/a	n/a	5,452	6,544	7,864	8,574	9,116	9,430
Indonesia	45	958	2,462	2,853	3,207	3,475	3,223	3,417	3,660
Egypt	118	401	678	1,441	2,761	1,622	2,672	3,442	3,424
Canada	726	1,755	2,683	3,797	3,364	3,688	3,702	3,386	3,370
Pakistan	140	572	1,120	2,054	2,629	2,888	3,198	2,978	2,973
Iran	31	72	376	726	1,524	1,802	2,181	2,417	2,770
Saudi Arabia	n/a	138	568	1,278	1,680	2,320	2,578	2,526	2,761
Qatar	n/a	295	350	748	1,556	2,518	2,505	2,562	2,507
Poland	1,030	1,290	1,233	1,497	1,509	1,898	1,744	1,765	1,744
Netherlands	957	1,624	1,928	1,300	1,175	1,573	1,594	1,684	1,553
Algeria	22	24	80	91	21	774	1,035	699	1,525
Germany	1,900	2,380	1,165	1,558	1,289	1,225	1,334	1,330	1,398
Morocco	13	33	344	302	553	561	918	1,223	1,296
Vietnam	n/a	15	18	227	479	1,124	955	1,112	1,065
Ukraine	n/a	n/a	3,004	2,130	2,312	1,569	1,731	1,135	1,029
Turkey	82	600	1,026	400	747	867	775	902	1,000
Others	*n/a*	*n/a*	*n/a*	*19,301*	*19,326*	*20,268*	*20,526*	*21,510*	*20,203*
World	**32,690**	**62,951**	**71,964**	**86,624**	**108,118**	**117,596**	**116,303**	**116,207**	**117,603**
Consumption									
China	2,987	11,787	19,233	22,720	27,703	29,306	26,522	24,581	23,316
India	1,310	3,522	7,566	10,911	16,558	17,372	16,735	16,959	17,638
United States	7,363	10,818	10,239	10,467	11,737	11,683	11,751	11,815	11,298
Brazil	276	886	797	1,998	2,855	3,533	4,366	4,377	4,287
Indonesia	184	851	1,610	1,964	3,045	3,532	3,255	3,509	3,594
Pakistan	264	843	1,472	2,265	3,143	2,672	3,730	3,435	3,267
Canada	323	946	1,158	1,592	1,990	2,537	2,390	2,614	2,613
Russia	n/a	n/a	4,344	960	1,483	1,807	2,149	2,003	2,197
France	1,425	2,146	2,493	2,317	2,337	2,212	2,241	2,243	2,137
Vietnam	166	129	425	1,332	1,250	1,795	1,597	1,648	1,602
Turkey	243	782	1,200	1,276	1,344	1,487	1,896	1,788	1,548
Ukraine	n/a	n/a	1,836	350	650	985	1,197	1,365	1,533
Mexico	406	878	1,346	1,342	1,166	1,372	1,561	1,548	1,467
Germany	1,642	2,303	1,787	1,848	1,786	1,713	1,658	1,497	1,342
Egypt	331	554	745	1,084	1,159	1,221	1,282	1,315	1,334
Bangladesh	99	266	609	996	1,237	1,258	1,209	1,251	1,321
Australia	123	248	439	951	982	1,347	1,514	1,534	1,263
Thailand	50	136	577	922	1,311	1,240	1,225	1,178	1,197
Argentina	41	71	101	481	781	602	992	970	1,154
Others	*n/a*	*n/a*	*18,801*	*16,291*	*17,040*	*18,519*	*19,248*	*20,143*	*19,890*
World	**31,423**	**60,493**	**76,777**	**82,065**	**99,556**	**106,192**	**106,519**	**105,773**	**103,995**

Source: International Fertilizer Association (September 2019 update).
Note: n/a implies data not available. The statistics are based on the nutrient content. All production statistics are expressed on a calendar-year basis, while consumption statistics are expressed either on a calendar- or on a fertilizer-year basis (see https://www.ifastat.org/faq for details).

Fertilizers—Phosphate and Potash



Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.



Source: World Bank.
Note: 2021-35 are forecasts.

	1970	1980	1990	2000	2010	2015	2016	2017	2018
				(thousand tonnes nutrients)					
Phosphate: Production									
China	907	2,607	4,114	6,759	15,998	18,633	17,964	17,736	17,605
United States	4,903	7,437	8,105	7,337	6,297	6,346	6,698	6,509	4,600
India	228	854	2,077	3,751	4,378	4,429	4,560	4,724	4,591
Morocco	99	174	1,180	1,122	1,875	2,092	3,089	4,023	4,199
Russia	n/a	n/a	4,943	2,320	2,926	3,018	3,135	3,667	3,760
Brazil	169	1,623	1,091	1,496	2,004	2,171	2,133	2,111	2,132
Saudi Arabia	n/a	n/a	n/a	159	119	1,328	1,343	1,572	1,477
Others	*14,279*	*20,982*	*14,908*	*9,800*	*8,960*	*8,458*	*8,735*	*9,009*	*8,672*
World	**20,585**	**33,677**	**36,417**	**32,744**	**42,558**	**46,475**	**47,657**	**49,352**	**47,036**
Phosphate: Consumption									
China	907	2,952	5,770	8,664	12,988	13,973	12,682	12,100	12,029
India	305	1,091	3,125	4,248	8,050	6,979	6,705	6,854	6,910
Brazil	416	1,965	1,202	2,544	3,384	4,401	4,974	5,126	5,157
United States	4,345	4,926	3,811	3,862	3,890	3,920	4,091	4,297	3,757
Indonesia	45	274	581	263	755	1,261	1,022	1,338	1,258
Pakistan	31	227	389	675	767	1,007	1,269	1,279	1,153
Canada	326	634	578	634	723	1,025	947	1,080	1,133
Australia	757	853	579	1,107	817	953	880	999	957
Vietnam	77	23	106	501	650	821	767	798	821
Others	*13,666*	*18,967*	*19,782*	*10,313*	*9,822*	*10,774*	*11,503*	*12,235*	*12,357*
World	**20,875**	**31,912**	**35,920**	**32,811**	**41,846**	**45,113**	**44,840**	**46,107**	**45,532**
Potash: Production									
Canada	3,179	7,337	7,005	9,174	10,289	11,500	10,938	12,696	13,990
Belarus	n/a	n/a	4,992	3,372	5,223	6,402	6,110	7,026	7,260
Russia	n/a	n/a	n/a	3,716	6,128	6,840	6,480	7,204	7,050
China	n/a	20	46	275	3,101	5,770	5,710	5,490	5,410
Israel	576	797	1,296	1,748	1,944	2,518	3,168	2,865	2,927
Germany	4,824	6,123	4,967	3,409	2,962	3,055	2,694	2,907	2,702
Jordan	n/a	n/a	842	1,162	1,166	1,413	1,202	1,393	1,486
Chile	21	23	41	408	850	1,229	1,203	1,102	953
United States	2,259	2,052	1,008	916	941	729	489	506	349
Others	*n/a*	*n/a*	*2,641*	*1,962*	*1,246*	*2,259*	*2,271*	*2,533*	*1,946*
World	**17,471**	**27,608**	**22,838**	**26,141**	**33,850**	**41,714**	**40,265**	**43,722**	**44,072**
Potash: Consumption									
China	25	527	1,761	3,364	5,853	10,018	9,911	10,151	9,344
Brazil	307	1,267	1,210	2,760	3,894	5,162	5,728	5,853	6,064
United States	3,827	5,733	4,537	4,469	4,165	4,473	4,872	4,877	4,175
India	199	618	1,309	1,565	3,514	2,402	2,508	2,780	2,680
Indonesia	18	91	310	266	1,250	1,635	1,600	2,006	2,273
Malaysia	61	250	494	650	1,150	1,154	1,249	1,339	1,431
Thailand	10	40	149	251	310	486	510	594	624
Others	*11,317*	*15,301*	*14,552*	*8,745*	*8,059*	*9,266*	*9,761*	*10,185*	*10,569*
World	**15,764**	**23,826**	**24,320**	**22,070**	**28,196**	**34,596**	**36,138**	**37,785**	**37,160**

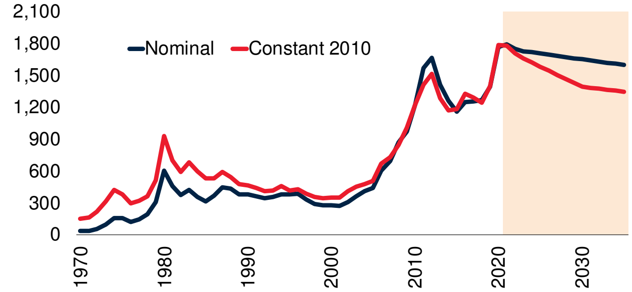
Source: International Fertilizer Association (September 2019 update).
Note: n/a implies data not available. The statistics are based on the nutrient content. All production statistics are expressed on a calendar-year basis, while consumption statistics are expressed either on a calendar- or on a fertilizer-year basis (see https://www.ifastat.org/faq for details).

Gold

Monthly Prices (US$/toz)

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/toz)



Source: World Bank.
Note: 2021-35 are forecasts.

	1990	2000	2005	2010	2016	2017	2018	2019	2020
				(metric tons)					
Production									
China	100	175	209	341	453	426	401	380	365
Australia	242	296	263	260	291	292	313	326	328
Russia	n/a	144	163	201	254	270	280	305	305
United States	294	353	256	231	232	237	226	200	190
Canada	169	156	121	91	164	171	194	183	170
Ghana	17	72	67	93	129	130	149	142	125
Kazakhstan	n/a	27	18	30	75	85	97	103	118
Uzbekistan	n/a	88	84	90	100	102	102	102	102
Mexico	9	24	30	79	132	127	118	109	102
South Africa	605	428	297	191	142	137	117	105	96
Sudan	0	6	5	2	93	107	94	94	94
Indonesia	11	125	158	106	81	99	112	109	86
Peru	9	134	206	164	153	152	140	128	85
Brazil	102	61	38	62	94	80	85	75	63
Argentina	1	26	28	64	57	61	58	59	59
Burkina Faso	3	1	1	23	39	46	53	51	58
Tanzania	n/a	15	48	39	45	43	39	48	56
Papua New Guinea	34	73	67	67	62	65	68	74	54
Mali	2	29	44	39	47	48	61	48	49
Others	*n/a*	*327*	*401*	*597*	*579*	*572*	*551*	*689*	*733*
World	**2,133**	**2,560**	**2,504**	**2,771**	**3,222**	**3,252**	**3,259**	**3,332**	**3,237**
Fabrication									
China	46	213	277	523	788	771	785	n/a	n/a
India	241	704	695	783	506	783	701	n/a	n/a
United States	215	277	219	179	172	150	156	n/a	n/a
Japan	205	161	165	158	99	100	100	n/a	n/a
Turkey	133	228	303	109	101	122	98	n/a	n/a
Italy	396	522	290	126	88	89	84	n/a	n/a
Korea, Rep.	67	107	83	93	78	80	81	n/a	n/a
South Africa	18	14	10	25	38	50	71	n/a	n/a
Iran	n/a	46	41	72	35	42	63	n/a	n/a
Indonesia	84	99	87	45	45	45	49	n/a	n/a
Russia	n/a	34	61	61	47	47	47	n/a	n/a
Germany	78	64	52	41	37	41	44	n/a	n/a
United Arab Emirates	14	50	55	33	45	56	43	n/a	n/a
Switzerland	54	54	56	41	34	33	36	n/a	n/a
Saudi Arabia	70	153	125	59	40	34	34	n/a	n/a
Malaysia	45	86	74	45	34	30	30	n/a	n/a
Singapore	31	26	30	28	27	28	28	n/a	n/a
Canada	46	25	27	44	41	29	25	n/a	n/a
Thailand	86	79	69	27	24	24	25	n/a	n/a
Others	*n/a*	*819*	*608*	*400*	*315*	*310*	*318*	*n/a*	*n/a*
World	**3,294**	**3,761**	**3,325**	**2,891**	**2,592**	**2,861**	**2,817**	**n/a**	**n/a**

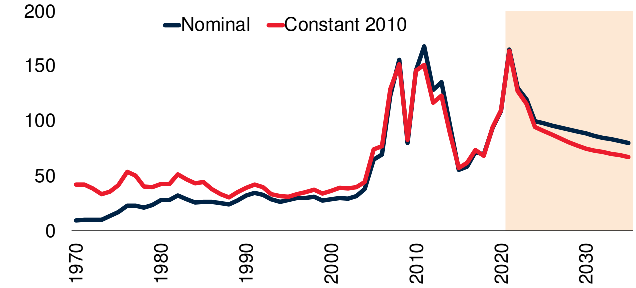
Source: British Geological Survey, GFMS Gold Survey 2019, Thomson Reuters, U.S. Geological Survey, World Bureau of Metals Statistics, World Bank.
Note: n/a implies data not available. Fabrication includes the use of scrap. Fabrication of "Saudi Arabia" includes Saudi Arabia and Yemen in 2000.

Iron Ore

Monthly Prices (US$/dmt)

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/dmt)



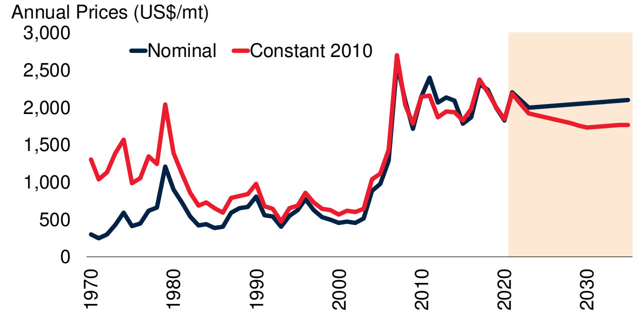
Source: World Bank.
Note: 2021-35 are forecasts.

	1971	1980	1990	2000	2010	2017	2018	2019	2020
				(million metric tons)					
Iron Ore Production									
Australia	62	99	109	176	433	885	908	919	n/a
Brazil	38	113	152	209	372	454	460	405	n/a
China	55	113	148	105	357	345	335	351	n/a
India	34	41	54	75	209	202	204	238	n/a
Russia	n/a	n/a	n/a	87	99	95	96	98	n/a
South Africa	10	n/a	30	34	55	75	74	72	n/a
Ukraine	n/a	n/a	n/a	56	79	61	61	63	n/a
Canada	43	49	37	36	38	50	52	58	n/a
United States	82	71	55	63	50	48	50	47	n/a
Sweden	34	27	20	21	25	32	36	36	n/a
Iran	n/a	n/a	2	12	33	34	36	33	n/a
Kazakhstan	n/a	n/a	n/a	15	18	39	42	22	n/a
Turkey	2	3	6	4	6	10	10	16	n/a
Peru	9	6	3	4	9	13	14	15	n/a
Chile	11	9	8	8	10	15	14	13	n/a
Mauritania	8	9	11	11	11	12	11	12	n/a
Mexico	5	8	9	11	14	19	22	11	n/a
Mongolia	n/a	n/a	n/a	n/a	3	8	6	9	n/a
Vietnam	0	0	0	0	2	6	6	6	n/a
Malaysia	1	0	0	0	3	4	3	4	n/a
Liberia	23	18	4	n/a	n/a	2	4	4	n/a
Others	*n/a*	*n/a*	*n/a*	*32*	*47*	*33*	*27*	*17*	*n/a*
World	**781**	**931**	**984**	**959**	**1,874**	**2,440**	**2,470**	**2,450**	**n/a**
Crude steel production									
China	21	37	66	129	639	871	928	995	1,065
India	6	10	15	27	69	101	109	111	100
Japan	89	111	110	106	110	105	104	99	83
United States	109	101	90	102	80	82	87	88	73
Russia	n/a	n/a	n/a	59	67	71	72	72	72
Korea, Rep.	0	9	23	43	59	71	72	71	67
Turkey	1	3	9	14	29	38	37	34	36
Germany	40	44	38	46	44	43	42	40	36
Brazil	6	15	21	28	33	35	35	33	31
Iran	n/a	1	1	7	12	21	25	26	29
Taiwan, China	0	3	10	17	20	22	23	22	21
Ukraine	n/a	n/a	n/a	32	33	21	21	21	21
Italy	17	27	25	27	26	24	24	23	20
Vietnam	n/a	n/a	n/a	0	4	11	15	18	20
Mexico	4	7	9	16	17	20	20	18	17
France	23	23	19	21	15	16	15	14	12
Spain	8	13	13	16	16	14	14	14	11
Others	*n/a*	*n/a*	*n/a*	*160*	*160*	*169*	*179*	*176*	*165*
World	**583**	**716**	**770**	**849**	**1,433**	**1,736**	**1,825**	**1,874**	**1,878**

Sources: U.S. Geological Survey, World Steel Association.
Note: n/a implies data not available. Crude steel production includes all qualities: carbon, stainless, and other alloy.

Lead

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.



Source: World Bank.
Note: 2021-35 are forecasts.

	1970	1980	1990	2000	2010	2017	2018	2019	2020
				(thousand metric tons)					
Mine Production									
China	100	160	364	660	1,981	1,852	1,892	2,751	3,241
Australia	457	398	570	678	711	395	446	510	494
United States	519	562	493	447	356	313	280	274	307
Mexico	177	146	174	138	192	241	235	259	244
Peru	157	189	188	271	262	307	289	308	242
India	2	15	26	38	89	176	185	201	207
Russia	n/a	n/a	n/a	13	97	210	220	220	200
Turkey	6	8	18	16	39	75	76	72	75
Tajikistan	n/a	n/a	n/a	2	4	69	53	66	66
Sweden	78	72	84	107	68	71	65	69	65
Bolivia	n/a	16	20	10	73	111	112	88	65
Iran	n/a	12	9	17	32	48	44	50	52
Uzbekistan	n/a	n/a	n/a	0	0	40	50	50	50
Others	*n/a*	*n/a*	*n/a*	*685*	*463*	*529*	*522*	*561*	*450*
World	**3,350**	**3,548**	**3,143**	**3,080**	**4,367**	**4,437**	**4,470**	**5,478**	**5,758**
Refined Production									
China	100	175	297	1,100	4,157	4,726	4,943	5,797	6,443
United States	605	1,150	1,290	1,431	1,255	1,127	1,136	1,170	1,150
India	2	26	39	57	366	563	595	645	814
Korea, Rep.	n/a	15	63	222	321	807	801	813	704
Mexico	180	184	235	332	270	423	433	447	411
United Kingdom	44	325	329	328	301	309	303	300	361
Germany	138	392	394	387	405	356	313	332	320
Japan	175	305	327	312	267	239	238	237	238
Brazil	19	85	57	86	115	180	195	195	195
Russia	n/a	n/a	n/a	50	96	206	201	190	192
Canada	186	235	184	284	273	274	250	250	190
Spain	69	121	124	120	163	168	190	192	175
Poland	n/a	82	65	69	120	157	159	159	164
Others	*1,902*	*2,351*	*2,115*	*1,929*	*1,710*	*1,721*	*1,800*	*1,196*	*1,351*
World	**3,419**	**5,446**	**5,518**	**6,707**	**9,820**	**11,257**	**11,557**	**11,923**	**12,706**
Refined Consumption									
China	n/a	210	244	660	4,171	4,805	5,065	5,915	6,475
United States	n/a	1,094	1,275	1,660	1,430	2,110	2,020	1,637	1,520
India	n/a	33	147	56	420	551	569	610	799
Korea, Rep.	n/a	54	80	309	382	624	615	623	536
Germany	n/a	433	448	390	343	413	389	390	371
Mexico	n/a	85	132	288	201	313	318	330	315
Spain	n/a	111	115	219	262	263	273	294	280
Japan	n/a	393	416	343	224	287	271	252	272
Brazil	n/a	83	75	155	201	251	248	242	231
Others	*n/a*	*2,853*	*2,416*	*2,411*	*2,156*	*2,660*	*2,674*	*2,648*	*2,618*
World	**n/a**	**5,348**	**5,348**	**6,491**	**9,790**	**12,278**	**12,443**	**12,942**	**13,418**

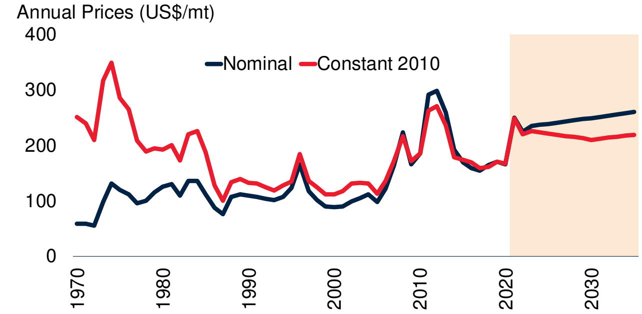
Sources: British Geological Survey, Metallgesellschaft, U.S. Geological Survey, World Bureau of Metals Statistics, World Bank.
Note: n/a implies data not available. Refined production and consumption include significant recycled material.

Maize

Monthly Prices (US$/mt)

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/mt)



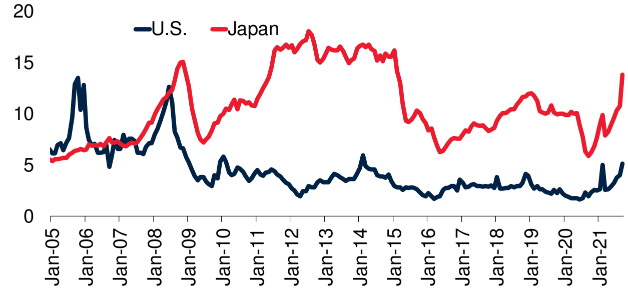
Source: World Bank.
Note: 2021-35 are forecasts.

	1970/1971	1980/1981	1990/1991	2000/2001	2010/2011	2018/2019	2019/2020	2020/2021	2021/2022
				(million metric tons)					
Production									
United States	105.5	168.6	201.5	251.9	315.6	364.3	346.0	358.4	381.5
China	33.0	62.6	96.8	106.0	190.8	257.2	260.8	260.7	273.0
Brazil	14.1	22.6	24.3	41.5	57.4	101.0	102.0	86.0	118.0
European Union	16.4	21.6	23.4	51.8	58.6	64.4	66.7	64.4	66.3
Argentina	9.9	12.9	7.7	15.4	25.2	51.0	51.0	50.0	53.0
Ukraine	n/a	n/a	4.7	3.8	11.9	35.8	35.9	30.3	38.0
India	7.5	7.0	9.0	12.0	21.7	27.7	28.8	31.5	30.0
Mexico	8.9	10.4	14.1	17.9	21.1	27.7	26.7	27.4	28.0
South Africa	8.6	14.9	8.6	8.0	10.9	11.8	15.8	16.9	17.0
Russia	n/a	n/a	2.5	1.5	3.1	11.4	14.3	13.9	15.0
Canada	2.6	5.8	7.1	7.0	12.0	13.9	13.4	13.6	14.0
Indonesia	2.8	4.0	5.0	5.9	6.8	12.0	12.0	11.8	12.0
Nigeria	1.3	1.7	5.8	4.0	7.7	11.0	11.0	10.0	11.0
Others	*57.4*	*76.7*	*71.2*	*64.7*	*106.7*	*138.0*	*134.3*	*140.7*	*141.4*
World	**268.1**	**408.7**	**481.8**	**591.5**	**849.5**	**1127.1**	**1118.6**	**1115.5**	**1198.2**
Stocks									
China	8.9	42.8	82.8	102.4	43.2	210.2	200.5	204.2	209.2
United States	16.8	35.4	38.6	48.2	28.6	56.4	48.8	31.4	38.1
Brazil	2.2	4.3	1.4	2.7	6.3	5.3	5.2	4.7	8.4
European Union	2.2	4.3	1.4	3.2	5.2	7.6	7.6	6.9	7.3
South Africa	1.6	4.6	1.0	0.5	1.0	1.0	2.1	2.8	3.3
Others	*4.3*	*11.3*	*16.1*	*18.1*	*30.9*	*42.0*	*41.9*	*39.9*	*35.4*
World	**36.1**	**102.5**	**141.4**	**175.1**	**115.3**	**322.6**	**306.1**	**290.0**	**301.7**
Exports									
United States	12.9	60.7	43.9	49.3	46.5	52.5	45.1	69.9	63.5
Brazil	0.9	0.0	n/a	6.3	8.4	39.7	35.2	20.0	43.0
Argentina	6.4	9.1	4.0	9.7	16.3	37.2	36.3	37.5	38.0
Ukraine	n/a	n/a	0.4	0.4	5.0	30.3	28.9	23.8	31.5
Russia	n/a	n/a	0.4	0.0	0.0	2.8	4.1	3.9	4.5
European Union	4.9	0.1	0.2	0.5	1.1	4.3	5.4	3.4	4.1
South Africa	2.6	5.0	0.9	1.3	2.4	1.4	2.5	3.2	3.2
Others	*n/a*	*n/a*	*8.7*	*9.3*	*11.7*	*14.4*	*14.9*	*16.3*	*14.1*
World	**32.2**	**80.3**	**58.4**	**76.7**	**91.6**	**182.6**	**172.4**	**178.0**	**201.9**
Imports									
China	n/a	0.8	n/a	0.1	1.0	4.5	7.6	28.0	26.0
Mexico	0.1	3.8	1.9	6.0	8.3	16.7	16.5	16.5	17.0
Japan	5.2	14.0	16.3	16.3	15.6	16.1	15.9	15.4	15.6
European Union	18.0	20.5	3.1	3.7	7.4	23.6	17.4	14.2	15.0
Korea, Rep.	0.3	2.4	5.6	8.7	8.1	10.9	11.9	11.5	11.5
Egypt	0.1	1.0	1.9	5.3	5.8	9.4	10.4	9.6	10.0
Vietnam	0.1	0.1	n/a	0.1	1.3	10.1	10.6	13.5	10.0
Others	*4.6*	*31.7*	*29.6*	*34.8*	*46.0*	*75.5*	*77.3*	*77.7*	*78.7*
World	**28.4**	**74.3**	**58.5**	**75.0**	**93.4**	**166.6**	**167.6**	**186.4**	**183.8**

Source: U.S. Department of Agriculture (October 12, 2021 update).
Note: The trade year is January-December of the later year of the split. For example, 1970/71 refers to calendar year 1971. European Union includes EU-15 for 1970-1991.

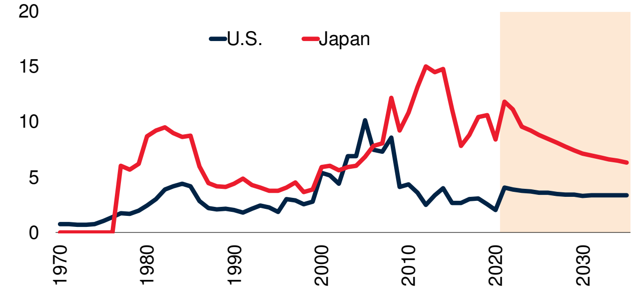
Natural gas

Monthly Prices (US$/mmbtu)



Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Constant Prices (US$/mmbtu)



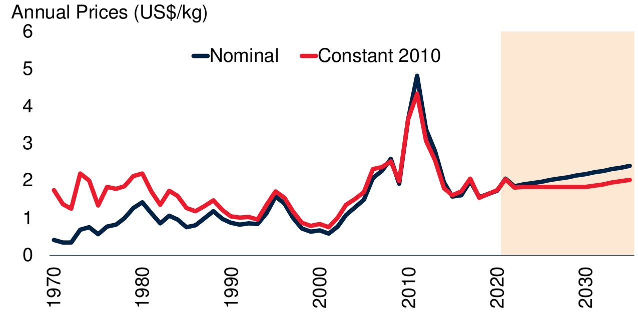
Source: World Bank.
Note: 2021-35 are forecasts.

	1970	1980	1990	2000	2010	2017	2018	2019	2020
				(billion cubic meters)					
Production									
United States	571	525	483	519	575	746	841	930	915
Russia	n/a	n/a	600	537	598	636	669	679	638
Iran	3	5	25	56	144	214	232	241	251
China	3	14	15	27	97	149	161	178	194
Qatar	1	5	7	26	123	170	169	172	171
Canada	54	71	103	176	150	174	177	169	165
Australia	2	11	21	31	53	110	126	143	143
Saudi Arabia	2	9	32	47	83	109	112	111	112
Norway	0	25	25	49	106	124	121	114	111
Algeria	2	15	52	92	77	93	94	87	81
Malaysia	0	3	18	50	65	78	77	79	73
Indonesia	1	19	45	71	87	73	73	68	63
Turkmenistan	n/a	n/a	79	42	40	59	62	63	59
Egypt	0	2	8	20	59	49	59	65	58
United Arab Emirates	1	7	20	37	50	59	58	58	55
Nigeria	0	2	4	11	31	47	48	49	49
Uzbekistan	n/a	n/a	37	51	57	53	57	57	47
United Kingdom	11	36	48	113	58	42	41	40	39
Argentina	6	8	17	36	39	37	39	42	38
Oman	0	1	2	10	26	32	36	37	37
Thailand	0	0	7	21	34	36	35	36	33
Kazakhstan	n/a	n/a	5	8	28	34	34	34	32
Pakistan	3	6	10	18	35	35	34	33	31
Others	*n/a*	*n/a*	*308*	*350*	*536*	*516*	*497*	*492*	*456*
World	**976**	**1,428**	**1,970**	**2,401**	**3,151**	**3,676**	**3,853**	**3,976**	**3,854**
Consumption									
United States	575	534	517	628	648	740	822	849	832
Russia	n/a	n/a	414	366	424	431	454	444	411
China	3	14	15	25	109	241	284	308	331
Iran	3	5	23	59	144	205	220	223	233
Canada	35	50	64	89	92	110	116	118	113
Saudi Arabia	2	9	32	47	83	109	112	111	112
Japan	4	25	50	76	100	117	116	108	104
Germany	16	61	64	83	88	88	86	89	87
Mexico	10	22	27	36	66	86	88	88	86
United Kingdom	12	47	55	101	98	79	80	77	72
United Arab Emirates	1	5	16	31	59	72	71	71	70
Italy	12	26	45	68	79	72	69	71	68
India	1	1	12	25	59	54	58	59	60
Egypt	0	2	8	19	43	56	60	59	58
Korea, Rep.	0	0	3	20	45	50	58	56	57
Others	*n/a*	*n/a*	*603*	*725*	*1,021*	*1,144*	*1,145*	*1,171*	*1,130*
World	**961**	**1,424**	**1,948**	**2,400**	**3,160**	**3,654**	**3,838**	**3,904**	**3,823**

Source: BP Statistical Review (June 2021 update).
Note: n/a implies data not available.

Natural rubber

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.



Source: World Bank.
Note: 2021-35 are forecasts.

	1970	1980	1990	2000	2010	2017	2018	2019	2020
				(thousand metric tons)					
Production									
Thailand	287	501	1,275	2,346	10,403	4,775	5,145	4,900	4,506
Indonesia	815	822	1,261	1,501	3,252	3,499	3,486	3,100	2,800
Vietnam	28	46	94	291	2,736	1,094	1,142	1,222	1,248
Cote d'Ivoire	11	23	69	123	752	604	624	808	950
China	46	113	264	445	231	798	811	774	688
India	90	155	324	629	687	713	660	702	685
Malaysia	1,269	1,530	1,291	928	851	741	603	640	514
Cambodia	n/a	n/a	n/a	n/a	939	193	220	288	349
Myanmar	10	16	15	36	42	242	280	289	260
Others	*254*	*29*	*176*	*82*	*-9,490*	*882*	*934*	*979*	*1,008*
World	**2,810**	**3,235**	**4,769**	**6,380**	**10,403**	**13,540**	**13,905**	**13,701**	**13,008**
Consumption									
China	250	340	600	1,150	3,622	5,301	5,504	5,497	5,440
India	86	171	358	638	944	1,082	1,220	1,144	1,040
European Union	991	1,007	1,012	1,293	1,136	1,236	1,231	1,191	1,039
United States	568	585	808	1,195	926	958	987	1,003	806
Thailand	8	28	99	243	487	685	752	800	764
Japan	283	427	677	752	749	679	706	714	581
Indonesia	25	46	108	139	421	608	618	625	573
Malaysia	20	45	184	364	458	489	515	501	517
Brazil	37	81	124	227	378	395	398	402	345
Others	*822*	*1,050*	*1,099*	*1,307*	*1,638*	*1,784*	*1,838*	*1,763*	*1,691*
World	**3,090**	**3,780**	**5,068**	**7,306**	**10,759**	**13,217**	**13,769**	**13,640**	**12,795**
Exports									
Thailand	279	457	1,151	2,166	2,866	4,427	4,492	3,962	3,768
Indonesia	790	976	1,077	1,380	2,369	3,249	2,961	2,579	2,449
Vietnam	23	33	80	273	782	1,380	1,500	1,698	1,766
Malaysia	1,304	1,482	1,322	978	1,245	1,189	1,096	1,023	1,058
Cote d'Ivoire	11	23	69	121	226	591	622	767	920
Cambodia	7	15	24	33	43	189	218	282	338
Myanmar	n/a	n/a	n/a	n/a	67	147	162	200	194
Others	*406*	*284*	*239*	*326*	*448*	*988*	*1,027*	*1,100*	*1,100*
World	**2,820**	**3,270**	**3,962**	**5,277**	**8,047**	**12,160**	**12,078**	**11,612**	**11,593**
Imports									
China	178	242	340	820	2,888	5,277	5,211	4,746	5,438
European Union	1,071	1,068	1,072	1,474	1,426	1,571	1,598	1,557	1,297
Malaysia	45	43	136	548	706	1,096	1,014	1,083	1,222
United States	543	576	820	1,192	931	972	997	1,010	804
Vietnam	n/a	n/a	n/a	n/a	127	526	583	674	644
Japan	292	458	663	801	747	699	694	731	558
India	3	1	61	11	187	398	586	486	378
Others	*678*	*847*	*1,677*	*1,534*	*1,667*	*1,706*	*1,745*	*1,684*	*1,561*
World	**2,810**	**3,235**	**4,769**	**6,380**	**8,680**	**12,246**	**12,428**	**11,970**	**11,902**

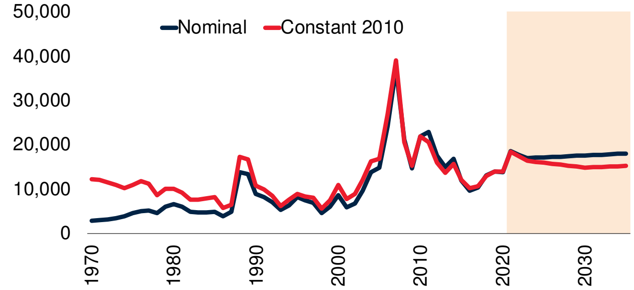
Source: Rubber Statistical Bulletin, International Rubber Study Group (July-September 2021 update).
Note: n/a implies data not available.

Nickel

Monthly Prices (US$/mt)

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/mt)

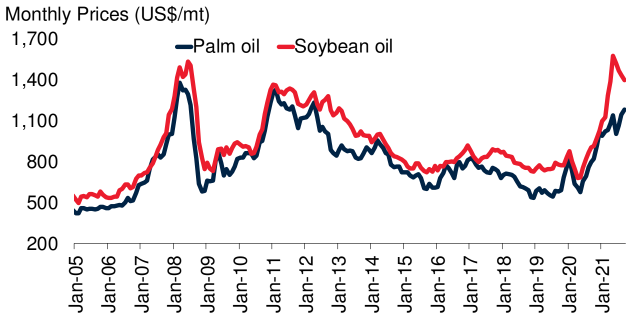


Source: World Bank.
Note: 2021-35 are forecasts.

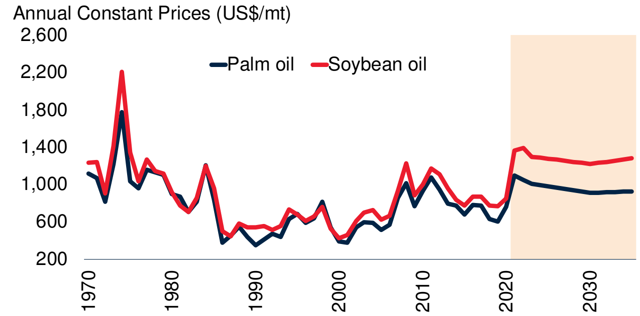
	1970	1980	1990	2000	2010	2017	2018	2019	2020
				(thousand metric tons)					
Mine Production									
Indonesia	11	41	69	117	216	357	651	916	781
Philippines	0	47	16	17	184	379	390	341	337
Russia	n/a	n/a	n/a	266	274	215	218	226	233
New Caledonia	139	87	85	129	130	215	216	208	199
Australia	30	74	70	170	168	185	160	159	170
Canada	277	185	196	191	160	214	186	193	158
China	n/a	11	27	51	80	102	108	105	105
Brazil	3	6	24	32	54	69	65	56	77
Cuba	37	38	39	71	65	49	49	52	50
Guatemala	n/a	7	0	0	0	56	39	32	50
Finland	5	7	11	3	12	36	44	39	41
Colombia	n/a	0	23	28	49	41	43	41	36
South Africa	12	26	28	37	40	48	43	43	35
Others	*n/a*	*n/a*	*n/a*	*79*	*84*	*194*	*189*	*189*	*185*
World	**663**	**758**	**906**	**1,191**	**1,518**	**2,162**	**2,402**	**2,599**	**2,457**
Refined Production									
China	n/a	11	28	52	314	621	733	852	728
Indonesia	n/a	4	5	10	19	187	280	360	630
Japan	n/a	109	100	161	166	187	187	183	171
Russia	n/a	n/a	n/a	242	263	157	150	154	154
Canada	n/a	142	135	134	105	155	137	125	124
Australia	n/a	35	45	112	102	109	115	106	123
Norway	n/a	37	58	59	92	87	91	92	91
New Caledonia	n/a	33	32	44	40	104	108	88	72
Finland	n/a	13	17	54	49	60	61	62	63
Brazil	n/a	3	13	23	28	69	65	54	60
Korea, Rep.	n/a	n/a	8	0	23	47	46	44	41
Colombia	n/a	0	18	28	49	41	43	41	36
United Kingdom	n/a	19	27	38	32	37	38	35	32
Others	*n/a*	*n/a*	*n/a*	*154*	*155*	*196*	*191*	*207*	*180*
World	**n/a**	**739**	**904**	**1,110**	**1,437**	**2,056**	**2,244**	**2,403**	**2,507**
Refined Consumption									
China	n/a	18	28	58	489	982	1,096	1,304	1,392
Indonesia	n/a	n/a	n/a	1	1	61	176	181	223
Japan	99	122	159	192	177	163	175	155	149
United States	149	143	127	153	119	144	136	106	98
Korea, Rep.	n/a	n/a	24	91	101	104	114	113	79
India	2	12	14	23	27	82	72	58	64
Germany	40	78	93	102	100	64	61	57	49
Taiwan, China	n/a	n/a	18	106	73	84	88	84	40
Italy	20	27	27	53	62	60	58	45	39
Others	*266*	*317*	*351*	*373*	*276*	*350*	*365*	*327*	*280*
World	**576**	**717**	**842**	**1,150**	**1,426**	**2,095**	**2,342**	**2,431**	**2,414**

Sources: British Geological Survey, Metallgesellschaft, U.S. Geological Survey, World Bureau of Metals Statistics, World Bank.
Note: n/a implies data not available.

Palm oil and Soybean oil



Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.



Source: World Bank.
Note: 2021-35 are forecasts.

	1970/1971	1980/1981	1990/1991	2000/2001	2010/2011	2018/2019	2019/2020	2020/2021	2021/2022
					(thousand metric tons)				
Palm oil Production									
Indonesia	248	752	2,650	8,300	23,600	41,500	42,500	43,500	44,500
Malaysia	589	2,692	6,031	11,937	18,211	20,800	19,255	17,800	19,700
Thailand	n/a	19	200	580	1,832	3,034	2,652	2,800	3,120
Colombia	36	80	252	520	753	1,631	1,529	1,559	1,650
Nigeria	432	520	600	730	971	1,130	1,140	1,275	1,400
Guatemala	n/a	n/a	6	124	231	862	862	865	880
Honduras	n/a	18	64	148	320	580	580	450	600
Papua New Guinea	n/a	45	145	336	488	705	555	561	565
Brazil	5	17	70	110	270	525	540	545	550
Others	*612*	*753*	*1,016*	*1,464*	*2,502*	*3,402*	*3,360*	*3,508*	*3,554*
World	**1,922**	**4,896**	**11,034**	**24,249**	**49,178**	**74,169**	**72,973**	**72,863**	**76,519**
Palm oil Consumption									
Indonesia	29	561	1,330	3,263	6,234	13,485	14,545	15,275	15,445
India	1	431	259	3,160	5,910	9,085	8,367	8,691	8,500
China	53	16	1,194	2,028	5,797	7,012	6,433	6,790	7,170
European Union	n/a	n/a	n/a	2,790	4,750	6,550	6,710	6,755	6,865
Pakistan	1	231	800	1,245	2,093	3,245	3,290	3,255	3,485
Malaysia	8	420	914	1,571	2,204	3,522	3,543	3,370	3,370
Thailand	n/a	43	208	508	1,304	2,594	2,600	2,547	2,527
Others	*n/a*	*n/a*	*n/a*	*7,946*	*17,504*	*26,122*	*26,692*	*26,870*	*28,137*
World	**1,799**	**4,763**	**11,155**	**22,511**	**45,796**	**71,615**	**72,180**	**73,553**	**75,499**
Soybean oil production									
China	181	183	599	3,240	9,856	15,232	16,397	16,845	17,562
United States	3,749	5,112	6,082	8,355	8,568	10,976	11,299	11,331	11,582
Brazil	n/a	2,601	2,669	4,333	6,970	8,180	9,000	9,000	9,180
Argentina	n/a	158	1,179	3,190	7,181	8,044	7,700	7,866	8,350
European Union	n/a	n/a	n/a	3,033	2,343	2,850	2,964	3,061	3,023
India	2	69	425	810	1,683	1,728	1,512	1,692	1,750
Mexico	52	255	330	795	648	1,100	1,110	1,145	1,181
Russia	n/a	n/a	75	62	367	834	834	823	861
Egypt	n/a	15	22	47	294	637	855	774	852
Others	*n/a*	*n/a*	*n/a*	*2,953*	*3,564*	*6,428*	*6,872*	*6,906*	*7,352*
World	**6,199**	**12,575**	**15,765**	**26,818**	**41,474**	**56,009**	**58,543**	**59,443**	**61,693**
Soybean oil consumption									
China	179	256	1,055	3,542	11,400	15,885	17,093	17,970	18,560
United States	2,854	4,134	5,506	7,401	7,506	10,376	10,122	10,591	11,340
Brazil	n/a	1,490	2,075	2,932	5,205	7,165	7,765	7,960	7,985
India	79	708	445	1,750	2,550	4,750	5,112	5,277	5,350
European Union	n/a	n/a	n/a	2,186	2,400	2,205	2,430	2,505	2,605
Argentina	n/a	56	101	247	2,520	2,624	2,175	2,042	2,100
Mexico	52	305	404	863	840	1,230	1,265	1,300	1,340
Others	*n/a*	*n/a*	*n/a*	*7,222*	*8,011*	*10,961*	*11,265*	*11,883*	*11,985*
World	**5,958**	**12,417**	**15,441**	**26,143**	**40,432**	**55,196**	**57,227**	**59,528**	**61,265**

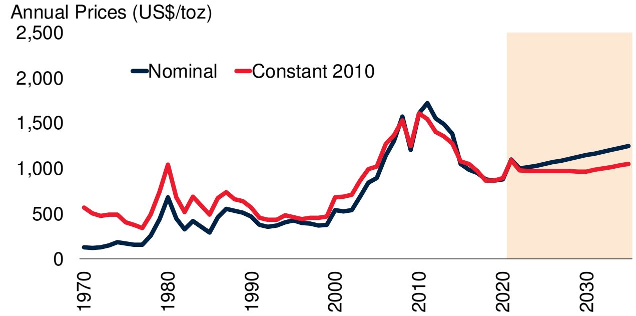
Source: U.S. Department of Agriculture (October 12, 2021 update).
Note: The trade year is January-December of the later year of the split. For example, 1970/71 refers to calendar year 1971. European Union includes EU-15 for 1970-1991.

Platinum

Monthly Prices (US$/toz)

Source: See World Bank Commodities Price Data.
Note: Last observation is March 2021.

Annual Prices (US$/toz)



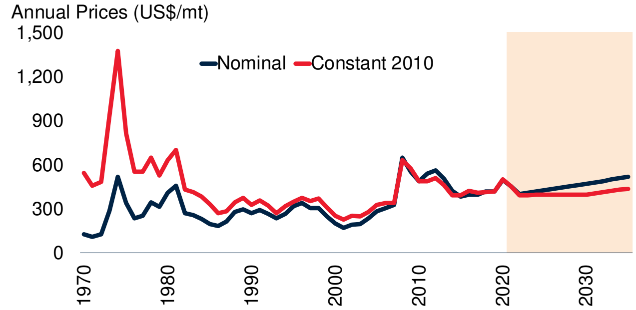
Source: World Bank.
Note: 2021-35 are forecasts.

	2003	2005	2008	2010 (metric tons)	2017	2018	2019	2020
Mine Production								
South Africa	148.3	163.7	146.1	147.8	131.2	137.1	133.0	120.0
Russia	28.0	29.0	25.0	25.0	22.0	22.0	24.0	21.0
Zimbabwe	4.3	4.8	5.6	8.8	14.3	14.7	13.5	14.0
Canada	7.0	6.1	8.5	3.6	7.6	7.9	7.8	7.8
United States	4.2	3.9	3.6	3.5	4.0	4.2	4.2	4.0
Others	*3.2*	*3.5*	*4.1*	*3.4*	*4.9*	*4.2*	*3.5*	*3.2*
World	**195.0**	**211.0**	**193.0**	**192.0**	**184.0**	**190.0**	**186.0**	**170.0**
Autocatalyst scrap								
Europe	3.9	5.4	9.2	9.3	13.4	13.9	15.7	n/a
North America	15.1	15.6	17.3	14.0	14.3	15.0	15.2	n/a
Japan	2.1	1.7	2.1	2.6	3.9	4.0	4.3	n/a
China	n/a	0.1	0.2	0.4	2.0	2.3	2.6	n/a
Others	*1.8*	*2.3*	*2.5*	*2.5*	*5.7*	*6.1*	*6.7*	*n/a*
World	**22.9**	**25.1**	**31.3**	**28.8**	**39.3**	**41.3**	**44.5**	**n/a**
Old jewelry scrap								
China	0.9	5.1	10.4	11.7	14.3	17.2	18.2	n/a
Japan	4.0	6.0	18.0	8.7	5.7	5.5	5.7	n/a
North America	0.1	0.2	1.3	0.4	0.2	0.2	0.2	n/a
Europe	0.1	0.1	0.4	0.3	0.2	0.2	0.2	n/a
Others	*0.1*	*0.1*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*n/a*
World	**5.2**	**11.5**	**30.1**	**21.2**	**20.5**	**23.2**	**24.4**	**n/a**
TOTAL SUPPLY	**215.5**	**242.6**	**252.9**	**242.3**	**245.4**	**249.9**	**250.0**	**n/a**
Autocatalyst demand								
Europe	41.3	56.1	56.9	44.5	43.8	40.2	38.4	n/a
North America	26.8	23.3	17.5	12.5	13.8	14.3	15.6	n/a
Japan	16.6	18.1	17.0	13.5	10.1	10.0	9.8	n/a
China	4.7	5.5	5.7	6.7	9.1	9.2	9.6	n/a
Others	*8.0*	*12.5*	*14.1*	*17.0*	*22.3*	*24.5*	*26.4*	*n/a*
World	**97.4**	**115.5**	**111.2**	**94.2**	**99.1**	**98.2**	**99.8**	**n/a**
Jewelry demand								
China	46.1	35.0	34.5	47.6	40.2	35.8	33.8	n/a
Japan	21.3	20.5	7.7	8.1	9.8	10.0	9.9	n/a
North America	9.9	8.1	6.4	6.6	7.6	7.6	7.7	n/a
Europe	8.5	7.9	7.4	6.8	6.2	6.3	6.4	n/a
Others	*2.4*	*1.2*	*1.4*	*2.1*	*5.7*	*6.4*	*6.9*	*n/a*
World	**88.2**	**72.7**	**57.4**	**71.2**	**69.5**	**66.1**	**64.7**	**n/a**
Other demand								
China	n/a	4.7	9.1	10.1	15.3	23.0	18.2	n/a
North America	15.8	15.8	14.2	11.5	17.0	15.9	16.2	n/a
Europe	11.1	9.5	9.8	9.8	11.6	11.1	11.1	n/a
Japan	9.9	13.2	17.9	10.4	10.0	11.5	11.0	n/a
Others	*14.0*	*14.0*	*18.7*	*21.3*	*17.7*	*19.2*	*21.5*	*n/a*
World	**50.8**	**57.2**	**69.7**	**63.1**	**71.6**	**80.7**	**78.0**	**n/a**
TOTAL DEMAND	**236.4**	**245.4**	**238.3**	**228.5**	**240.2**	**245.0**	**242.6**	**n/a**

Sources: GFMS Platinum Group Metals Survey 2019, Thomson Reuters, U.S. Geological Survey.
Note: Other demand includes chemical, electronics, glass, petroleum, retail investment, and other industrial demand.

Rice

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.



Source: World Bank.
Note: 2021-35 are forecasts.

	1970/1971	1980/1981	1990/1991	2000/2001	2010/2011	2018/2019	2019/2020	2020/2021	2021/2022
					(million metric tons)				
Production									
China	77.0	97.9	132.5	131.5	138.1	148.5	146.7	148.3	149.0
India	42.2	53.6	74.3	85.0	96.0	116.5	118.9	122.3	125.0
Bangladesh	11.1	13.9	17.9	25.1	31.7	34.9	35.9	34.6	36.3
Indonesia	13.1	22.3	29.0	33.0	35.5	34.2	34.7	35.3	35.4
Vietnam	6.4	7.7	12.4	20.5	26.4	27.3	27.1	27.4	27.1
Thailand	9.0	11.5	11.3	17.1	20.3	20.3	17.7	18.9	19.5
Myanmar	5.1	6.7	7.9	10.8	11.1	13.2	12.7	12.6	12.6
Philippines	3.4	5.0	6.4	8.1	10.5	11.7	11.9	12.4	12.3
Pakistan	2.2	3.1	3.3	4.8	4.8	7.2	7.4	8.2	8.2
Brazil	3.7	5.9	6.8	6.9	9.3	7.1	7.6	8.0	8.0
Japan	11.5	8.9	9.6	8.6	7.9	7.7	7.6	7.6	7.6
United States	2.8	4.8	5.1	5.9	7.6	7.1	5.9	7.2	6.1
Cambodia	2.5	1.1	1.6	2.5	4.4	5.7	5.7	5.8	5.9
Others	*22.9*	*27.6*	*33.3*	*39.3*	*48.1*	*55.7*	*58.6*	*57.9*	*57.9*
World	**213.0**	**269.9**	**351.4**	**399.2**	**451.6**	**497.2**	**498.3**	**506.4**	**510.7**
Stocks									
China	11.0	28.0	94.0	93.0	44.5	115.0	116.5	116.5	112.0
India	6.0	6.5	14.5	25.0	23.5	29.5	33.9	33.5	35.0
Thailand	1.2	2.0	0.9	2.2	5.6	4.1	4.0	4.7	4.9
Indonesia	0.6	3.0	2.1	4.6	7.1	4.1	3.3	3.4	3.8
Philippines	0.6	1.5	1.8	2.8	2.5	3.5	3.6	3.8	3.7
Others	*9.4*	*11.6*	*13.3*	*19.0*	*18.7*	*20.4*	*20.5*	*23.3*	*24.2*
World	**28.8**	**52.6**	**126.6**	**146.7**	**101.9**	**176.6**	**181.8**	**185.2**	**183.6**
Exports									
India	0.0	0.9	0.7	1.7	2.8	10.4	12.5	20.0	18.5
Thailand	1.6	3.0	4.0	7.5	10.6	7.6	5.7	5.6	6.5
Vietnam	0.0	0.0	1.0	3.5	7.0	6.6	6.2	6.2	6.4
Pakistan	0.2	1.2	1.3	2.4	3.4	4.5	3.8	3.9	4.0
United States	1.5	3.1	2.3	2.6	3.5	3.0	3.0	3.0	2.9
China	1.3	0.5	0.7	1.8	0.5	2.8	2.6	2.2	2.4
Myanmar	0.8	0.7	0.2	0.7	1.1	2.7	2.3	1.7	2.0
Others	*3.1*	*3.0*	*1.9*	*3.7*	*6.3*	*6.7*	*7.3*	*6.5*	*7.0*
World	**8.5**	**12.4**	**12.1**	**24.0**	**35.2**	**44.1**	**43.4**	**49.1**	**49.7**
Imports									
China	0.0	0.2	0.1	0.3	0.5	3.2	2.6	4.5	4.0
Philippines	0.7	0.3	0.5	1.4	1.3	3.6	2.5	2.2	2.2
European Union	0.7	0.3	0.5	1.2	1.4	1.8	2.0	1.8	2.0
Nigeria	0.0	0.4	0.2	1.3	2.4	1.9	1.4	1.9	2.0
Saudi Arabia	0.2	0.4	0.5	1.0	1.1	1.4	1.6	1.5	1.4
Iran	0.1	0.6	0.6	0.8	2.0	1.3	1.2	0.9	1.3
Nepal	0.0	0.0	0.0	0.0	0.0	0.6	0.8	1.2	1.3
Others	*6.2*	*9.1*	*8.1*	*16.2*	*24.4*	*30.3*	*30.2*	*32.5*	*32.6*
World	**7.7**	**11.3**	**10.6**	**22.1**	**33.0**	**44.1**	**42.3**	**46.4**	**46.8**

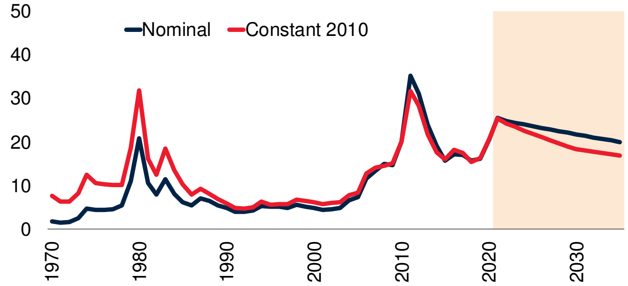
Source: U.S. Department of Agriculture (October 12, 2021 update).
Note: The trade year is January-December of the later year of the split. For example, 1970/71 refers to calendar year 1971. European Union includes EU-15 for 1970-1991.

Silver

Monthly Prices (US$/toz)

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/toz)



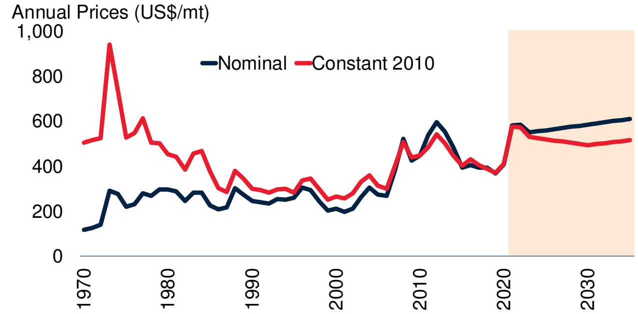
Source: World Bank.
Note: 2021-35 are forecasts.

	1990	2000	2005	2010	2016 (metric tons)	2017	2018	2019	2020
Production									
Mexico	2,453	2,483	2,894	4,411	5,409	5,394	6,049	5,840	5,541
China	896	1,600	2,500	3,085	3,754	3,602	3,421	3,443	3,443
Peru	1,927	2,418	3,193	3,640	4,376	4,418	4,161	3,860	2,772
Chile	655	1,245	1,400	1,276	1,501	1,319	1,370	1,309	1,576
Poland	832	1,164	1,262	1,183	1,482	1,438	1,409	1,469	1,438
Australia	1,173	2,060	2,417	1,879	1,418	1,120	1,255	1,325	1,337
Russia	n/a	400	1,350	1,145	1,449	1,306	1,341	1,319	1,320
Kazakhstan	n/a	927	883	552	1,180	1,029	969	1,022	1,035
United States	2,125	2,017	1,230	1,280	1,150	1,026	925	971	986
Bolivia	358	434	420	1,259	1,353	1,196	1,191	1,153	930
India	35	40	32	165	445	527	658	582	633
Argentina	83	78	264	723	933	648	1,024	1,000	571
Indonesia	66	310	327	335	185	328	335	485	512
Sweden	224	329	310	302	515	488	471	424	401
Uzbekistan	n/a	150	60	59	230	232	224	260	260
Turkey	28	110	80	364	175	151	197	242	244
Canada	1,381	1,204	1,124	591	385	393	404	350	217
Morocco	185	290	186	243	237	237	152	189	192
Papua New Guinea	107	73	51	84	100	66	93	147	147
Others	*n/a*	*861*	*715*	*873*	*1,813*	*1,332*	*1,059*	*1,051*	*928*
World	**16,315**	**18,194**	**20,697**	**23,450**	**28,091**	**26,251**	**26,708**	**26,440**	**24,483**
Fabrication									
India	842	2,115	1,170	1,233	2,945	3,246	3,679	n/a	n/a
China	4	283	702	1,681	951	902	859	n/a	n/a
Thailand	750	957	1,145	954	974	882	844	n/a	n/a
Italy	1,290	1,700	1,195	802	612	639	608	n/a	n/a
United States	305	416	487	400	458	530	565	n/a	n/a
Indonesia	33	116	140	168	210	216	225	n/a	n/a
Turkey	128	186	258	153	177	177	193	n/a	n/a
Russia	n/a	n/a	n/a	291	183	177	178	n/a	n/a
Mexico	250	410	511	344	220	183	169	n/a	n/a
Germany	411	284	213	169	123	120	117	n/a	n/a
Korea, Rep.	140	152	147	167	126	116	106	n/a	n/a
Brazil	56	36	50	60	62	67	73	n/a	n/a
Japan	118	54	64	69	69	71	70	n/a	n/a
Vietnam	9	22	32	42	55	59	63	n/a	n/a
France	55	88	55	64	52	51	49	n/a	n/a
Bangladesh	n/a	n/a	n/a	43	35	43	45	n/a	n/a
Dominican Republic	n/a	n/a	n/a	42	44	43	42	n/a	n/a
Israel	52	59	58	42	37	40	38	n/a	n/a
Iran	n/a	n/a	n/a	43	34	34	32	n/a	n/a
Others	*n/a*	*n/a*	*n/a*	*755*	*567*	*559*	*556*	*n/a*	*n/a*
World	**5,871**	**8,280**	**7,478**	**7,522**	**7,934**	**8,155**	**8,511**	**n/a**	**n/a**

Sources: British Geological Survey, GFMS Silver Survey 2019, Thomson Reuters, U.S. Geological Survey, World Bureau of Metals Statistics, World Bank.
Note: n/a implies data not available. Fabrication: jewelry and silverware including the use of scrap.

Soybeans

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.



Source: World Bank.
Note: 2021-35 are forecasts.

	1970/1971	1980/1981	1990/1991	2000/2001	2010/2011	2018/2019	2019/2020	2020/2021	2021/2022
					(million metric tons)				
Production									
Brazil	n/a	15.2	15.8	39.5	75.3	119.7	128.5	137.0	144.0
United States	30.7	48.9	52.4	75.1	90.7	120.5	96.7	114.7	121.1
Argentina	n/a	3.5	11.5	27.8	49.0	55.3	48.8	46.2	51.0
China	8.7	7.9	11.0	15.4	15.4	16.0	18.1	19.6	19.0
India	0.0	0.4	2.6	5.3	10.1	10.9	9.3	10.5	11.0
Paraguay	0.1	0.6	1.3	3.5	7.1	8.5	10.3	9.9	10.5
Canada	0.3	0.7	1.3	2.7	4.4	7.4	6.1	6.4	5.9
Russia	n/a	n/a	0.7	0.3	1.1	4.0	4.4	4.3	4.6
Ukraine	n/a	n/a	0.1	0.1	1.7	4.8	4.5	3.0	3.4
Bolivia	0.0	0.0	0.4	1.1	2.3	3.0	2.8	3.0	3.0
European Union	n/a	n/a	n/a	1.3	1.2	2.7	2.6	2.6	2.7
Others	*2.4*	*3.6*	*7.3*	*3.7*	*6.3*	*8.5*	*7.8*	*8.1*	*9.0*
World	**42.1**	**80.9**	**104.3**	**175.8**	**264.7**	**361.3**	**339.9**	**365.3**	**385.1**
Crushings									
China	1.5	1.5	3.9	18.9	55.0	85.0	91.5	93.0	98.0
United States	20.7	27.8	32.3	44.6	44.9	56.9	58.9	58.3	59.6
Brazil	n/a	13.8	14.2	22.7	36.3	42.5	46.7	46.8	47.7
Argentina	n/a	0.9	7.0	17.3	37.6	40.6	38.8	39.7	42.0
European Union	n/a	n/a	n/a	16.8	12.3	15.0	15.6	16.1	15.9
India	0.0	0.4	2.4	4.5	9.4	9.6	8.4	9.5	9.6
Mexico	0.3	1.5	1.9	4.5	3.6	6.2	6.0	6.2	6.4
Russia	n/a	n/a	0.4	0.4	2.1	4.7	4.7	4.6	4.8
Egypt	n/a	0.1	0.1	0.3	1.6	3.5	4.7	4.3	4.7
Others	*n/a*	*n/a*	*n/a*	*16.5*	*19.4*	*34.6*	*37.2*	*37.3*	*39.7*
World	**35.3**	**69.8**	**86.8**	**146.5**	**222.2**	**298.6**	**312.5**	**315.6**	**328.4**
Exports									
Brazil	n/a	1.8	2.5	15.5	30.0	74.9	92.1	81.7	93.0
United States	11.8	19.7	15.2	27.1	41.0	47.7	45.7	61.7	56.9
Paraguay	0.0	0.6	1.0	2.4	5.1	4.9	6.6	6.6	6.5
Argentina	n/a	2.7	4.5	7.3	9.2	9.1	10.0	5.2	6.4
Canada	0.0	0.1	0.2	0.7	2.9	5.3	3.9	4.5	4.0
Others	*0.5*	*0.4*	*2.1*	*0.7*	*3.4*	*7.1*	*6.7*	*5.3*	*6.3*
World	**12.3**	**25.3**	**25.4**	**53.7**	**91.6**	**148.9**	**165.1**	**164.9**	**173.1**
Imports									
China	n/a	0.5	0.0	13.2	52.3	82.5	98.5	99.0	101.0
European Union	n/a	n/a	n/a	17.7	12.5	14.3	14.9	15.0	15.0
Mexico	0.1	1.4	1.4	4.4	3.5	5.9	5.7	6.0	6.2
Egypt	n/a	0.0	0.0	0.3	1.6	3.7	4.9	4.0	4.8
Argentina	n/a	n/a	n/a	0.3	0.0	6.4	4.9	5.0	4.7
Thailand	n/a	0.0	n/a	1.3	2.1	3.2	3.8	4.0	4.1
Japan	3.2	4.2	4.4	4.8	2.9	3.3	3.3	3.1	3.3
Others	*9.3*	*20.1*	*19.8*	*11.1*	*14.7*	*26.5*	*28.8*	*29.7*	*31.6*
World	**12.6**	**26.2**	**25.5**	**53.1**	**89.7**	**145.8**	**165.0**	**165.9**	**170.6**

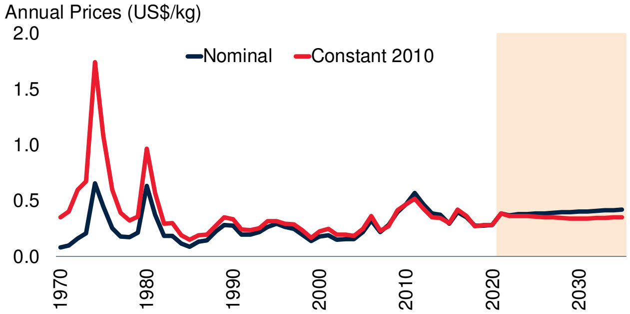
Source: U.S. Department of Agriculture (October 12, 2021 update).
Note: The trade year is January-December of the later year of the split. For example, 1970/71 refers to calendar year 1971. European Union includes EU-15 for 1970-1991.

Sugar

Monthly Prices (US$/kg)

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/kg)



Source: World Bank.
Note: 2021-35 are forecasts.

	1970/1971	1980/1981	1990/1991	2000/2001	2010/2011	2018/2019	2019/2020	2020/2021	2021/2022
					(million metric tons)				
Production									
Brazil	5.1	8.5	7.9	17.1	38.4	29.5	30.3	42.1	39.9
India	4.5	6.5	13.7	20.5	26.6	34.3	28.9	33.8	34.7
European Union	8.7	13.7	18.0	22.1	15.9	16.8	16.6	14.7	15.8
Thailand	0.5	1.7	4.0	5.1	9.7	14.6	8.3	7.6	10.6
China	2.1	3.2	6.8	6.8	11.2	10.8	10.4	10.5	10.6
United States	5.6	5.6	6.3	8.0	7.1	8.2	7.4	8.4	8.4
Pakistan	n/a	0.9	2.1	2.6	3.9	5.3	5.4	6.0	6.8
Mexico	2.5	2.5	3.9	5.2	5.5	6.8	5.6	6.2	6.2
Russia	n/a	n/a	2.6	1.6	3.0	6.1	7.8	5.8	6.1
Australia	2.7	3.3	3.6	4.2	3.7	4.7	4.3	4.3	4.4
Egypt	0.4	0.6	1.0	1.4	1.8	2.4	2.7	2.8	2.9
Others	*38.1*	*41.8*	*44.6*	*36.2*	*35.5*	*39.8*	*38.6*	*37.8*	*39.1*
World	**70.3**	**88.6**	**114.4**	**130.8**	**162.2**	**179.2**	**166.3**	**179.9**	**185.5**
Stocks									
India	1.8	1.1	3.6	12.0	6.3	17.6	14.6	15.4	16.6
China	0.3	0.7	1.4	1.0	1.6	5.4	4.6	4.4	4.0
Thailand	0.0	0.2	0.2	0.6	3.0	8.3	7.6	5.4	3.0
Pakistan	n/a	0.1	0.3	0.4	1.5	1.9	1.7	2.2	2.4
United States	2.9	1.4	1.4	2.0	1.3	1.6	1.5	1.6	1.4
Indonesia	0.4	0.3	0.4	1.4	0.6	2.3	2.0	1.8	1.3
Philippines	0.0	0.2	0.2	0.3	0.9	1.2	1.3	1.3	1.2
Others	*14.7*	*13.7*	*14.9*	*22.2*	*14.3*	*14.7*	*15.5*	*13.8*	*14.1*
World	**20.2**	**17.6**	**22.4**	**39.9**	**29.5**	**53.1**	**48.8**	**45.8**	**44.0**
Exports									
Brazil	1.2	2.3	1.3	7.7	25.8	19.6	19.3	32.2	29.2
Thailand	0.2	1.0	2.7	3.4	6.6	10.6	6.7	7.3	10.4
India	0.3	0.1	0.2	1.4	3.9	4.7	5.8	6.0	6.0
Australia	1.8	2.6	2.8	3.1	2.8	3.7	3.6	3.3	3.5
Guatemala	0.1	0.2	0.7	1.2	1.5	2.1	1.9	1.7	1.8
Mexico	0.6	n/a	0.3	0.2	1.6	2.3	1.3	1.6	1.6
European Union	1.6	5.9	7.1	7.3	1.1	2.4	1.5	1.0	1.0
Others	*15.5*	*16.2*	*18.8*	*14.2*	*10.6*	*12.3*	*13.1*	*11.2*	*12.4*
World	**21.3**	**28.4**	**33.9**	**38.3**	**53.9**	**57.9**	**53.1**	**64.3**	**66.0**
Imports									
China	0.4	1.1	1.1	1.1	2.1	4.1	4.4	4.9	5.0
Indonesia	0.1	0.6	0.2	1.6	3.1	5.4	4.8	5.2	4.8
Bangladesh	n/a	0.0	n/a	0.8	1.5	2.4	2.4	2.5	2.5
United States	4.8	4.4	2.6	1.4	3.4	2.8	3.8	2.9	2.4
Algeria	n/a	0.7	1.0	1.0	1.2	2.3	2.5	2.4	2.4
Malaysia	n/a	0.5	0.9	1.3	1.8	2.1	2.0	2.1	2.2
European Union	1.1	2.4	3.1	3.3	3.8	2.4	2.2	2.0	2.0
Others	*n/a*	*18.5*	*23.2*	*29.9*	*32.2*	*31.9*	*31.9*	*32.0*	*32.3*
World	**17.3**	**28.2**	**32.1**	**40.4**	**49.1**	**53.4**	**54.0**	**54.0**	**53.6**

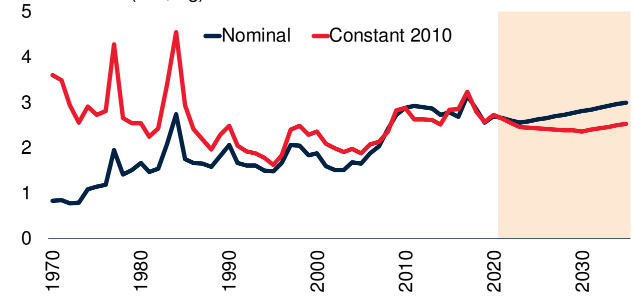
Source: U.S. Department of Agriculture (May 25, 2021 update).
Note: The trade year is January-December of the later year of the split. For example, 1970/71 refers to calendar year 1971. European Union includes EU-15 for 1970-1991.

Tea

Monthly Prices (US$/kg)

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/kg)

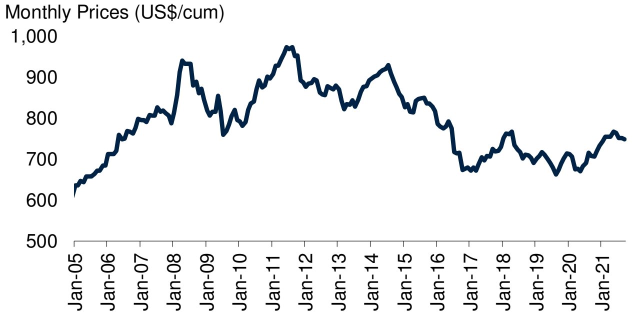


Source: World Bank.
Note: 2021-35 are forecasts.

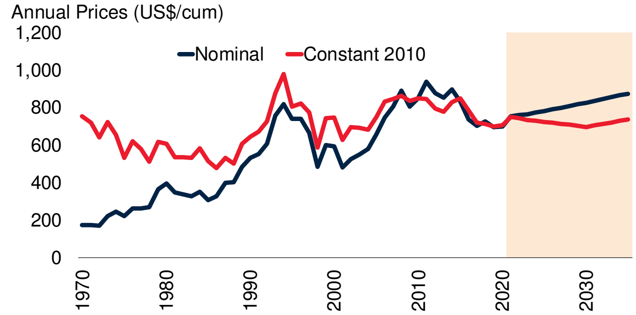
	1970	1980	1990	2000	2010	2016	2017	2018	2019
				(thousand metric tons)					
Production									
China	163	328	562	704	1,467	2,326	2,474	2,625	2,792
India	419	570	688	826	991	1,250	1,325	1,339	1,390
Kenya	41	90	197	236	399	473	440	493	459
Sri Lanka	212	191	233	306	331	293	308	304	300
Vietnam	15	21	32	70	198	240	260	270	269
Turkey	33	96	123	139	235	243	234	270	261
Indonesia	64	106	156	163	150	144	146	140	138
Myanmar	11	13	15	63	95	102	105	144	132
Iran	20	32	37	223	121	125	101	99	91
Bangladesh	31	40	39	46	60	65	82	78	91
Argentina	26	36	51	74	92	85	81	82	86
Japan	91	102	90	85	85	80	82	86	82
Uganda	18	2	7	29	49	39	50	72	73
Tanzania	8	16	18	24	33	33	41	55	63
Thailand	n/a	1	7	32	67	55	59	58	59
Others	*134*	*250*	*270*	*212*	*235*	*250*	*207*	*212*	*212*
World	**1,287**	**1,894**	**2,525**	**3,231**	**4,611**	**5,803**	**5,995**	**6,327**	**6,497**
Consumption									
China	109	220	383	497	1,217	1,685	1,731	1,772	n/a
India	218	331	490	632	774	1,139	1,082	1,095	n/a
Brazil	90	81	133	514	406	415	419	426	n/a
Turkey	26	91	95	137	242	252	294	302	n/a
Argentina	122	132	149	271	219	261	267	272	n/a
Kenya	6	12	21	2	2	170	168	180	n/a
Pakistan	30	61	106	111	93	148	157	169	n/a
Iran	24	39	79	48	200	220	156	147	n/a
Russia	n/a	n/a	n/a	158	176	164	154	147	n/a
United States	68	81	84	145	170	160	154	142	n/a
Vietnam	13	12	16	14	62	103	110	117	n/a
Others	*796*	*1,026*	*1,283*	*1,196*	*1,492*	*1,533*	*1,661*	*1,665*	*n/a*
World	**1,502**	**2,086**	**2,839**	**3,725**	**5,053**	**6,250**	**6,353**	**6,434**	**n/a**
Exports									
Kenya	42	84	166	217	418	303	467	501	476
China	61	120	211	238	308	337	368	381	386
India	200	239	198	201	235	230	261	262	258
Sri Lanka	208	185	216	287	313	287	287	165	170
Vietnam	2	9	16	56	137	136	146	77	135
Argentina	19	33	46	50	86	78	75	73	75
United Arab Emirates	0	8	7	12	50	32	55	67	66
Uganda	15	1	5	26	55	56	59	70	60
Malawi	18	31	41	42	50	44	41	42	47
Others	*187*	*274*	*321*	*334*	*373*	*358*	*377*	*376*	*339*
World	**752**	**984**	**1,227**	**1,464**	**2,023**	**1,861**	**2,136**	**2,015**	**2,011**

Source: Food and Agriculture Organization (Production September 15, 2021 update, Exports February 9, 2021 update, Food balance April 14, 2021 update).
Note: Consumption includes domestic use for food, feed, waste, and other uses. China includes Mainland, Hong Kong, Macao, and Taiwan, China.

Timber—Roundwood and Sawnwood



Source: See World Bank Commodities Price Data.
Note: Price refers to Sawnwood (S.E. Asia). Last observation is September 2021.

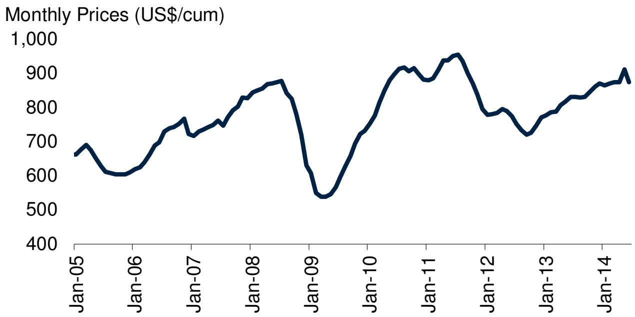


Source: World Bank.
Note: Price refers to Sawnwood (S.E. Asia). 2021-35 are forecasts.

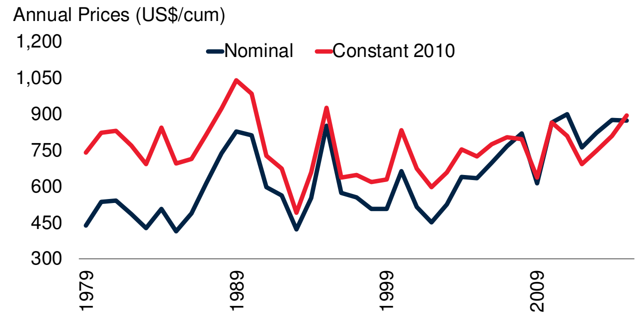
	1970	1980	1990	2000	2010	2017	2018	2019	2020
				(million cubic meters)					
Industrial roundwood: Production									
United States	312.7	327.1	427.2	420.6	336.1	372.3	392.5	387.7	369.2
Russia	n/a	n/a	n/a	145.6	161.6	197.6	219.6	203.2	201.9
China	42.2	79.2	91.2	96.0	161.8	163.2	181.7	181.7	181.7
Brazil	23.9	61.7	74.3	103.0	128.4	151.0	158.1	143.0	143.0
Canada	117.5	150.8	156.0	198.9	138.8	155.2	155.6	139.8	130.4
Indonesia	12.7	30.9	38.4	48.8	54.1	74.0	80.8	83.3	83.3
Sweden	56.7	44.8	49.1	57.4	66.3	67.6	67.7	70.0	70.6
Germany	33.0	38.9	80.3	49.2	47.1	43.3	52.9	54.1	61.8
Finland	37.5	43.0	40.2	50.1	45.4	55.3	60.5	55.7	51.3
Others	*640.5*	*670.3*	*752.8*	*519.9*	*583.4*	*668.0*	*699.1*	*701.4*	*691.0*
World	**1,276.4**	**1,446.7**	**1,709.5**	**1,689.7**	**1,723.1**	**1,947.5**	**2,068.4**	**2,020.0**	**1,984.2**
Industrial roundwood: Imports									
China	2.0	8.3	7.2	15.7	35.4	55.6	60.2	61.1	60.1
Austria	2.0	3.7	4.4	8.5	8.0	8.8	10.1	10.6	12.3
Sweden	0.6	3.1	2.0	11.7	6.3	6.7	9.5	8.8	7.2
Finland	2.3	3.8	5.2	9.9	6.3	4.8	6.9	6.2	6.3
Germany	5.2	3.8	2.0	3.5	7.7	8.8	8.9	7.3	5.9
Belgium	n/a	n/a	n/a	4.0	4.2	3.4	4.1	4.3	5.0
Canada	2.1	3.0	1.5	6.5	4.7	4.3	5.1	4.7	4.4
Others	*69.0*	*69.7*	*60.3*	*55.4*	*37.2*	*39.7*	*39.1*	*37.5*	*34.3*
World	**83.1**	**95.4**	**82.6**	**115.3**	**109.8**	**132.1**	**144.0**	**140.5**	**135.4**
Sawnwood: Production									
China	14.8	21.2	23.6	6.7	37.2	86.0	90.2	90.2	84.0
United States	63.7	65.3	86.1	91.1	60.0	80.4	82.0	82.5	79.1
Russia	n/a	n/a	n/a	20.0	28.9	40.6	42.7	44.8	41.8
Canada	19.8	32.8	39.7	50.5	38.7	47.9	47.6	41.8	40.2
Germany	11.6	13.0	14.7	16.3	22.1	23.2	23.8	24.6	26.2
Sweden	12.3	11.3	12.0	16.2	16.8	18.4	18.4	18.7	18.6
Finland	7.4	10.3	7.5	13.4	9.5	11.8	11.9	11.4	10.9
Austria	5.4	6.7	7.5	10.4	9.6	9.8	10.4	10.5	10.6
Brazil	8.0	14.9	13.7	21.3	17.5	10.2	10.2	10.2	10.2
Others	*246.3*	*245.4*	*258.1*	*139.4*	*135.5*	*154.9*	*154.4*	*153.9*	*149.9*
World	**389.1**	**420.9**	**463.0**	**385.2**	**375.6**	**483.1**	**491.6**	**488.6**	**471.6**
Sawnwood: Imports									
China	0.1	0.3	1.3	6.1	16.2	38.7	38.1	39.4	35.2
United States	10.6	17.0	22.5	34.4	16.6	27.4	26.4	25.3	26.3
United Kingdom	9.0	6.6	10.7	7.9	5.7	7.7	7.2	7.0	7.2
Germany	6.0	6.9	6.1	6.3	4.4	5.2	5.6	5.3	5.3
Japan	3.0	5.6	9.0	10.0	6.4	6.3	6.0	5.7	5.0
Egypt	0.4	1.6	1.6	2.0	4.8	4.6	3.9	4.5	4.2
Italy	4.0	5.8	6.0	8.4	6.1	5.2	4.8	5.7	4.1
Others	*19.6*	*27.8*	*27.3*	*40.7*	*48.2*	*55.3*	*59.7*	*59.4*	*58.0*
World	**52.7**	**71.5**	**84.5**	**115.8**	**108.4**	**150.4**	**151.7**	**152.3**	**145.3**

Source: Food and Agriculture Organization (August 12, 2021 update).
Note: Industrial roundwood, reported in cubic meters solid volume underbark (i.e. exclusing bark), is an aggregate comprising sawlogs and veneer logs; pulpwood, round and split; and other industrial roundwood except wood fuel. Sawnwood, reported in cubic meters solid volume, includes wood that has been produced from both domestic and imported roundwood, either by sawing lengthways or by a profile-chipping process and that exceeds 6mm in thickness.

Timber—Wood panels and Woodpulp



Source: See World Bank Commodities Price Data.
Note: Price refers to Woodpulp. Last observation is June 2014.



Source: World Bank.
Note: Price refers to Woodpulp.

	1970	1980	1990	2000	2010	2017	2018	2019	2020
				(million cubic meters)					
Wood-based panels: Production									
China	0.9	2.3	3.0	18.9	113.9	153.2	154.1	156.6	160.7
United States	23.0	26.4	37.0	45.4	32.2	36.2	34.2	34.4	33.6
Russia	n/a	n/a	n/a	4.7	9.8	15.6	17.3	17.6	17.4
Germany	5.4	8.0	9.1	13.7	12.4	12.7	12.4	12.5	12.8
Canada	3.1	4.3	5.9	14.4	9.0	12.4	12.3	12.9	12.5
India	0.2	0.2	0.4	0.3	4.4	11.0	11.7	12.3	12.3
Brazil	0.7	2.3	2.7	5.2	8.8	11.1	12.2	12.2	11.6
Poland	1.0	2.0	1.4	4.6	8.1	11.0	11.4	11.5	11.3
Turkey	0.2	0.4	0.8	2.4	6.5	9.3	9.5	9.5	9.4
Others	*32.0*	*50.9*	*63.6*	*68.5*	*79.3*	*90.4*	*94.2*	*93.7*	*92.5*
World	**66.6**	**96.9**	**123.8**	**178.2**	**284.4**	**362.9**	**369.3**	**373.0**	**374.0**
Wood-based panels: Imports									
United States	2.1	1.8	3.6	12.7	7.9	14.5	15.6	14.2	14.2
Germany	1.0	2.1	3.0	3.9	4.4	5.7	6.0	5.7	6.0
United Kingdom	2.0	2.4	3.2	3.3	2.7	3.5	3.8	3.6	3.5
Poland	0.2	0.4	0.1	0.7	1.7	3.1	3.1	3.2	3.2
Japan	0.5	0.2	3.2	6.1	4.0	4.1	4.0	3.6	2.8
Italy	0.1	0.7	0.8	1.5	2.2	2.7	2.9	3.2	2.7
Korea, Rep.	n/a	n/a	1.2	1.8	2.4	3.4	3.4	2.5	2.6
Others	*3.2*	*6.4*	*12.7*	*25.3*	*39.0*	*52.3*	*53.6*	*52.8*	*50.5*
World	**9.0**	**13.9**	**27.9**	**55.2**	**64.3**	**89.3**	**92.4**	**88.9**	**85.6**
Woodpulp: Production									
United States	37.3	46.2	57.2	57.8	50.9	49.2	53.2	52.1	50.9
Brazil	0.8	3.4	4.3	7.3	14.5	20.2	21.7	20.3	21.6
Canada	16.6	19.9	23.0	26.7	18.9	16.8	16.8	16.8	15.4
China	1.2	1.3	2.1	3.7	9.6	12.6	13.7	14.9	14.9
Sweden	8.1	8.7	10.2	11.5	11.9	12.2	12.0	12.1	12.0
Finland	6.2	7.2	8.9	12.0	10.5	11.1	12.1	11.6	10.5
Russia	n/a	n/a	n/a	5.8	7.4	8.3	8.6	8.2	8.8
Indonesia	0.0	0.0	0.7	4.1	5.7	7.8	8.3	8.4	8.4
Japan	8.8	9.8	11.3	11.4	9.5	8.9	8.8	8.6	7.2
Others	*22.5*	*29.1*	*37.1*	*30.7*	*33.6*	*36.6*	*36.9*	*36.8*	*36.4*
World	**101.6**	**125.7**	**154.8**	**171.1**	**172.4**	**183.8**	**192.0**	**189.7**	**186.0**
Woodpulp: Imports									
China	0.1	0.4	0.9	4.0	12.1	24.6	25.3	27.4	27.4
United States	3.2	3.7	4.4	6.6	5.6	5.4	5.6	5.3	5.7
Germany	1.8	2.6	3.7	4.1	5.1	5.3	5.1	4.8	4.0
Italy	1.4	1.8	2.1	3.2	3.4	3.2	3.5	3.6	3.3
Korea, Rep.	0.2	0.5	1.1	2.1	2.5	2.3	2.2	2.2	2.2
France	1.3	1.8	1.9	2.4	1.9	2.0	2.0	1.7	1.8
Japan	0.9	2.2	2.9	3.1	1.8	1.8	1.7	1.7	1.7
Others	*7.6*	*7.6*	*8.3*	*12.3*	*16.5*	*20.2*	*21.3*	*20.8*	*21.2*
World	**16.6**	**20.6**	**25.2**	**37.8**	**49.0**	**64.7**	**66.7**	**67.4**	**67.2**

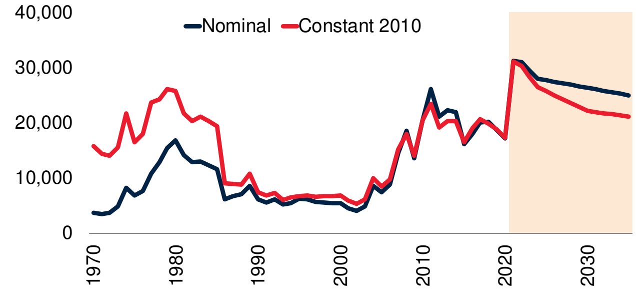
Sources: Food and Agriculture Organization (August 12, 2021 update).
Note: Wood-based panels, reported in cubic meters solid volume, is an aggregate comprising veneer sheets, plywood, particle board and fiberboard. Woodpulp, reported in metric tons air-dry weight (i.e. with 10% moisture content), is an aggregate comprising mechanical woodpulp; semi-chemical woodpulp; chemical woodpulp; and dissolving woodpulp.

Tin

Monthly Prices (US$/mt)

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/mt)



Source: World Bank.
Note: 2021-35 are forecasts.

	1970	1980	1990	2000	2010	2017	2018	2019	2020
				(thousand metric tons)					
Mine Production									
China	n/a	16.0	40.0	87.7	129.6	112.2	127.0	134.3	161.3
Indonesia	19.1	32.5	40.0	51.6	84.0	82.8	84.0	86.4	65.4
Myanmar	0.3	1.3	0.5	1.6	0.8	58.9	45.9	45.0	29.1
Peru	0.1	1.1	5.1	36.4	33.8	17.8	18.6	19.9	20.6
Bolivia	28.9	27.3	17.2	12.5	20.2	18.4	17.3	17.2	14.7
Brazil	3.6	6.9	39.1	14.2	10.4	17.1	17.6	14.9	15.0
Congo, Dem. Rep.	6.5	n/a	n/a	0.0	7.4	10.2	9.0	12.5	9.7
Nigeria	8.0	2.7	0.3	2.0	1.3	8.6	7.9	7.0	5.8
Australia	8.8	11.6	7.4	9.1	18.6	7.4	6.9	7.7	7.8
Vietnam	n/a	n/a	0.8	1.8	5.4	5.0	5.5	5.5	5.4
Malaysia	73.8	61.4	28.5	6.3	2.7	4.8	3.9	3.6	3.2
Rwanda	1.4	2.9	0.7	0.4	2.9	3.0	3.0	2.2	1.7
Russia	n/a	n/a	n/a	6.5	0.1	1.0	1.5	2.3	2.5
Others	*n/a*	*n/a*	*n/a*	*4.4*	*0.7*	*2.0*	*2.1*	*1.7*	*2.1*
World	**184.3**	**228.1**	**210.6**	**234.5**	**318.0**	**349.2**	**349.9**	**360.2**	**344.4**
Refined Production									
China	20.0	16.0	35.8	109.9	149.0	178.4	177.7	181.0	202.9
Indonesia	5.2	30.5	30.4	46.4	64.2	72.0	81.4	81.6	74.0
Peru	n/a	n/a	n/a	17.4	36.4	17.9	18.3	19.5	19.6
Malaysia	92.1	71.3	49.0	26.2	38.7	27.2	27.2	23.7	18.5
Brazil	3.1	8.8	37.6	13.8	9.1	13.8	13.5	12.0	12.0
Thailand	22.0	34.7	15.5	17.2	23.5	10.6	10.9	9.6	11.3
Bolivia	n/a	17.5	13.4	9.4	15.0	16.1	15.6	15.1	10.4
Belgium	4.3	2.8	6.1	8.5	9.9	9.7	9.3	9.3	9.0
Vietnam	0.0	0.0	1.8	1.8	3.0	4.4	4.9	4.8	4.6
Poland	0.0	0.0	0.0	0.0	0.6	3.4	3.8	4.0	3.9
Taiwan, China	n/a	n/a	n/a	0	0	3	2.8	3.8	3.7
Japan	1.4	1.3	0.8	0.6	0.8	1.6	1.6	1.6	1.5
Russia	n/a	n/a	n/a	5.5	0.7	0.8	1.0	1.0	1.2
Others	*n/a*	*n/a*	*n/a*	*5.6*	*5.5*	*0.0*	*0.1*	*0.4*	*0.3*
World	**204.2**	**232.2**	**227.5**	**262.3**	**356.6**	**359.0**	**368.1**	**367.3**	**373.0**
Refined Consumption									
China	12.5	12.5	25.5	49.1	154.3	182.1	174.2	177.9	216.2
United States	53.8	46.1	36.8	51.0	32.0	31.5	34.7	31.3	29.2
Japan	28.6	30.9	34.8	25.2	35.7	29.1	28.1	24.9	20.2
Germany	17.3	19	21.7	20.7	17.4	20.0	20.2	18.4	14.9
Korea, Rep.	0.4	1.8	7.8	15.3	17.4	13.1	13.9	12.0	13.4
Taiwan, China	n/a	1.3	4.8	11.1	11.1	7.3	7.4	8.4	10.1
India	4.8	2.3	2.3	6.4	10.7	10.0	11.4	10.6	9.7
Netherlands	5	5	6.9	3.6	5.4	6.0	6.0	6.0	5.4
Spain	3	4.2	4	4.1	6.1	5.5	6.0	5.8	5.3
Others	*100.4*	*100.9*	*93.0*	*90.4*	*78.5*	*74.5*	*75.7*	*71.5*	*60.6*
World	**225.8**	**224.0**	**237.6**	**276.9**	**368.8**	**379.0**	**377.5**	**366.8**	**385.0**

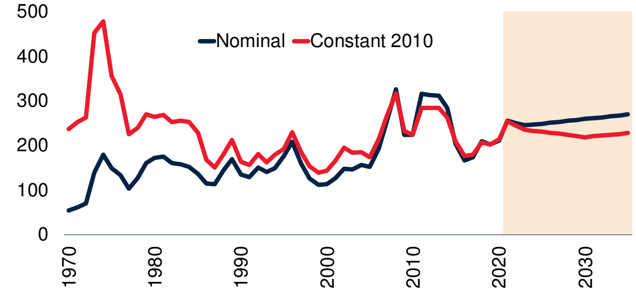
Sources: British Geological Survey, Metallgesellschaft, U.S. Geological Survey, World Bureau of Metals Statistics, World Bank.
Note: n/a implies data not available. Refined production and consumption include significant recycled material.

Wheat

Monthly Prices (US$/mt)

Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.

Annual Prices (US$/mt)

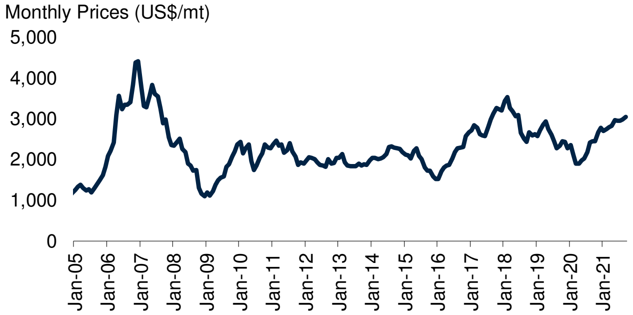


Source: World Bank.
Note: 2021-35 are forecasts.

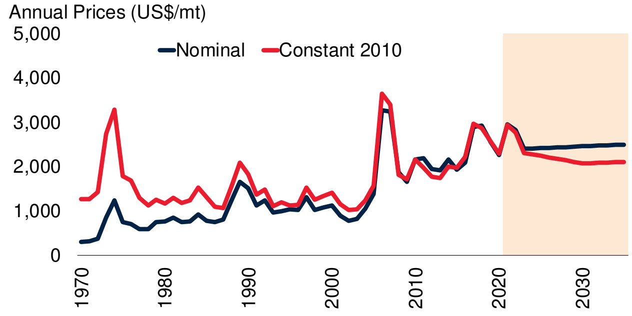
	1970/1971	1980/1981	1990/1991	2000/2001	2010/2011	2018/2019	2019/2020	2020/2021	2021/2022
					(million metric tons)				
Production									
European Union	45.6	67.4	89.1	132.7	136.7	123.1	138.7	126.0	139.4
China	29.2	55.2	98.2	99.6	116.1	131.4	133.6	134.3	136.9
India	20.1	31.8	49.9	76.4	80.8	99.9	103.6	107.9	109.5
Russia	n/a	n/a	49.6	34.5	41.5	71.7	73.6	85.4	72.5
United States	36.8	64.8	74.3	60.6	58.9	51.3	52.6	49.8	44.8
Ukraine	n/a	n/a	30.4	10.2	16.8	25.1	29.2	25.4	33.0
Australia	7.9	10.9	15.1	22.1	27.4	17.6	14.5	33.0	31.5
Pakistan	7.3	10.9	14.4	21.1	23.3	25.1	24.3	24.9	27.0
Canada	9.0	19.3	32.1	26.5	23.3	32.4	32.7	35.2	21.0
Argentina	4.9	7.8	11.0	16.3	17.2	19.5	19.8	17.6	20.0
Turkey	8.0	13.0	16.0	18.0	17.0	19.0	17.5	18.3	16.5
Others	*137.7*	*154.9*	*108.8*	*64.6*	*91.6*	*115.5*	*122.2*	*117.1*	*123.8*
World	**306.5**	**435.9**	**588.8**	**582.6**	**650.6**	**731.5**	**762.3**	**774.7**	**775.9**
Stocks									
China	7.2	31.7	49.9	91.9	58.8	138.1	150.0	144.1	141.0
India	5.0	4.0	5.8	21.5	15.4	17.0	24.7	27.8	28.8
United States	22.4	26.9	23.6	23.8	23.5	29.4	28.0	23.0	15.8
European Union	7.2	12.6	17.9	17.9	13.5	15.8	12.6	10.0	10.7
Russia	7.2	12.6	17.9	1.5	13.7	7.8	7.2	12.0	9.5
Algeria	n/a	0.1	0.2	1.6	3.0	5.2	5.4	5.7	5.0
Pakistan	0.7	1.0	2.9	3.6	2.6	2.5	1.0	2.9	4.6
Others	*30.9*	*23.7*	*52.6*	*44.1*	*69.7*	*65.0*	*65.9*	*62.9*	*61.7*
World	**80.5**	**112.6**	**170.9**	**205.9**	**200.2**	**280.8**	**294.8**	**288.4**	**277.2**
Exports									
European Union	6.2	15.7	22.2	15.7	23.1	24.7	39.8	29.7	35.5
Russia	n/a	n/a	1.2	0.7	4.0	35.9	34.5	38.5	35.0
United States	20.2	41.2	29.1	28.9	35.1	25.5	26.4	27.0	23.8
Australia	9.1	9.6	11.8	15.9	18.6	9.0	9.1	24.0	23.5
Ukraine	n/a	n/a	2.0	0.1	4.3	16.0	21.0	16.9	23.5
Canada	11.8	16.3	21.7	17.3	16.6	24.4	24.6	26.4	15.0
Argentina	1.0	3.8	5.6	11.3	9.5	12.2	12.8	11.0	13.5
Others	*8.1*	*3.5*	*10.2*	*11.2*	*21.9*	*28.5*	*26.1*	*27.8*	*29.8*
World	**56.5**	**90.1**	**103.8**	**101.2**	**133.0**	**176.2**	**194.3**	**201.3**	**199.6**
Imports									
Egypt	2.8	5.4	5.7	6.1	10.6	12.4	12.8	12.1	13.0
Indonesia	0.5	1.2	2.0	4.1	6.6	10.9	10.6	10.5	10.4
China	3.7	13.8	9.4	0.2	0.9	3.1	5.4	10.6	10.0
Turkey	0.9	0.0	0.3	0.4	3.7	6.4	10.9	8.1	10.0
Bangladesh	0.0	1.0	1.4	1.3	4.0	5.1	6.8	7.2	7.4
Algeria	0.6	2.3	4.4	5.6	6.5	7.5	7.1	7.7	7.0
Brazil	1.7	3.9	4.4	7.2	6.7	7.0	7.0	6.5	6.5
Others	*45.6*	*61.9*	*71.4*	*74.5*	*92.9*	*121.6*	*126.8*	*131.4*	*133.7*
World	**55.8**	**89.5**	**99.0**	**99.3**	**131.9**	**174.0**	**187.4**	**194.1**	**198.0**

Source: U.S. Department of Agriculture (October 12, 2021 update).
Note: The trade year is January-December of the later year of the split. For example, 1970/71 refers to calendar year 1971. 'n/a' implies not available. European Union includes EU-15 for 1970-1991.

Zinc



Source: See World Bank Commodities Price Data.
Note: Last observation is September 2021.



Source: World Bank.
Note: 2021-35 are forecasts.

	1970	1980	1990	2000	2010	2017	2018	2019	2020
				(thousand metric tons)					
Mine Production									
China	100	150	750	1,780	3,842	3,868	3,721	4,645	4,514
Peru	299	488	584	910	1,470	1,473	1,470	1,404	1,335
Australia	487	495	933	1,420	1,475	852	1,136	1,338	1,313
India	8	32	70	208	741	828	747	713	756
United States	485	317	543	829	748	774	838	753	718
Mexico	263	238	322	401	570	674	637	701	638
Kazakhstan	n/a	n/a	n/a	322	405	347	345	370	370
Bolivia	46	50	104	149	411	527	520	528	358
Russia	n/a	n/a	n/a	132	214	275	296	300	285
Sweden	93	176	164	177	199	251	238	248	235
Canada	1,253	1,059	1,203	1,002	649	347	305	323	210
Brazil	n/a	70	110	100	211	156	170	163	173
South Africa	n/a	n/a	n/a	63	36	31	28	125	161
Others	*n/a*	*n/a*	*n/a*	*1,385*	*1,532*	*1,592*	*1,736*	*1,776*	*1,637*
World	**5,359**	**6,189**	**7,117**	**8,815**	**12,469**	**11,965**	**12,157**	**13,263**	**12,542**
Refined Production									
China	100	155	550	1,957	5,209	6,144	5,607	6,236	6,425
Korea, Rep.	2	79	257	473	750	1,069	1,099	1,022	963
India	23	44	79	176	701	792	776	691	694
Canada	413	592	592	780	691	598	620	655	671
Spain	89	152	253	386	517	507	511	511	504
Japan	676	735	687	654	574	524	521	537	501
Australia	261	306	303	489	507	471	490	437	442
Mexico	85	145	199	337	322	327	336	393	366
Kazakhstan	n/a	n/a	n/a	263	319	329	329	296	319
Peru	71	64	118	200	223	312	334	357	319
Finland	57	147	163	223	307	285	295	291	297
Belgium	241	249	300	264	281	249	275	271	271
Netherlands	47	170	209	217	264	248	268	240	250
Others	*n/a*	*n/a*	*n/a*	*2,734*	*2,254*	*1,910*	*1,873*	*1,795*	*1,795*
World	**5,095**	**6,183**	**6,971**	**9,153**	**12,919**	**13,766**	**13,333**	**13,732**	**13,816**
Refined Consumption									
China	150	200	369	1,402	5,350	6,890	6,105	6,821	6,758
United States	1074	810	992	1,315	907	829	867	950	878
India	97	95	135	224	538	653	714	646	534
Korea, Rep.	11	68	230	419	540	735	716	638	503
Germany	448	474	530	532	494	452	444	389	396
Japan	623	752	814	674	516	482	482	517	360
Turkey	9	12	47	92	182	267	248	252	267
Italy	178	236	270	377	339	275	280	277	257
Spain	77	91	119	195	206	214	288	139	244
Others	*2,375*	*3,402*	*3,062*	*3,659*	*3,460*	*3,397*	*3,090*	*3,176*	*3,008*
World	**5,042**	**6,140**	**6,568**	**8,889**	**12,532**	**14,194**	**13,234**	**13,805**	**13,206**

Sources: British Geological Survey, Metallgesellschaft, U.S. Geological Survey, World Bureau of Metals Statistics, World Bank.
Note: n/a implies data not available.

APPENDIX C

Description of price series
Technical notes

Description of price series

Energy

Coal (Australia). Thermal, f.o.b. Newcastle, 6,000 kcal/kg, spot price.

Coal (South Africa). f.o.b. Richards Bay, NAR, 6000 kcal/kg, sulfur less than 1%, forward month one.

Crude oil. Average price of Brent (38° API), Dubai Fateh (32° API), and West Texas Intermediate (WTI, 40° API). Equally weighed.

Natural Gas Index (Laspeyres). Weights based on five-year consumption volumes for Europe, U.S. and Japan (LNG), updated every five years.

Natural gas (Europe). Netherlands Title Transfer Facility (TTF).

Natural gas (U.S.). Spot price at Henry Hub, Louisiana.

Liquefied natural gas (Japan). LNG, import price, cif; recent two months' averages are estimates.

Non-Energy

Beverages

Cocoa (ICCO). International Cocoa Organisation daily price, average of the first three positions on the terminal markets of New York and London, nearest three future trading months.

Coffee (ICO). International Coffee Organization indicator price, other mild Arabicas, average New York and Bremen/Hamburg markets, ex-dock.

Coffee (ICO). International Coffee Organization indicator price, Robustas, average New York and Le Havre/Marseilles markets, ex-dock.

Tea. Average three auctions, arithmetic average of quotations at Kolkata, Colombo, and Mombasa/ Nairobi.

Tea (Colombo). Sri Lankan origin, all tea, arithmetic average of weekly quotes.

Tea (Kolkata). leaf, include excise duty, arithmetic average of weekly quotes.

Tea (Mombasa/Nairobi). African origin, all tea, arithmetic average of weekly quotes.

Oils and meals

Coconut oil (Philippines/Indonesia). Crude, c.i.f. Rotterdam.

Groundnuts (U.S.). Runners 40/50, CFR N.W. Europe

Groundnut oil. U.S. crude, FOB South-East.

Fishmeal. German, Danish 64% protein, FOB Bremen.

Palm oil (Malaysia). RBD, FOB Malaysia ports.

Palmkernel Oil (Malaysia/Indonesia). Crude, c.i.f. Rotterdam.

Soybean meal. Soybean pellets 48% protein, Brazil, c.i.f Rotterdam.

Soybean oil. Dutch soyoil crude degummed, EXW Dutch Mills.

Soybeans. U.S. Gulf yellow soybean No. 2, c.i.f. Rotterdam.

Grains

Barley (U.S.). Feed, No. 2, spot, 20-days-to-arrive, delivered Minneapolis.

Maize (U.S.). No. 2, yellow, f.o.b. U.S. Gulf ports.

Rice (Thailand). 5% broken, white rice (WR), milled, indicative price based on weekly surveys of export transactions, government standard, f.o.b. Bangkok.

Rice (Thailand). 25% broken, WR, milled indicative survey price, government standard, f.o.b. Bangkok.

Rice (Thailand). 100% broken, A.1 Super, indicative survey price, government standard, f.o.b. Bangkok.

Rice (Vietnam). 5% broken, WR, milled, weekly indicative survey price, minimum export price, f.o.b. Hanoi.

Sorghum (U.S.). No. 2 milo yellow, f.o.b. Gulf ports.

Wheat (U.S.). No. 1, hard red winter (HRW), ordinary protein, export price delivered at the U.S. Gulf port for prompt or 30 days shipment.

Wheat (U.S.). No. 2, soft red winter (SRW), export price delivered at the U.S. Gulf port for prompt or 30 days shipment.

Other food

Bananas (Central and South America). Major brands, free on truck (f.o.t.) Southern Europe, including duties.

Bananas (Central and South America). Major brands, U.S. import price, f.o.t. U.S. Gulf ports.

Meat, beef (Australia/New Zealand). Chucks and cow forequarters, frozen boneless, 85% chemical lean, c.i.f. U.S. port (east coast), ex-dock.

Meat, chicken (U.S.). Urner Barry North East weighted average for broiler/fryer, whole birds, 2.5 to 3.5 pounds, USDA grade "A".

Meat, sheep (New Zealand). Frozen whole carcasses Prime Medium (PM) wholesale, Smithfield, London.

Oranges (Mediterranean exporters). Navel, EEC indicative import price, c.i.f. Paris.

Shrimp (U.S.). Brown, shell-on, headless, in frozen blocks, source Gulf of Mexico, 26 to 30 count per pound, wholesale U.S.

Sugar (EU). European Union negotiated import price for raw unpackaged sugar from African, Caribbean, and Pacific (ACP), c.i.f. European ports.

Sugar (U.S.). Nearby futures contract, c.i.f.

Sugar (World). International Sugar Agreement (ISA) daily price, raw, f.o.b. and stowed at greater Caribbean ports.

Timber

Logs (Africa). Sapele, high quality (loyal and marchand), 80 centimeter or more, f.o.b. Douala, Cameroon.

Logs (Southeast Asia). Meranti, Sarawak, Malaysia, sale price charged by importers, Tokyo.

Plywood (Africa and Southeast Asia). Lauan, 3-ply, extra, 91 cm x 182 cm x 4 mm, wholesale price, spot Tokyo.

Sawnwood (Africa). Sapele, width 6 inches or more, length 6 feet or more, f.a.s. Cameroonian ports.

Sawnwood (Southeast Asia). Malaysian dark red seraya/meranti, select and better quality, average 7 to 8 inches; length average 12 to 14 inches; thickness 1 to 2 inches; kiln dry, c. & f. U.K. ports, with 5% agents commission including premium for products of certified sustainable forest.

Other raw materials

Cotton (Cotlook "A" index). Middling 1-3/32 inch, traded in Far East, C/F.

Rubber (Asia). RSS3 grade, Singapore Commodity Exchange Ltd (SICOM) nearby contract.

Rubber (Asia). TSR 20, Technically Specified Rubber, SICOM nearby contract.

Fertilizers

DAP (diammonium phosphate), spot, f.o.b. U.S. Gulf.

Phosphate rock , f.o.b. North Africa.

Potassium chloride (muriate of potash), spot, f.o.b. Vancouver.

TSP (triple superphosphate), spot, import U.S. Gulf.

Urea (Ukraine), f.o.b. Black Sea.

Metals and minerals

Aluminum (LME). London Metal Exchange, unalloyed primary ingots, standard high grade, physical settlement.

Copper (LME). Standard grade A, cathodes and wire bar shapes, physical settlement.

Iron ore (any origin). Fines, spot price, c.f.r. China, 62% Fe.

Lead (LME). Refined, standard high grade, physical settlement.

Nickel (LME). Cathodes, standard high grade, physical settlement.

Tin (LME). Refined, standard high grade, physical settlement.

Zinc (LME). Refined, standard special high grade, physical settlement.

Precious Metals

Gold (U.K.). 99.5% fine, London afternoon fixing, average of daily rates.

Platinum (U.K.). 99.9% refined, London afternoon fixing.

Silver (U.K.). 99.9% refined, London afternoon fixing.

Technical Notes

Definitions and explanations

Constant prices are prices which are deflated by the Manufacturers Unit Value Index (MUV).

MUV is the unit value index in U.S. dollar terms of manufactures exported from fifteen countries: Brazil, Canada, China, Germany, France, India, Italy, Japan, Mexico, Republic of Korea, South Africa, Spain, Thailand, the United Kingdom, and the United States.

Price indexes were computed by the Laspeyres formula. The Non-Energy Price Index is comprised of 34 commodities. U.S. dollar prices of each commodity is weighted by 2002-2004 average export values. Base year reference for all indexes is 2010. Countries included in indexes are all low- and middle-income, according to World Bank income classifications.

Price index weights. Trade data as of May 2008 comes from United Nations' Comtrade Database via the World Bank WITS system, Food and Agriculture Organization FAOSTAT Database, International Energy Agency Database, BP Statistical Review, World Metal Statistics, World Bureau of Metal Statistics, and World Bank staff estimates. The weights can be found in the table on the next page.

Reporting period. Calendar vs. crop or marketing year refers to the span of the year. It is common in many agricultural commodities to refer to production and other variables over a twelve-month period that begins with harvest. A crop or marketing year will often differ by commodity and, in some cases, by country or region.

Abbreviations

$ = U.S. dollar

bbl = barrel

c.i.f. = cost, insurance, freight

c.f.r. = cost and freight

cum = cubic meter

dmt = dry metric ton

f.o.b. = free on board

f.o.t. = free on truck

kg = kilogram

mb/d = million barrels per day

mmbtu = million British thermal units

mmt = million metric tons

mt = metric ton (1,000 kilograms)

toe/person = tonnes of oil equivalent per person

toz = troy ounce

Acronyms

AEs	Advanced economies
CO_2	carbon dioxide
COVID-19	Coronavirus Disease 2019
DAP	diammonium phosphate
EAP	East Asia and Pacific
ECA	Europe and Central Asia
EIA	Energy Information Administration
ESG	Environmental, Social, and Governance
EU	European Union
EMDEs	Emerging markets and developing economies
EPA	United States Environmental Protection Agency
ETFs	exchange-traded funds
FAO	Food and Agriculture Organization
GHG	global greenhouse gas
HRW	hard red winter
ICAC	International Cotton Advisory Committee
IEA	International Energy Agency
IFA	International Fertilizer Association
IRSG	International Rubber Study Group
ITU	International Telecommunications Union
LAC	Latin America and the Caribbean
LICs	low-income countries
LME	London Metal Exchange
LNG	liquefied natural gas

MNA	Middle East and North Africa
MOP	muriate of potash, or potassium chloride
MUV	Manufacture Unit Value
NOC	national oil companies
NPI	nickel pig iron
OECD	Organisation of Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
PMI	purchasing managers' index
SAR	South Asia
SSA	Sub-Saharan Africa
TIPS	Treasury Inflation-Protected Securities
TTF	Netherlands Title Transfer Facility
TSP	triple superphosphate
USDA	United States Department of Agriculture
USGS	U.S. Geological Survey
WFP	World Food Programme
WTI	West Texas Intermediate

Data sources

Africa Tea Brokers Limited

Baker Hughes

Bloomberg

Bloomberg L.P.—Green Markets

BP Statistical Review

British Geological Survey

C40 Cities

Federal Highway Administration

Food and Agriculture Organization (FAO)

Gas Infrastructure Europe

General Administration of Customs, PRC

Gold Fields Mineral Services (GFMS)

Haver Analytics

Intergovernmental Group on Bananas and Tropical Fruits

Intergovernmental Group on Tea

International Cocoa Organisation (ICCO)

International Coffee Organization (ICO)

International Cotton Advisory Committee (ICAC)

International Energy Agency (IEA)

International Fertilizer Association (IFA)

International Rubber Study Group (IRSG)

International Tropical Timber Organization (ITTO)

International Sugar Organization (ISO)

ISTA Mielke GmbH Oil World

Japan Lumber Journal

Joint Organisations Data Initiative

London Metal Exchange

Markit Group Ltd

Meat Trade Journal

Metallgesellschaft

National Household Travel Survey

Nova Media Publishing, Inc.

Official Statistics of Japan

Organization of the Petroleum Exporting Countries

Our World in Data

Platinum and Palladium Survey

Silver Institute

Tea Board India

Tea Exporters Association Sri Lanka

Thomson Reuters

United Nations

Urner Barry

U.S. Department of Agriculture (USDA)

U.S. Energy Information Administration (EIA)

U.S. Geological Survey

World Bureau of Metal Statistics

World Gold Council

World Platinum Investment Council

World Steel Association

Weights for commodity price indexes

Commodity group	Share of energy and non-energy indexes	Share of sub-group indexes
ENERGY	**100.0**	**100.0**
Coal	4.7	4.7
Crude Oil	84.6	84.6
Natural Gas	10.8	10.8
NON-ENERGY	**100.0**	
Agriculture	**64.9**	
Beverages	**8.4**	**100.0**
Coffee	3.8	45.7
Cocoa	3.1	36.9
Tea	1.5	17.4
Food	**40.0**	
Grains	**11.3**	100.0
Rice	3.4	30.1
Wheat	2.8	25.2
Maize (includes sorghum)	4.6	40.7
Barley	0.5	4.1
Oils and meals	**16.3**	**100.0**
Soybeans	4.0	24.6
Soybean Oil	2.1	13.0
Soybean Meal	4.3	26.3
Palm Oil	4.9	30.2
Coconut Oil	0.5	3.1
Groundnut Oil (includes groundnuts)	0.5	2.8
Other food	**12.4**	100.0
Sugar	3.9	31.5
Bananas	1.9	15.7
Meat, beef	2.7	22.0
Meat, chicken	2.4	19.2
Oranges (includes orange junice)	1.4	11.6
Agricultural Raw Materials	**16.5**	
Timber	**8.6**	**100.0**
Logs	1.9	22.1
Sawnwood	6.7	77.9
Other Raw Materials	**7.9**	**100.0**
Cotton	1.9	24.7
Natural Rubber	3.7	46.7
Tobacco	2.3	28.7
Fertilizers	**3.6**	**100.0**
Natural Phosphate Rock	0.6	16.9
Phosphate	0.8	21.7
Potassium	0.7	20.1
Nitogenous	1.5	41.3
Metals and Minerals	**31.6**	**100.0**
Aluminum	8.4	26.7
Copper	12.1	38.4
Iron Ore	6.0	18.9
Lead	0.6	1.8
Nickel	2.5	8.1
Tin	0.7	2.1
Zinc	1.3	4.1
PRECIOUS METALS	**100.0**	
Gold	77.8	
Silver	18.9	
Platinum	3.3	

Note: Index weights are based on 2002-04 developing countries' export values. Precious metals are not included in the non-energy index.

Commodity Markets Outlook: Selected Topics, 2011-21

Topics	Date
Urbanization and commodity demand	October 2021
Causes and consequences of metal price shocks	April 2021
Persistence of commodity shocks	October 2020
Set up to fail? The collapse of commodity agreements	April 2020
A Shock Like no Other: The Impact of COVID-19 on Commodity Markets	April 2020
The role of substitution in commodity demand	October 2019
Innovation, disruptive technologies, and substitution among commodities	October 2019
Oil market implications of the strike on Saudi Arambo facilities	October 2019
Food price shocks: Channels and implications	October 2019
The implications of tariffs for commodity markets	October 2018
The changing of the guard: Shifts in commodity demand	October 2018
Oil exporters: Policies and challenges	October 2018
Investment weakness in commodity exporters	January 2017
OPEC in historical context: Commodity agreements and market fundamentals	October 2016
From energy prices to food prices: Moving in tandem?	July 2016
Resource development in era of cheap commodities	October 2016
Weak growth in emerging market economies: What does it imply for commodity markets?	January 2016
Understanding El Niño: What does it mean for commodity markets?	October 2015
Iran nuclear agreement: A game changer for energy markets?	October 2015
How important are China and India in global commodity consumption?	July 2015
Anatomy of the last four oil price crashes	October 2015
Putting the recent plunge in oil prices in perspective	January 2015
The role of income growth in commodities	October 2014
Price volatility for most commodities has returned to historical norms	July 2014
The nature and causes of oil price volatility	January 2014
A global energy market?	July 2013
Global reserves, demand growth, and the “super cycle” hypothesis	July 2013
The “energy revolution,” innovation, and the nature of substitution	January 2013
Commodity prices: levels, volatility, and comovement	January 2013
Which drivers matter most in food price movements?	January 2013
Induced innovation, price divergence, and substitution	June 2012
The role of emerging markets in commodity consumption	June 2012
WTI-Brent price dislocation	January 2012
Metals consumption in China and India	January 2012
China, global metal demand, and the super-cycle hypothesis	June 2011

ECO-AUDIT

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green press INITIATIVE

Commodity prices have risen to high levels by historical standards. Energy prices have increased sharply, especially for natural gas and coal, while most non-energy prices have plateaued after steep increases earlier in the year. Crude oil prices are forecast to average $74/bbl in 2022, up from a projected $70/bbl in 2021. After registering more than 48 percent increase this year, metal prices are projected to decline 5 percent in 2022. Agricultural prices, which are projected to rise more than 20 percent this year, are expected to broadly stabilize in 2022. These forecasts are subject to substantial risks, from adverse weather, further supply constraints, or additional outbreaks of COVID-19. Energy prices are particularly at risk of additional volatility in the near-term given low inventory levels.

A Special Focus section explores the impact of urbanization on commodity demand. Although cities are often associated with increased demand for energy commodities (and hence greenhouse gas emissions) the report finds that high-density cities, particularly in advanced economies, can have lower per capita energy demand than low-density cities. As the share of people living in urban areas is expected to continue to rise, these results highlight the need for strategic urban planning to maximize the beneficial elements of cities and mitigate their negative impacts.

The World Bank's *Commodity Markets Outlook* is published twice a year, in April and October. The report provides detailed market analysis for major commodity groups, including energy, metals, agriculture, precious metals, and fertilizers. Price forecasts to 2030 for 46 commodities are also presented together with historical price data. Commodity price data updates are published separately at the beginning of each month.

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