CHAPTER 1

GLOBAL PROSPECTS AND POLICIES

Global growth for 2018–19 is projected to remain steady at its 2017 level, but its pace is less vigorous than projected in April and it has become less balanced. Downside risks to global growth have risen in the past six months and the potential for upside surprises has receded.

Global growth is projected at 3.7 percent for 2018–19—0.2 percentage point lower for both years than forecast in April. The downward revision reflects surprises that suppressed activity in early 2018 in some major advanced economies, the negative effects of the trade measures implemented or approved between April and mid-September, as well as a weaker outlook for some key emerging market and developing economies arising from country-specific factors, tighter financial conditions, geopolitical tensions, and higher oil import bills. Beyond the next couple of years, as output gaps close and monetary policy settings begin to normalize, growth in most advanced economies is expected to decline to potential rates well below the averages reached before the global financial crisis of a decade ago. Medium-term prospects remain generally strong in emerging Asia but subpar in some emerging market and developing economies, especially for per capita growth, including in commodity exporters that continue to face substantial fiscal consolidation needs or are mired in war and conflict.

The balance of risks to the global growth forecast has shifted to the downside in a context of elevated policy uncertainty. Several of the downside risks highlighted in the April 2018 World Economic Outlook *(WEO)—such as rising trade barriers and a reversal of capital flows to emerging market economies with weaker fundamentals and higher political risk—have become more pronounced or have partially materialized. Meanwhile, the potential for upside surprises has receded, given the tightening of financial conditions in some parts of the world, higher trade costs, slow implementation of reforms recommended in the past, and waning growth momentum. While financial market conditions remain accommodative in advanced economies, they could tighten rapidly if trade tensions and policy uncertainty intensify, or unexpectedly high inflation in the United States triggers a stronger-than-anticipated monetary policy response. Tighter financial conditions in advanced economies could cause disruptive portfolio adjustments, sharp exchange rate movements, and further reductions in capital inflows to emerging markets, particularly those with greater vulnerabilities.*

The recovery has helped lift employment and income, has strengthened balance sheets, and has provided an opportunity to rebuild buffers. However, with risks shifting to the downside, there is greater urgency for policies to enhance prospects for strong and inclusive growth. Avoiding protectionist reactions to structural change and finding cooperative solutions that promote continued growth in goods and services trade remain essential to preserving and extending the global expansion. At a time of above-potential growth in many economies, policymakers should aim to enact reforms that raise medium-term incomes for the benefit of all. With shrinking excess capacity and mounting downside risks, many countries need to rebuild fiscal buffers and strengthen their resilience to an environment in which financial conditions could tighten suddenly and sharply.

Recent Developments and Prospects

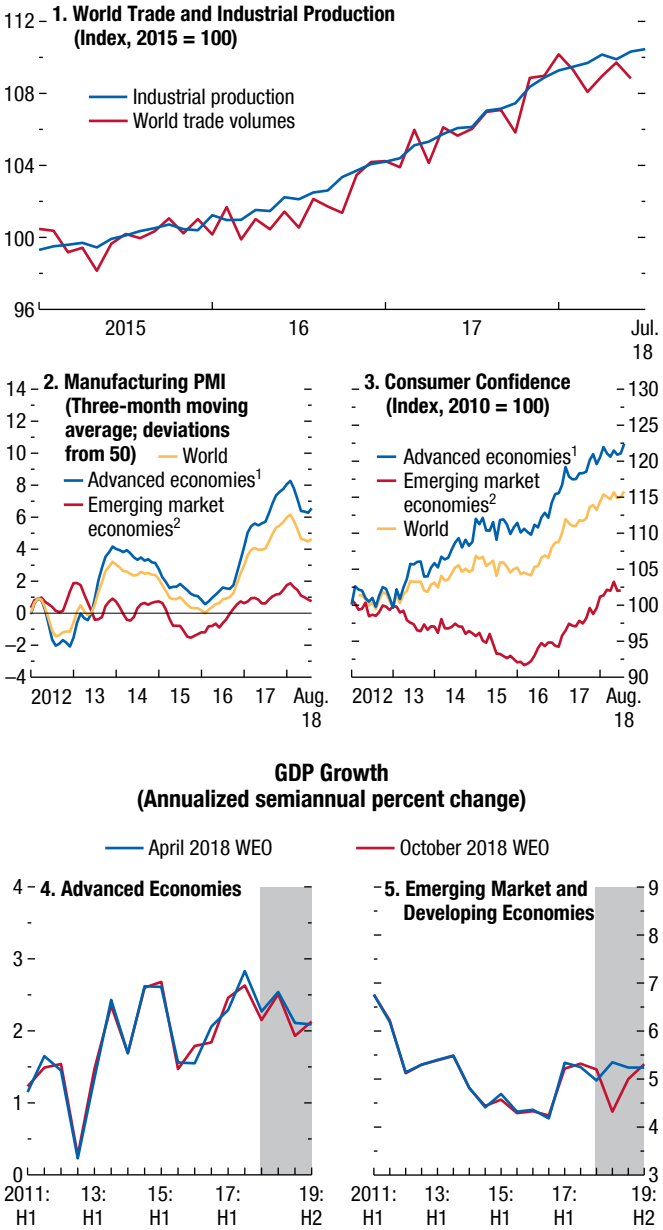
Softer, More Uneven Momentum

In the first half of 2018, global growth shed some of the strong momentum registered in the second half of last year, and the expansion became less synchronized across countries. Activity moderated more than expected in some large advanced economies from its strong pace last year, while the emerging market and developing economy group continued to expand at broadly the same pace as in 2017 (Figure 1.1).

Among advanced economies, growth disappointed in the euro area and the United Kingdom. Slower export growth after a strong surge in the final quarter of 2017 contributed notably to the euro area slowdown. Higher energy prices helped dampen demand in energy importers, while some countries were also affected by political uncertainty or industrial actions. In the United Kingdom, growth moderated more than anticipated, partly because of weather-related

Figure 1.1. Global Activity Indicators

Global growth moderated in the first half of 2018, with negative surprises to activity in several large advanced economies. After rapid growth in 2017, world trade volumes and industrial production have slowed, and some high-frequency indicators have softened.



Sources: CPB Netherlands Bureau for Economic Policy Analysis; Haver Analytics; Markit Economics; and IMF staff estimates.
Note: CC = consumer confidence; PMI = purchasing managers' index; WEO = *World Economic Outlook*.
[1]Australia, Canada (PMI only), Czech Republic, Denmark, euro area, Hong Kong SAR (CC only), Israel, Japan, Korea, New Zealand (PMI only), Norway (CC only), Singapore (PMI only), Sweden (CC only), Switzerland, Taiwan Province of China, United Kingdom, United States.
[2]Argentina (CC only), Brazil, China, Colombia (CC only), Hungary, India (PMI only), Indonesia, Latvia (CC only), Malaysia (PMI only), Mexico (PMI only), Philippines (CC only), Poland, Russia, South Africa, Thailand (CC only), Turkey, Ukraine (CC only).

disruptions in the first quarter. Set against these developments, the US economy maintained robust growth, particularly in the second quarter, with private sector activity buoyed further by sizable fiscal stimulus.

Aggregate growth in the emerging market and developing economy group stabilized in the first half of 2018. Emerging Asia continued to register strong growth, supported by a domestic demand-led pickup in the Indian economy from a four-year-low pace of expansion in 2017, even as activity in China moderated in the second quarter in response to regulatory tightening of the property sector and nonbank financial intermediation. Higher oil prices lifted growth among fuel-exporting economies in sub-Saharan Africa and the Middle East. The recovery in Latin America continued, though at a more subdued pace than anticipated as tighter financial conditions and a drought weighed on growth in Argentina and a nationwide truckers' strike disrupted production in Brazil.

Trade Tensions

Since January, a sequence of US tariff actions on solar panels, washing machines, steel, aluminum, and a range of Chinese products, plus retaliation by trading partners has complicated global trade relations.[1] While the preliminary agreement between the United States and Mexico on some bilateral trade issues has been a step forward, the future of the trilateral North American Free Trade Agreement (NAFTA) remains uncertain as the United States and Canada work to resolve remaining issues. Moreover, the potential for escalating trade tensions looms.[2]

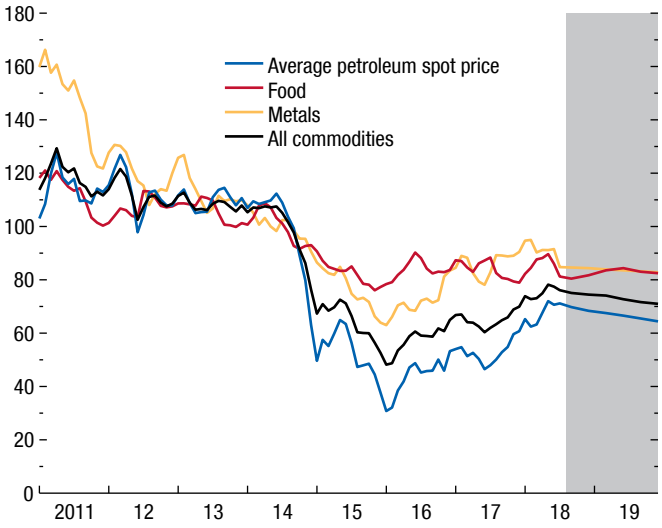
Although sentiment has generally remained strong despite the intensification of trade disputes, and headline high-frequency data point to continued momentum, some of the more trade-sensitive data

[1]Following tariff increases in early 2018 on washing machines, solar cells, steel, and aluminum, the United States on June 15 announced a 25 percent tariff on imports from China worth $50 billion; China announced retaliation on a similar scale. On September 17, the United States announced a 10 percent tariff—rising to 25 percent by year end—on an additional $200 billion in imports from China. In response, China, announced tariffs on a further $60 billion of US imports.

[2]The United States has also suggested that a further $267 billion of Chinese goods—covering nearly all remaining Chinese imports—may be hit with tariffs, and it has separately raised the possibility of tariffs on the automotive sector that would affect many other countries (see Scenario Box 1).

Figure 1.2. Commodity and Oil Prices
(Deflated using US consumer price index; index, 2014 = 100)

The commodity price index has risen in the past six months, driven by higher energy prices. Food prices fell amid rising trade tensions, while the price of metals softened because of weaker demand from China.



Sources: IMF, Primary Commodity Price System; and IMF staff estimates.

have weakened since the start of the year. Surveys of purchasing managers in China, the euro area, Japan, and the United States point to softer growth in export orders. Sector-specific sentiment indicators for automakers in Germany and Japan suggest more pessimism about the outlook than at the start of the year. Industrial production subindices for the United States, Japan, and Germany indicate greater moderation in capital-goods-producing sectors than for the rest of manufacturing, which could signal weaker capital spending. German manufacturing orders fell by about 4 percent on a monthly basis in June (contributing to a 6½ percent drop in the second quarter on a quarterly, annualized basis) followed by a close to 1 percent decline in July. Consistent with the evidence from the production side, international trade in goods appears to have slowed since early 2018 after very rapid growth late in 2017 (Figure 1.1). Growth in import volumes in some of the main advanced economies (United States, euro area, Japan) has declined. The trade slowdown could reflect a combination of factors, such as some payback from the very strong trade growth in late 2017 and weaker capital spending in a more uncertain global environment.

Commodity Index Rising on Higher Energy Prices

The IMF's Primary Commodities Price Index rose 3.3 percent between February 2018 and August 2018—that is, between the reference periods for the April 2018 and the current WEO—driven by higher energy prices (Figure 1.2). As discussed in the Commodities Special Feature, the energy subindex rose 11.1 percent. Food prices were down 6.4 percent, and the metals subindex declined 11.7 percent.

Oil prices rose to more than $76 a barrel in June—the highest level since November 2014—reflecting the collapse in Venezuela's production, unexpected outages in Canada and Libya, and expectations of lower Iranian exports following US sanctions. Prices dropped to about $71 a barrel by August following a decision by the Organization of the Petroleum Exporting Countries (OPEC) and the non-OPEC oil exporters (including Russia) to increase oil production. The coal price index—an average of Australian and South African prices—increased 9.8 percent from February 2018 to August 2018, reflecting tight supply conditions. Strong demand for liquefied natural gas in China and India as well as higher oil prices kept the spot price for liquefied natural gas close to its highest level in three years.

The decline in the IMF's agricultural price index between the reference periods reflects, to a large extent, trade tensions and concerns about global growth. Moreover, weather-related supply shortfalls of cocoa, cotton, and wheat are smaller than previously anticipated. Among commodities affected by trade tensions, soybean prices fell in June as China announced retaliatory import tariffs on US soybeans.

The softening of metals prices between February and August 2018 was largely due to weaker demand from China. Metals markets also experienced high volatility, reflecting, in part, implemented tariff actions, US sanctions on aluminum giant Rusal, and higher trade policy uncertainty. The price of iron ore, the primary input in steel manufacture, dropped 12.4 percent between the reference periods. Aluminum prices reached a seven-year high in May after the Rusal sanctions, before declining more than 10 percent in June and July as tariff hikes were implemented.

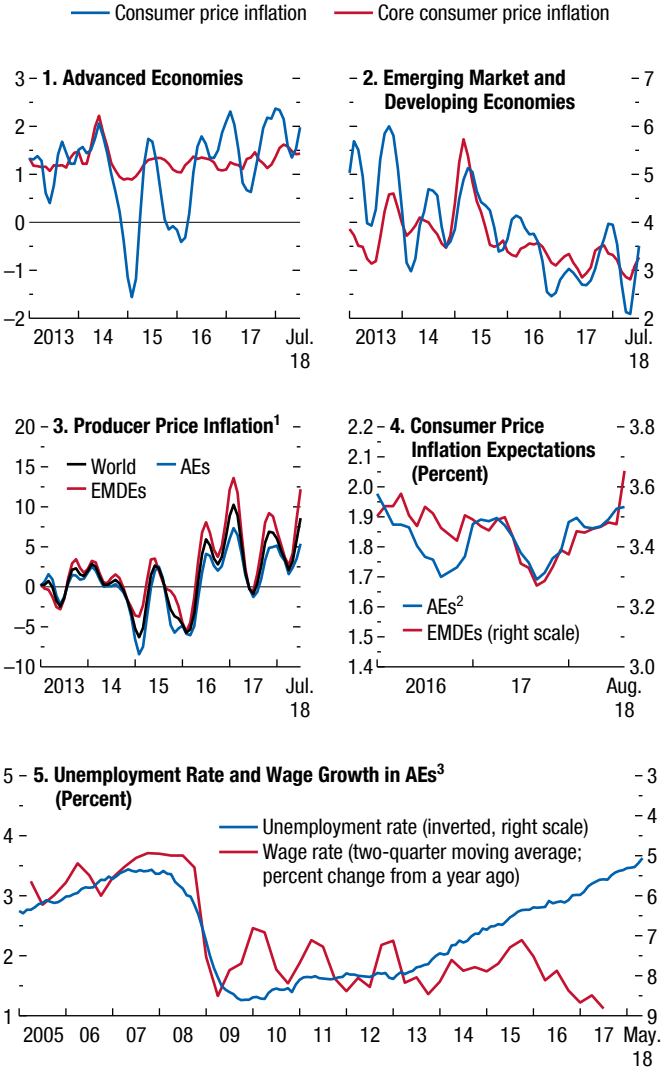
Rising Headline Inflation, but Core Remains Subdued

Higher energy prices have lifted headline year-over-year inflation rates in advanced and emerging market and developing economies over the past six

Figure 1.3. Global Inflation

(Three-month moving average; annualized percent change, unless noted otherwise)

Higher fuel prices have lifted headline inflation over the past six months, and, in emerging market and developing economies, core inflation has also inched up. Wage growth, however, remains muted despite continued declines in unemployment rates.



Sources: Consensus Economics; Haver Analytics; Organisation for Economic Co-operation and Development; US Bureau of Labor Statistics; and IMF staff calculations.

Note: AEs = advanced economies (AUT, BEL, CAN, CHE, CZE, DEU, DNK, ESP, EST, FIN, FRA, GBR, GRC, HKG, IRL, ISR, ITA, JPN, KOR, LTU, LUX, LVA, NLD, NOR, PRT, SGP, SVK, SVN, SWE, TWN, USA); EMDEs = emerging market and developing economies (BGR, BRA, CHL, CHN, COL, HUN, IDN, IND, MEX, MYS, PER, PHL, POL, ROU, RUS, THA, TUR, ZAF). Country list uses International Organization for Standardization (ISO) country codes.

[1]AEs exclude HKG, ISR, and TWN. EMDEs include UKR; exclude IDN, IND, PER, and PHL.

[2]AEs include AUS; exclude LUX.

[3]Blue line includes AUS and NZL; excludes BEL. Red line includes AUS and MLT; excludes HKG, SGP, and TWN.

months. Core inflation—that is, excluding food and energy—remains below central banks' targets in most advanced economies. Among emerging market and developing economies, excluding Venezuela's hyperinflation, core inflation remains below the average of recent years but has inched up in recent months (Figure 1.3).

Among advanced economies, core annual consumer price inflation in the United States, where unemployment hovers around multidecade lows, has exceeded 2 percent since March. The Federal Reserve's preferred price index of personal consumption expenditure has also risen close to the target 2 percent. Core inflation in the United Kingdom averaged slightly more than 2 percent in the first half of 2018, lower than last year, as the effects of the large sterling depreciation of 2016–17 on domestic prices have gradually faded. In the euro area and Japan, core inflation remains weak at about 1 percent in the euro area and 0.3 percent in Japan.[3]

Real wage growth in most advanced economies remains muted, even as labor markets tighten and output gaps close (and, in some cases, as the gap turns positive with the economy operating above potential). In the United States and Japan, for example, where unemployment rates are the lowest since 2000 and 1993, respectively, wages have risen only moderately, reflecting, in part, weak productivity growth and possibly greater labor market slack than reflected in headline unemployment numbers.

In the emerging market and developing economy group, core inflation remains contained at about 2 percent in China, where domestic demand has slowed in response to financial regulatory tightening. In India, core inflation (excluding all food and energy items) has risen to about 6 percent as a result of a narrowing output gap and pass-through effects from higher energy prices and exchange rate depreciation. Core inflation has declined in Brazil and Mexico (to about 2½ percent and 3½ percent, respectively), reflecting moderations in activity and improved anchoring of expectations. In Russia, core inflation dropped this year (averaging less than 2 percent until May, and rising slightly in June), consistent with moderately tight monetary policy, declining inflation expectations, and low exchange rate pass-through.

[3]For Japan, the core consumer price index excludes fresh food and energy.

Financial Conditions Marginally Tighter, Localized Pressures

As discussed in the October 2018 *Global Financial Stability Report* (GFSR), global financial conditions have marginally tightened over the past six months. Although they remain accommodative and generally supportive of growth, significant differences have emerged between advanced and emerging market economies. In advanced economies, after spiking in the early months of the year, market volatility has subsided and risk appetite remains relatively strong. The widening growth differential between the United States and other advanced economies, together with associated divergences in monetary policy stances and long-term yields, have contributed to US dollar appreciation since April. Against this backdrop, localized pressure points have emerged in countries with weaker macroeconomic fundamentals and greater political uncertainty. The financial market impact of trade tensions has so far been contained to specific sectors, such as automobiles and aluminum, and some trade-sensitive currencies.

As expected by markets, the Federal Reserve raised the target range of the federal funds rate to 1.75–2 percent in June. With economic expansion in the United States gaining momentum, and a sizable fiscal stimulus anticipated to amplify already-buoyant private sector activity, the Federal Reserve signaled two additional rate hikes in 2018 and three in 2019. Also, in June, the European Central Bank announced an extension of its asset purchase program through the end of the year, while indicating it would reduce monthly purchases from €30 billion to €15 billion in October. The central bank also committed to maintaining rates at current levels at least through the summer of 2019. In July the Bank of Japan modified its yield curve control policy to allow a wider deviation band for the benchmark 10-year yield around an unchanged target of about zero percent. The Bank of Japan also introduced forward guidance on maintaining ultralow policy rates for an extended period of time. Among other advanced economies, the Bank of Canada raised its policy rate by 25 basis points in July, as did the Bank of England in August (marking only its second rate hike in a decade).

Long-term bond yields have diverged among advanced economies since February–March (Figure 1.4). As of mid-September, the 10-year US Treasury yield has risen to about 3.0 percent, while yields on German 10-year bunds have dropped 25 basis points to 0.45 percent and yields on UK gilts have remained at about 1.5 percent. Italian sovereign spreads have widened considerably since late May, initially owing to difficulties in the formation of a government and, more recently, because of uncertainty about the forthcoming budget. As of mid-September, they stood at about 250 basis points. In contrast, other euro area sovereign spreads have remained compressed. Corporate spreads have increased slightly since April, particularly among non-investment-grade credits (Figure 1.4, panel 4). With advanced economies' corporate profits remaining generally healthy, equity indices in the United States are slightly higher. Elsewhere, they are at broadly the same level (Figure 1.4, panel 5). As noted in the October 2018 GFSR, US equity prices now appear modestly higher than their model-based values, based on alternative measures of S&P 500 earnings expectations as well as proxies for both the discount factor and the equity risk premium. Price-to-earnings ratios are little changed relative to April (Figure 1.4, panel 6).

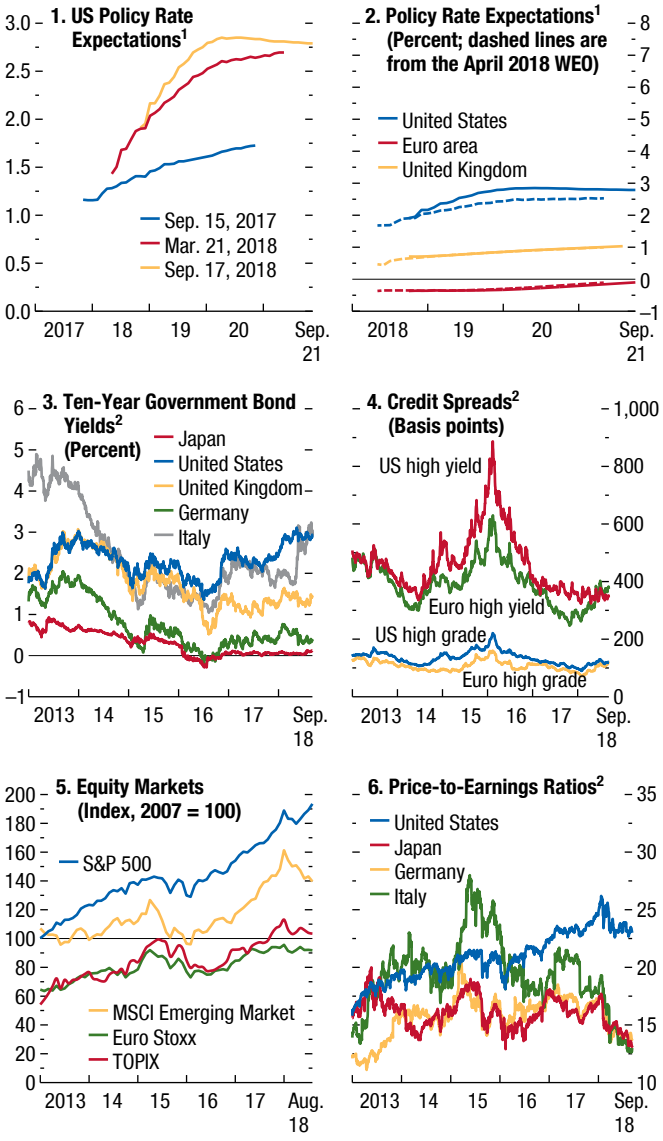
As of mid-September, the US dollar has strengthened by about 6½ percent in real effective terms since February (the reference period for the April 2018 WEO), consistent with the widening interest rate and expected growth differentials (Figure 1.5, panel 1). The euro, the yen, and the pound sterling have weakened vis-à-vis the US dollar but remain broadly unchanged in real effective terms, reflecting the depreciation of emerging market currencies discussed below.

Among emerging market economies, Argentina and Turkey have come under severe market pressure in recent weeks. In Argentina, tighter global financial conditions, together with a domestic corruption scandal and persistent uncertainty over the success of the stabilization plan underlying the program with the IMF, have contributed to financial market volatility. Despite a 2,000-basis-point hike in the short-term policy rate and several increases of reserve requirements, the Argentinean peso depreciated by over 40 percent in real effective terms between February and mid-September, equity valuations fell further, and sovereign spreads rose to above 700 basis points. In Turkey, concerns about underlying fundamentals and political tensions with the United States triggered a sharp depreciation of the currency (27 percent between February and mid-September in real effective terms), declining asset prices, and widening spreads. In response, the authorities released some foreign exchange liquidity by lowering reserve require-

Figure 1.4. Advanced Economies: Monetary and Financial Market Conditions

(Percent, unless noted otherwise)

Despite monetary policy tightening in the United States, financial conditions remain generally supportive of growth in advanced economies. Since earlier this year, long-term government bond yields have diverged: a steeper path of expected policy rates has modestly lifted US 10-year government bond yields, while yields on German and UK long-term bonds have fallen.

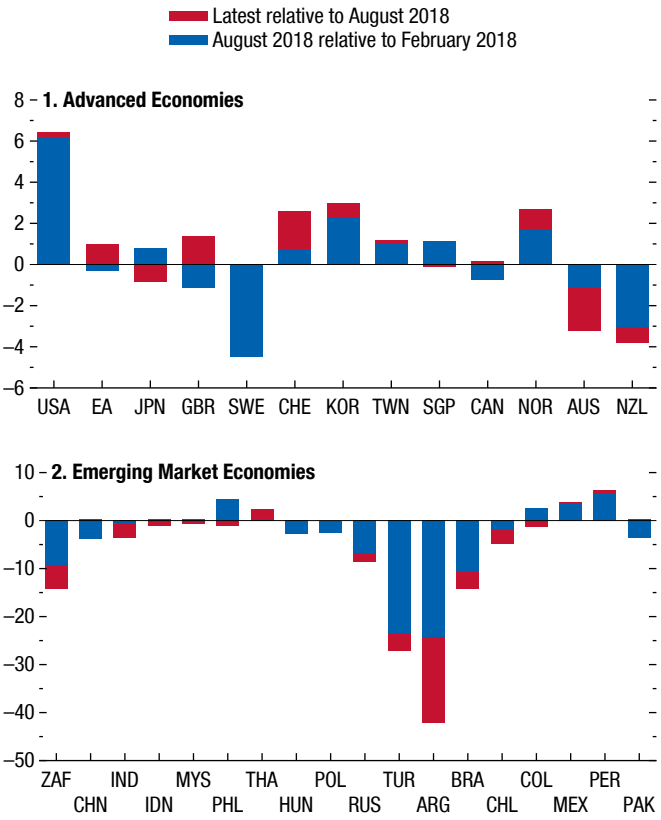


Sources: Bloomberg Finance L.P.; Thomson Reuters Datastream; and IMF staff calculations.
Note: MSCI = Morgan Stanley Capital International; S&P = Standard & Poor's; TOPIX = Tokyo Stock Price Index; WEO = *World Economic Outlook*.
[1]Expectations are based on the federal funds rate futures for the United States, the sterling overnight interbank average rate for the United Kingdom, and the euro interbank offered forward rate for the euro area; updated September 17, 2018.
[2]Data are through September 17, 2018.

Figure 1.5. Real Effective Exchange Rate Changes, February–September 2018

(Percent)

The US dollar has appreciated in real effective terms by about 6.5 percent since February on the back of widening interest rate and growth differentials. Emerging market currencies have generally weakened, with very large depreciations in Turkey and Argentina on growing concerns about macroeconomic imbalances and a notable weakening of the South African rand—after its strong rally in previous months—and of the Brazilian *real*.



Source: IMF staff calculations.
Note: EA = euro area. Data labels use International Organization for Standardization (ISO) country codes. Latest data available are for September 14, 2018.

ments and limited the capacity of banks to engage in cross-currency swap and forward transactions. The effective rate was increased first by providing liquidity to banks at the higher overnight lending rate rather than the weekly repo rate, and, in early September, by a 625 basis point hike in the benchmark policy rate.

Several other central banks (India, Indonesia, Mexico, Philippines) have also raised policy rates in recent months as headline inflation has risen and, in some cases, currencies have come under pressure (Figure 1.6). In China, the central bank maintained its policy rate while lowering banks' required reserve

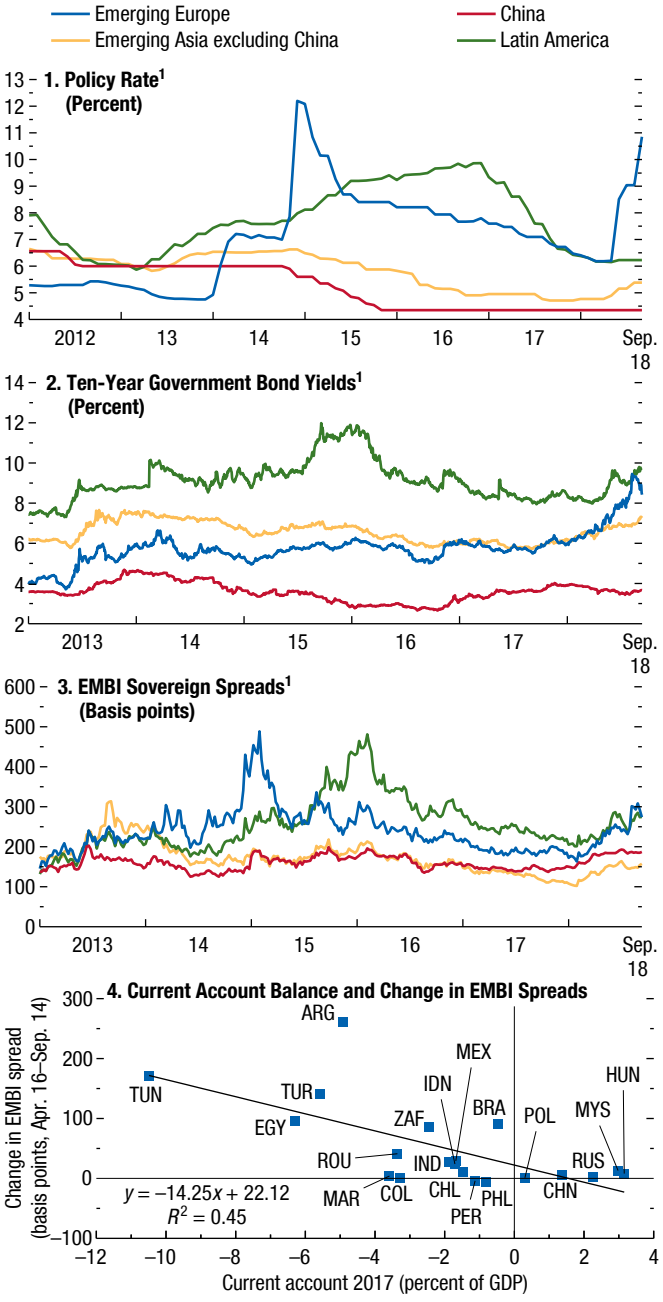
ratio in two separate moves (targeted to certain banks in April, followed by a more general cut in July) to support lending. Long-term yields have generally increased and sovereign spreads have widened, reflecting a reduction in bond flows to emerging markets in recent months. However, markets appear to be discriminating across countries, as spreads have widened to a much larger extent for countries with greater external financing needs (Figure 1.6, panel 4). Equity indices in emerging market and developing economies have generally declined, reflecting rising trade tensions and tighter external financial conditions (Figure 1.7). In some cases (for example, China), domestic regulatory tightening has contributed to a retreat in equity prices.

Currency movements for other emerging market and developing economies have mostly reflected developments in underlying fundamentals and perceptions of future policy direction (Figure 1.5, panel 2). Between February and mid-September, the Brazilian *real* declined 14 percent as domestic activity slowed and external financial conditions became tighter, while the Chinese renminbi depreciated by 3.5 percent as macro policies shifted to a more accommodative stance in recent months, and as trade tensions with the United States rose. The South African rand depreciated by some 14 percent on weaker-than-expected activity in the first half of the year and slow reform progress, unwinding some of the earlier gains associated with the change in the leadership. In contrast, the Mexican peso has appreciated by over 3½ percent since February after concerns about postelection shifts in policy direction began to fade, counteracting some of the negative sentiment stemming from US tariff actions and uncertainty surrounding NAFTA's future prior to the August agreement.

Tracking indicators and early data releases suggest that, after a buoyant start to the year, capital flows to emerging markets weakened considerably in the second quarter and beyond (Figure 1.8). In particular, evidence from investment fund flows and other high-frequency data sources suggests that nonresident portfolio flows, which were strong during 2017 and early 2018, turned negative in May–June of 2018, consistent with foreign exchange market pressures on several emerging market economies. While portfolio flows appeared to have stabilized during July, alongside currency valuations, outflows have resumed in August amid weakening investor sentiment following the depreciation of the Turkish lira and the Argentinean peso.

Figure 1.6. Emerging Market Economies: Interest Rates and Spreads

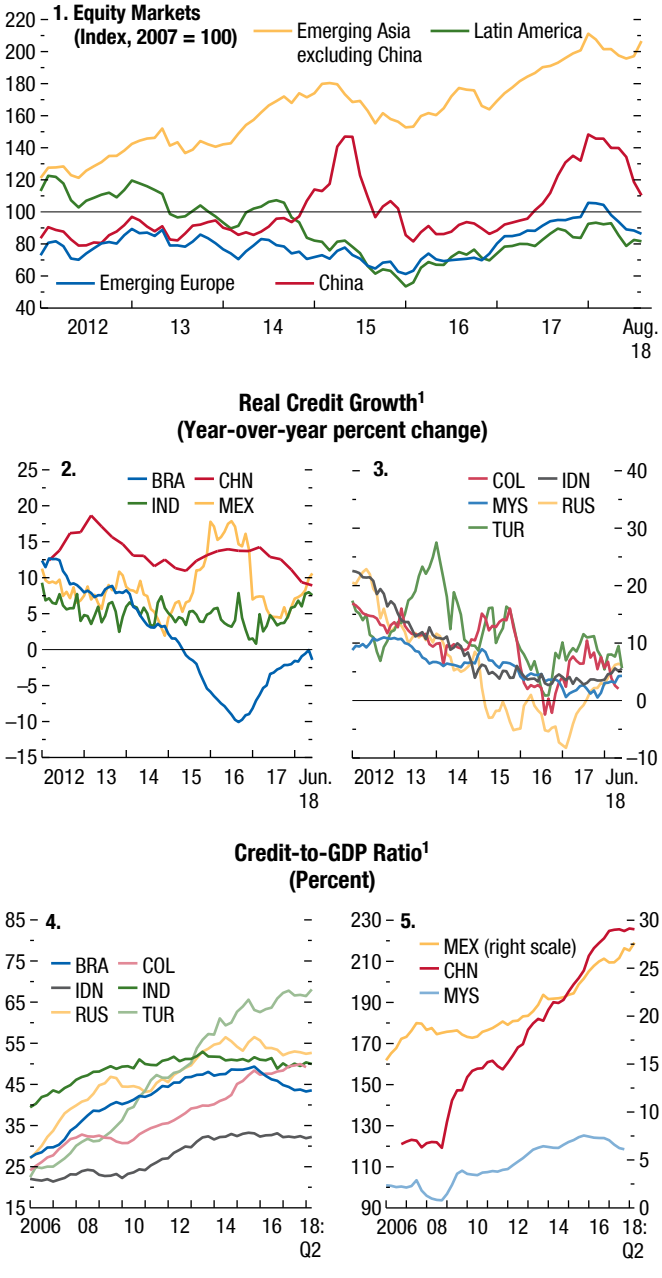
Among emerging markets, policy rates have generally increased since the spring (the sharp increase for emerging Europe reflects the policy rate hikes in Turkey). Long-term government bond yields have also generally increased, and sovereign spreads have widened over the past six months. Spreads have widened significantly more in countries with greater external financing needs.



Sources: Bloomberg Finance L.P.; Haver Analytics; IMF, *International Financial Statistics;* Thomson Reuters Datastream; and IMF staff calculations.
Note: Emerging Asia excluding China comprises India, Indonesia, Malaysia, the Philippines, and Thailand (except EMBI spread); emerging Europe comprises Poland, Romania, Russia, and Turkey; Latin America comprises Brazil, Chile, Colombia, Mexico, and Peru. EMBI = J.P. Morgan Emerging Markets Bond Index. Data labels use International Organization for Standardization (ISO) country codes.
[1]Data are through September 14, 2018.

Figure 1.7. Emerging Market Economies: Equity Markets and Credit

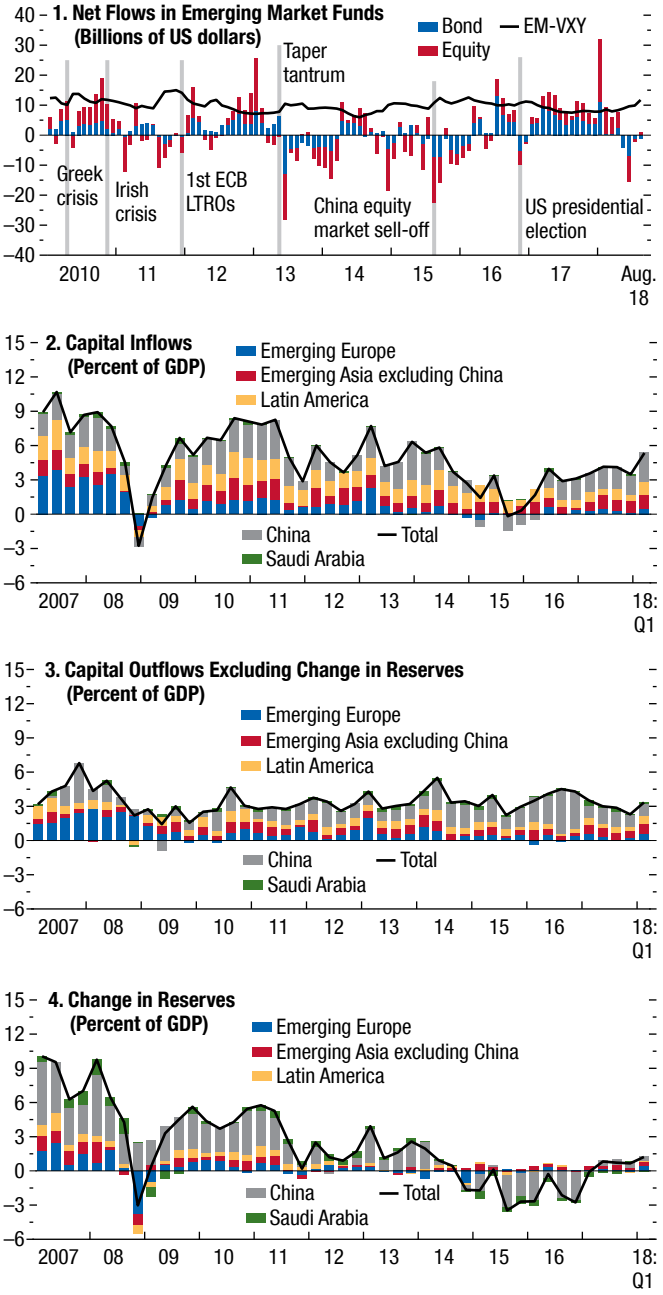
Equity indices have declined amid rising trade tensions and somewhat tighter external financial conditions.



Sources: Bloomberg Finance L.P.; Haver Analytics; IMF, *International Financial Statistics* (IFS); and IMF staff calculations.
Note: Data labels use International Organization for Standardization (ISO) country codes.
[1]Credit is other depository corporations' claims on the private sector (from IFS), except in the case of Brazil, for which private sector credit is from the Monetary Policy and Financial System Credit Operations published by Banco Central do Brasil, and China, for which credit is total social financing after adjusting for local government debt swaps.

Figure 1.8. Emerging Market Economies: Capital Flows

Capital flows to emerging markets appear to have weakened considerably in the second quarter of 2018, with nonresident portfolio flows turning negative in May–June 2018.



Sources: Bloomberg Finance L.P.; EPFR Global; Haver Analytics; IMF, *International Financial Statistics*; and IMF staff calculations.
Note: Capital inflows are net purchases of domestic assets by nonresidents. Capital outflows are net purchases of foreign assets by domestic residents. Emerging Asia excluding China comprises India, Indonesia, Malaysia, the Philippines, and Thailand; emerging Europe comprises Poland, Romania, Russia, and Turkey; Latin America comprises Brazil, Chile, Colombia, Mexico, and Peru. ECB = European Central Bank; EM-VXY = J.P. Morgan Emerging Market Volatility Index; LTROs = long-term refinancing operations.

Forces Shaping the Outlook

Diverging Cyclical Positions

While the global expansion is projected to continue in 2018 and 2019, it is becoming less synchronized. Compared with 2017, which saw the most widely shared pickup in country annual growth rates since 2010, a smaller share of countries, particularly among advanced economies, is expected to experience an acceleration of activity for 2018 and beyond.[4] In part, this reflects diverging cyclical positions, with expansions peaking in some countries while others continue to emerge from deep recession. Recent fuel price increases also have varying impacts on short-term prospects for fuel exporters and importers.

Following a stretch of above-trend growth in advanced economies during 2015–17, output gaps have closed or are set to close in most cases. As remaining slack diminishes and high capacity utilization begins to constrain supply, the growth rate of output is projected to start declining toward its potential, particularly among some euro area countries and in Japan. The US economy is an important exception to the pattern. It is expected to continue to grow above potential until 2020, helped by sizable fiscal stimulus. The pace of expansion is expected to dip below the economy's potential growth rate thereafter as the stimulus reverses and reinforces the effects of ongoing monetary tightening.

The Impact of Commodity Price Increases

Most nonfood commodities have registered price increases since mid-2017. Most notable has been the increase in oil prices—about $30 a barrel, or 70 percent, since June 2017. Some of this increase is expected to dissipate over the medium term because of higher US shale production and OPEC+ supply. Nonetheless, as shown in the Commodities Special Feature, oil futures curves are notably higher than a year ago.

The improved outlook for oil prices contributes to revisions to growth prospects for fuel exporters and importers—with a more notable impact on the exporters, given the implied magnitude of the changes in disposable income (Figure 1.9). A comparison of forecast revisions between the April 2018 WEO and the current report shows an upward revision of about 0.1 and 0.3 percentage point for 2018 and 2019, respectively, for a group of fuel exporters, excluding countries whose prospects are heavily conditioned by domestic strife, geopolitical tensions, or outright macroeconomic collapse. In contrast, growth prospects for the same period have been revised downward by about 0.1–0.3 percentage point for the rest of the world, a group dominated by fuel importers (Figure 1.9, panel 3).

Investment, Trade, and the Global Expansion

A core element of the 2017 upsurge in global growth and trade was the pickup in investment in advanced economies and an end to investment contractions in some large, stressed commodity exporters. Overall, both global imports and investment growth, at about 5 percent, were the highest since the 2010–11 rebound from the global financial crisis. This pace of expansion in investment is projected to ease in 2018 and 2019 compared with 2017, with a more notable decline in trade growth (Figure 1.10).

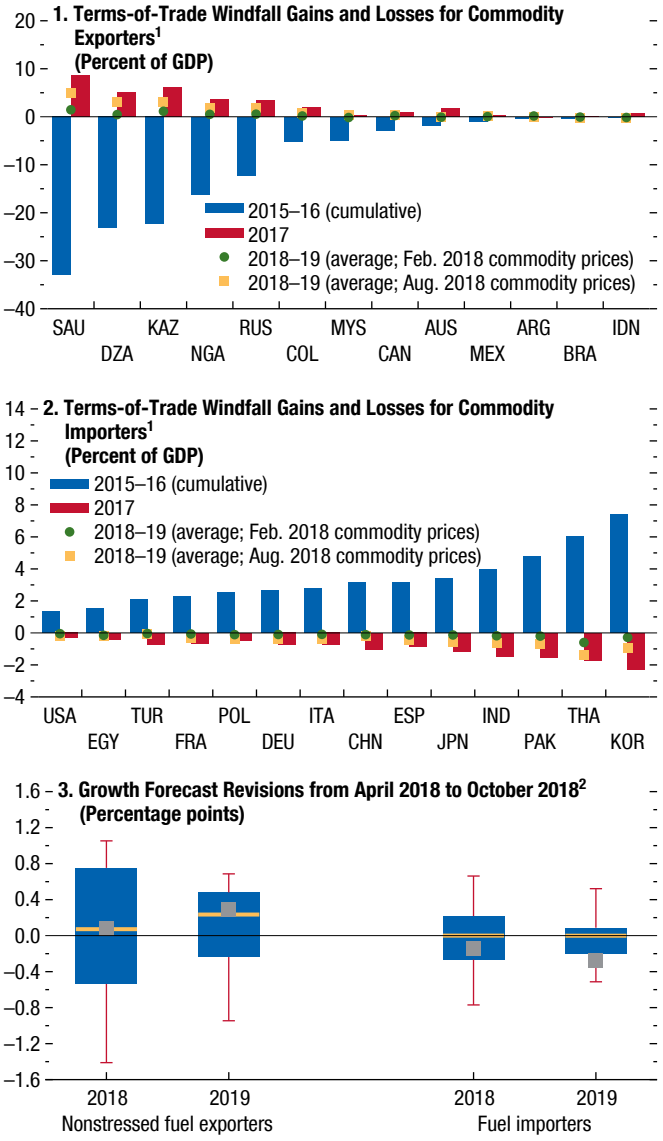
Despite this easing, investment growth in emerging market and developing economies is projected to remain robust over the next five years at about 5½ percent, accounting for well over one-third of their GDP growth rate during that period (Figure 1.11). Medium-term prospects for investment growth are much weaker in advanced economies, with capital spending projected to slow considerably as growth declines toward its lower potential rate and the fiscal stimulus in the United States begins to unwind.

At the same time, rising trade tensions and policy uncertainty—discussed in more detail below—raise concerns about global economic prospects. These factors could lead firms to postpone or forgo capital spending and hence slow down growth in investment and demand. This slowdown would also weaken trade growth, as capital and intermediate goods account for an important share of global trade. As mentioned earlier, high-frequency data point to a slowdown in global trade and industrial production, somewhat weaker manufacturing purchasing managers' indices, and especially weaker export orders, but the extent to which these factors have affected capital spending and trade are still unclear. Consistent with signs of slower production of capital

[4]In 2017, 58 percent of countries, accounting for 75 percent of world GDP in purchasing-power-parity terms, experienced a pickup in year-over-year growth rates. In 2018, 52 percent of economies, accounting for 47 percent of world GDP, are projected to register a pickup in annual growth rates. For 2019, the corresponding numbers are 54 percent of economies, accounting for 32 percent of global GDP.

Figure 1.9. Impact of Commodity Price Changes

Higher oil prices have led to a sizable increase in the projected terms-of-trade windfall gains and losses in 2018–19. This is reflected in growth forecast revisions relative to the April 2018 *World Economic Outlook*: Nonstressed fuel exporters are expected to grow faster in 2018–19 than previously projected, while growth prospects for oil importers were revised downward.

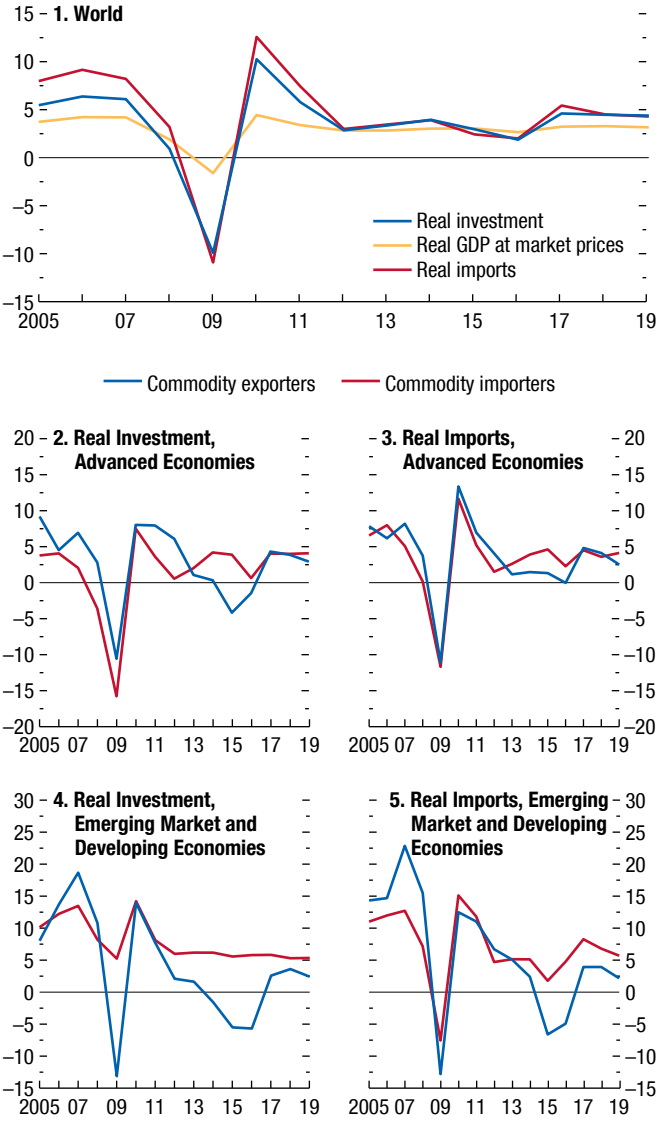


Source: IMF staff estimates.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.
[1]Gains (losses) for 2018–19 are simple averages of annual incremental gains (losses) for 2018 and 2019. The windfall is an estimate of the change in disposable income arising from commodity price changes. The windfall gain in year t for a country exporting x US dollars of commodity A and importing m US dollars of commodity B in year $t-1$ is defined as $(\Delta p_t^A x_{t-1} - \Delta p_t^B m_{t-1}) / Y_{t-1}$, in which Δp_t^A and Δp_t^B are the percentage changes in the prices of A and B between year $t-1$ and year t, and Y is GDP in year $t-1$ in US dollars. See also Gruss (2014).
[2]The yellow horizontal line inside each box represents the median; the upper and lower edges of each box show the top and bottom quartiles; the red markers denote the top and bottom deciles; and the gray square indicates the purchasing-power-parity-weighted mean. Stressed fuel exporters include Iran, Iraq, Libya, South Sudan, Venezuela, and Yemen.

Figure 1.10. Global Investment and Trade

(Percent change)

The pace of expansion of global investment is projected to ease in 2018 and 2019 compared with 2017, with a more notable decline in trade growth.



Source: IMF staff calculations.
Note: World and advanced economies exclude Ireland. Commodity exporters include fuel and nonfuel primary products exporters listed in Table D of the Statistical Appendix, as well as Australia, Brazil, Canada, Colombia, New Zealand, Norway, and Peru.

goods, the forecast for fixed investment growth in 2018 was revised downward in advanced economies by about 0.4 percentage point relative to the April 2018 WEO, particularly in advanced Asia and the United Kingdom. This downward revision was accompanied by downward revisions to export growth (by over 1 percentage point) and especially import growth (by 1.4 percentage point). The forecast for investment and trade growth in 2019 is also weaker. For emerging market and developing economies, trade growth was revised down modestly for 2018 and more substantially for 2019. The forecast for investment growth for 2018–19 is weaker than in April, despite higher capital spending in India, on account of contracting investment in economies under stress, such as Argentina and Turkey, which is also reflected in a downward revision for import growth, particularly for 2019.

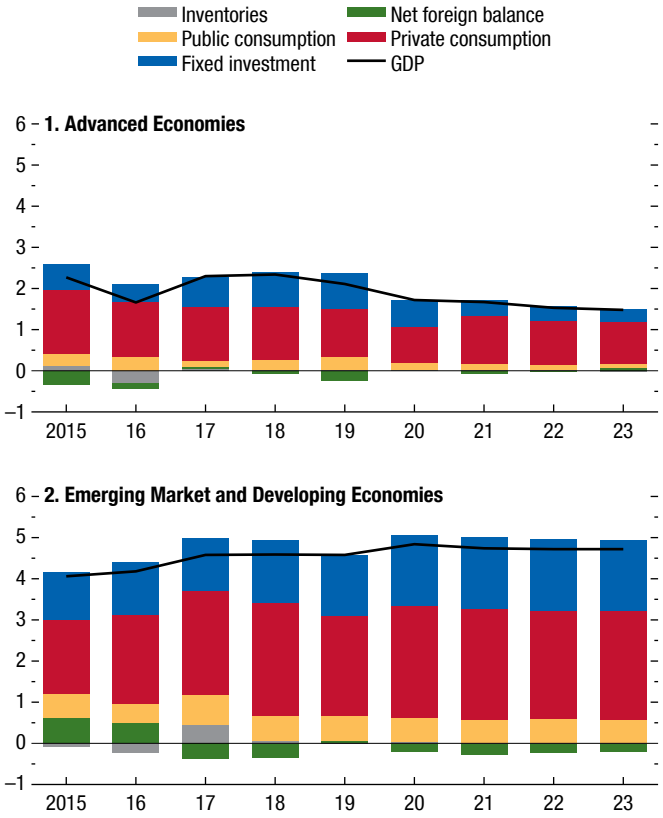
Structural Headwinds

The cyclical upsurge in global growth that began in mid-2016—and is now extended by procyclical fiscal stimulus in the United States and associated favorable spillovers to trading partners—has helped overcome powerful structural headwinds acting on potential growth. After the cyclical boost in demand and the US stimulus run their course, and as growth in China continues to slow in line with the necessary rebalancing of the economy, global growth is set to moderate, weighed down by structural drags. The increase in trade costs would also depress medium-term prospects by hindering efficient resource allocation, investment, and productivity.

- Among advanced economies, the subdued outlook for potential growth reflects, to a large extent, slower labor force growth due to population aging (as discussed in Chapter 2 of the April 2018 WEO). While labor productivity growth is expected to improve in the medium term, the slight acceleration will only partially offset the slower increases in labor input. Box 1.1 discusses the rise in corporate market power in advanced economies, a trend that could be a further drag on business dynamism, investment, and productivity. Some policy measures that are supporting short-term activity in some economies (such as larger US fiscal deficits) are not sustainable—and hence come at the cost of lower future growth because they will need to be reversed.
- Among emerging market and developing economies, prospects for many economies to close income gaps relative to advanced economies appear weaker than in the past (Figure 1.12). Some 45 emerging market and developing economies—accounting for 10 percent of world GDP in purchasing-power-parity terms—are projected to grow by less than advanced economies in per capita terms over 2018–23, and hence to fall further behind in living standards. Commodity prices, despite their recent increase, are projected to remain below the levels seen before 2011–13. Commodity exporters face a difficult adjustment to structurally lower revenues than in the past, requiring diversification of their economies away from commodity dependence and mobilization of noncommodity sources of revenue to finance pressing development needs. The adjustment costs associated with this transition will weigh on the medium-term growth outlook for this group of economies.

Figure 1.11. Contributions to GDP Growth
(Percent)

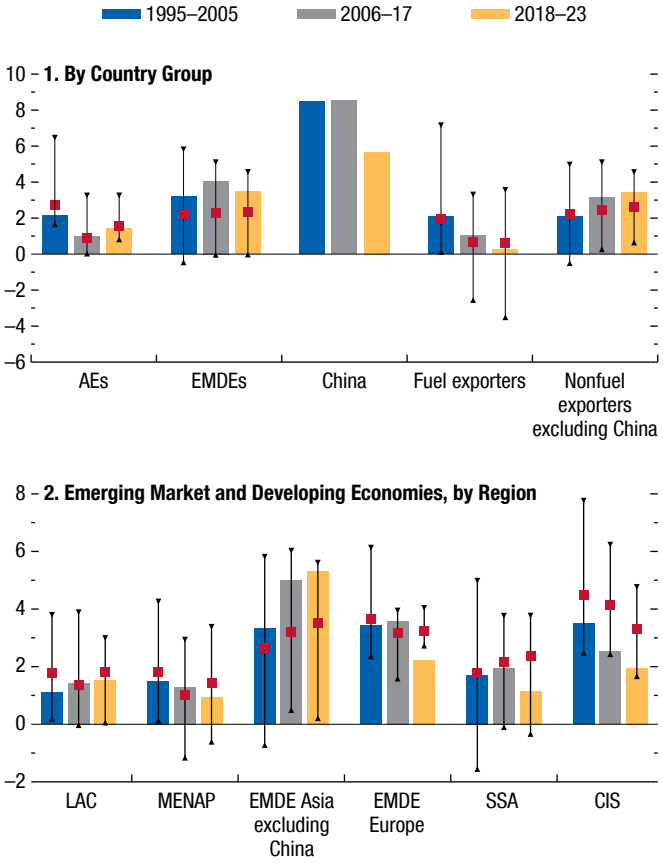
In the medium term, investment growth is projected to remain robust in emerging market and developing economies, accounting for well over one-third of their GDP growth. In advanced economies, investment growth is expected to weaken significantly over the next five years.



Source: IMF staff calculations.

Figure 1.12. Per Capita Real GDP Growth
(Percent)

Prospects for emerging market and developing economies to narrow gaps in living standards relative to advanced economies are uneven.



Source: IMF staff estimates.
Note: AEs = advanced economies; CIS = Commonwealth of Independent States; EMDE = emerging market and developing economy; LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa, Afghanistan, and Pakistan; PPP = purchasing power parity; SSA = sub-Saharan Africa. Bars denote PPP GDP-weighted averages, red markers indicate the medians, and black markers denote the top and bottom deciles of per capita GDP growth in the country groups. The fuel and nonfuel exporter subgroups are defined in Table D of the Statistical Appendix and cover EMDEs only.

The Forecast

Policy Assumptions

The WEO baseline forecast assumes an expansionary fiscal policy stance for advanced economies in 2018, owing largely to US fiscal stimulus, turning neutral in 2019 (Figure 1.13).[5] From 2020 onward, fiscal policy is expected to be contractionary in advanced economies as the US fiscal stimulus begins to unwind. The fiscal stance is assumed to be broadly neutral in emerging market and developing economies through the forecast horizon.

Monetary policy stances are projected to diverge among advanced economies. The US federal funds target is expected to increase to about 2.5 percent by the end of 2018 and about 3.5 percent by the end of 2019 (the forecast assumes a total of eight rate hikes during 2018–19). The policy target rate is expected to decline to 2.9 percent in 2022. Policy rates are projected to remain negative in the euro area until mid-2019 and close to zero in Japan through the end of 2019. They are expected to rise gradually thereafter but to remain very low through the forecast horizon in both cases. For emerging market economies, monetary policy stances are assumed to vary, based on the economies' cyclical positions.

The baseline forecast incorporates the impact of tariffs that had been announced by the United States as of mid-September, namely a 10 percent tariff on all aluminum imports, a 25 percent tariff on all steel imports, a 25 percent tariff on $50 billion of imports from China imposed in July and August, and a 10 percent tariff on an additional $200 billion of imports from China imposed in late September, rising to 25 percent by year end, as well as the retaliatory measures taken by trading partners.[6] The forecast assumes that part of the negative effect of these trade measures will be offset by policy stimulus from China (and possibly other economies as well). The forecast does not incorporate the impact of further tariffs on Chinese and other imports threatened by the United States, but not yet implemented, due to uncertainty about their exact magnitude, timing, and potential retaliatory response. Scenario Box 1 discusses the potential economic consequences of further escalation in trade tensions and rising trade barriers.

Assumptions about Financial Conditions and Commodity Prices

The baseline forecast assumes that global financial conditions will tighten gradually as the expansion

[5]The revision to the expected fiscal policy stance for advanced economies in 2019 relative to the April 2018 WEO reflects smaller-than-previously anticipated declines in the structural primary balances of the United States and France, which outweigh the more expansionary-than-previously projected stance of Germany, Greece, and Italy.

[6]In particular, the Chinese authorities have announced tariffs ranging from 5–10 percent on $60 billion of imports from the United States in response to the US tariffs imposed in September.

continues in 2018–19, but remain generally supportive of growth. A well-communicated, data-dependent normalization of monetary policy in the United States and the United Kingdom is expected to continue, leading to a steady increase in long-term interest rates. Financial market volatility is assumed to remain low. The increase in advanced economy long-term sovereign bond yields is expected to generate some rebalancing of global portfolios. Nonetheless, barring some cases in which macroeconomic and financial imbalances have increased in recent years, sovereign bond spreads for most emerging market economies are assumed to remain contained.

The IMF's Primary Commodity Price Index is projected to increase about 18 percent in 2018 from its 2017 average (a cumulative increase from 2016 of about 36 percent) and then to fall marginally in 2019. Oil prices are expected to average $69.38 a barrel in 2018 (higher than the April 2018 WEO projection of $62.30 and the 2017 price of $52.80 a barrel). Global oil supply is expected to gradually increase over the forecast horizon, lowering oil prices to $68.76 a barrel in 2019, and further to about $60 a barrel in 2023. Metal prices are expected to increase by about 5.3 percent in 2018, before declining by 3.6 percent in 2019 as the effects of recent tariff actions take hold and trade policy uncertainty weighs on metals demand.

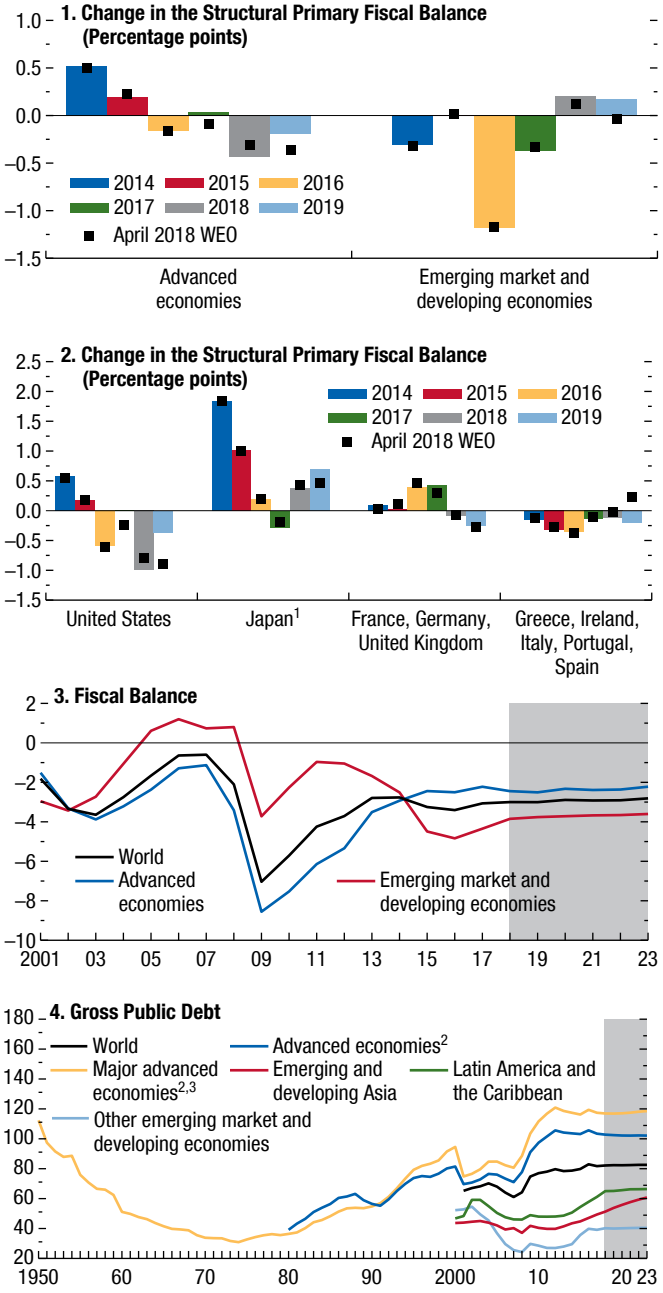
Global Growth Outlook

Global growth is projected at 3.7 percent in 2018 and 2019, 0.2 percentage point below the April 2018 WEO, even though well above its level during 2012–16. Differences in the outlook across countries and regions are notable (Table 1.1, Annex Tables 1.1.1–1.1.7, and Boxes 1.2 and 1.3 provide details of country projections). Global growth is expected to remain steady at 3.7 percent in 2020, as the decline in advanced economy growth with the unwinding of the US fiscal stimulus and the fading of the favorable spillovers from US demand to trading partners is offset by a pickup in emerging market and developing economy growth. Thereafter, global growth is projected to slow to 3.6 percent by 2022–23, largely reflecting a moderation in advanced economy growth toward the potential of that group.

Growth in advanced economies will remain well above trend at 2.4 percent in 2018, before softening to 2.1 percent in 2019. The forecast for both years is 0.1 percentage point weaker than in the April 2018

Figure 1.13. Fiscal Indicators
(Percent of GDP, unless noted otherwise)

The fiscal policy stance in advanced economies is assumed to be expansionary in 2018, before turning neutral in 2019. In emerging market and developing economies, the fiscal policy stance is assumed to be broadly neutral.



Source: IMF staff estimates.
Note: WEO = *World Economic Outlook*.
[1]Japan's latest figures reflect comprehensive methodological revisions adopted in December 2016.
[2]Data through 2000 exclude the United States.
[3]Canada, France, Germany, Italy, Japan, United Kingdom, United States.

Table 1.1. Overview of the *World Economic Outlook* Projections

(Percent change, unless noted otherwise)

		Projections		Difference from July 2018 *WEO Update*[1]		Difference from April 2018 WEO[1]	
	2017	2018	2019	2018	2019	2018	2019
World Output	**3.7**	**3.7**	**3.7**	**–0.2**	**–0.2**	**–0.2**	**–0.2**
Advanced Economies	**2.3**	**2.4**	**2.1**	**0.0**	**–0.1**	**–0.1**	**–0.1**
United States	2.2	2.9	2.5	0.0	–0.2	0.0	–0.2
Euro Area	2.4	2.0	1.9	–0.2	0.0	–0.4	–0.1
Germany	2.5	1.9	1.9	–0.3	–0.2	–0.6	–0.1
France	2.3	1.6	1.6	–0.2	–0.1	–0.5	–0.4
Italy	1.5	1.2	1.0	0.0	0.0	–0.3	–0.1
Spain	3.0	2.7	2.2	–0.1	0.0	–0.1	0.0
Japan	1.7	1.1	0.9	0.1	0.0	–0.1	0.0
United Kingdom	1.7	1.4	1.5	0.0	0.0	–0.2	0.0
Canada	3.0	2.1	2.0	0.0	0.0	0.0	0.0
Other Advanced Economies[2]	2.8	2.8	2.5	0.0	–0.2	0.1	–0.1
Emerging Market and Developing Economies	**4.7**	**4.7**	**4.7**	**–0.2**	**–0.4**	**–0.2**	**–0.4**
Commonwealth of Independent States	2.1	2.3	2.4	0.0	0.2	0.1	0.3
Russia	1.5	1.7	1.8	0.0	0.3	0.0	0.3
Excluding Russia	3.6	3.9	3.6	0.3	–0.1	0.4	0.0
Emerging and Developing Asia	6.5	6.5	6.3	0.0	–0.2	0.0	–0.3
China	6.9	6.6	6.2	0.0	–0.2	0.0	–0.2
India[3]	6.7	7.3	7.4	0.0	–0.1	–0.1	–0.4
ASEAN-5[4]	5.3	5.3	5.2	0.0	–0.1	0.0	–0.2
Emerging and Developing Europe	6.0	3.8	2.0	–0.5	–1.6	–0.5	–1.7
Latin America and the Caribbean	1.3	1.2	2.2	–0.4	–0.4	–0.8	–0.6
Brazil	1.0	1.4	2.4	–0.4	–0.1	–0.9	–0.1
Mexico	2.0	2.2	2.5	–0.1	–0.2	–0.1	–0.5
Middle East, North Africa, Afghanistan, and Pakistan	2.2	2.4	2.7	–1.1	–1.2	–1.0	–1.0
Saudi Arabia	–0.9	2.2	2.4	0.3	0.5	0.5	0.5
Sub-Saharan Africa	2.7	3.1	3.8	–0.3	0.0	–0.3	0.1
Nigeria	0.8	1.9	2.3	–0.2	0.0	–0.2	0.4
South Africa	1.3	0.8	1.4	–0.7	–0.3	–0.7	–0.3
Memorandum							
European Union	2.7	2.2	2.0	–0.2	–0.1	–0.3	–0.1
Low-Income Developing Countries	4.7	4.7	5.2	–0.3	–0.1	–0.3	–0.1
Middle East and North Africa	1.8	2.0	2.5	–1.2	–1.3	–1.2	–1.1
World Growth Based on Market Exchange Rates	3.2	3.2	3.1	–0.1	–0.2	–0.2	–0.2
World Trade Volume (goods and services)	**5.2**	**4.2**	**4.0**	**–0.6**	**–0.5**	**–0.9**	**–0.7**
Imports							
Advanced Economies	4.2	3.7	4.0	–0.8	–0.4	–1.4	–0.5
Emerging Market and Developing Economies	7.0	6.0	4.8	0.0	–0.9	0.0	–0.8
Exports							
Advanced Economies	4.4	3.4	3.1	–0.8	–0.6	–1.1	–0.8
Emerging Market and Developing Economies	6.9	4.7	4.8	–0.6	–0.3	–0.4	–0.5
Commodity Prices (US dollars)							
Oil[5]	23.3	31.4	–0.9	–1.6	0.9	13.4	5.6
Nonfuel (average based on world commodity export weights)	6.8	2.7	–0.7	–3.3	–1.2	–2.9	–1.2
Consumer Prices							
Advanced Economies	1.7	2.0	1.9	–0.2	–0.3	0.0	0.0
Emerging Market and Developing Economies[6]	4.3	5.0	5.2	0.3	0.7	0.2	0.7
London Interbank Offered Rate (percent)							
On US Dollar Deposits (six month)	1.5	2.5	3.4	–0.1	–0.1	0.1	0.0
On Euro Deposits (three month)	–0.3	–0.3	–0.2	0.0	–0.1	0.0	–0.2
On Japanese Yen Deposits (six month)	0.0	0.0	0.1	0.0	0.0	0.0	0.0

Note: Real effective exchange rates are assumed to remain constant at the levels prevailing during July 17–August 14, 2018. Economies are listed on the basis of economic size. The aggregated quarterly data are seasonally adjusted. WEO = *World Economic Outlook*.

[1]Difference based on rounded figures for the current, July 2018 *World Economic Outlook Update*, and April 2018 *World Economic Outlook* forecasts. The differences are also adjusted to include Argentina's consumer prices since the July 2018 Update.

[2]Excludes the Group of Seven (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and euro area countries.

[3]For India, data and forecasts are presented on a fiscal year basis and GDP from 2011 onward is based on GDP at market prices with fiscal year 2011/12 as a base year.

[4]Indonesia, Malaysia, Philippines, Thailand, Vietnam.

Table 1.1 *(continued)*

	Year over Year				Q4 over Q4[7]			
			Projections				Projections	
	2016	2017	2018	2019	2016	2017	2018	2019
World Output	**3.3**	**3.7**	**3.7**	**3.7**	**3.2**	**4.0**	**3.5**	**3.8**
Advanced Economies	**1.7**	**2.3**	**2.4**	**2.1**	**2.0**	**2.5**	**2.3**	**1.9**
United States	1.6	2.2	2.9	2.5	1.9	2.5	3.1	2.3
Euro Area	1.9	2.4	2.0	1.9	2.0	2.7	1.7	1.9
Germany	2.2	2.5	1.9	1.9	1.9	2.8	1.9	1.6
France	1.1	2.3	1.6	1.6	1.2	2.8	1.3	1.7
Italy	0.9	1.5	1.2	1.0	1.0	1.6	0.8	1.3
Spain	3.2	3.0	2.7	2.2	2.9	3.0	2.5	2.1
Japan	1.0	1.7	1.1	0.9	1.5	2.0	1.0	–0.3
United Kingdom	1.8	1.7	1.4	1.5	1.7	1.3	1.5	1.4
Canada	1.4	3.0	2.1	2.0	2.0	3.0	2.1	1.9
Other Advanced Economies[2]	2.3	2.8	2.8	2.5	2.6	2.9	2.8	2.4
Emerging Market and Developing Economies	**4.4**	**4.7**	**4.7**	**4.7**	**4.4**	**5.2**	**4.6**	**5.3**
Commonwealth of Independent States	0.4	2.1	2.3	2.4	1.0	1.7	2.2	2.3
Russia	–0.2	1.5	1.7	1.8	0.8	1.2	2.1	1.9
Excluding Russia	2.0	3.6	3.9	3.6	. . .	. . .	. . .	. . .
Emerging and Developing Asia	6.5	6.5	6.5	6.3	6.3	6.7	6.2	6.5
China	6.7	6.9	6.6	6.2	6.8	6.8	6.4	6.2
India[3]	7.1	6.7	7.3	7.4	6.1	7.7	6.5	7.9
ASEAN-5[4]	4.9	5.3	5.3	5.2	4.8	5.4	5.1	5.6
Emerging and Developing Europe	3.3	6.0	3.8	2.0	3.8	6.1	0.9	4.0
Latin America and the Caribbean	–0.6	1.3	1.2	2.2	–0.8	1.7	0.5	2.8
Brazil	–3.5	1.0	1.4	2.4	–2.4	2.2	1.7	2.5
Mexico	2.9	2.0	2.2	2.5	3.3	1.6	2.2	3.0
Middle East, North Africa, Afghanistan, and Pakistan	5.1	2.2	2.4	2.7	. . .	. . .	. . .	. . .
Saudi Arabia	1.7	–0.9	2.2	2.4	2.1	–1.4	3.5	2.1
Sub-Saharan Africa	1.4	2.7	3.1	3.8	. . .	. . .	. . .	. . .
Nigeria	–1.6	0.8	1.9	2.3	. . .	. . .	. . .	. . .
South Africa	0.6	1.3	0.8	1.4	1.0	1.9	0.5	0.9
Memorandum								
European Union	2.0	2.7	2.2	2.0	2.1	2.8	1.9	2.1
Low-Income Developing Countries	3.6	4.7	4.7	5.2	. . .	. . .	. . .	. . .
Middle East and North Africa	5.2	1.8	2.0	2.5	. . .	. . .	. . .	. . .
World Growth Based on Market Exchange Rates	2.5	3.2	3.2	3.1	2.7	3.4	3.0	3.0
World Trade Volume (goods and services)	**2.2**	**5.2**	**4.2**	**4.0**	**. . .**	**. . .**	**. . .**	**. . .**
Imports								
Advanced Economies	2.4	4.2	3.7	4.0	. . .	. . .	. . .	. . .
Emerging Market and Developing Economies	1.8	7.0	6.0	4.8	. . .	. . .	. . .	. . .
Exports								
Advanced Economies	1.8	4.4	3.4	3.1	. . .	. . .	. . .	. . .
Emerging Market and Developing Economies	3.0	6.9	4.7	4.8	. . .	. . .	. . .	. . .
Commodity Prices (US dollars)								
Oil[5]	–15.7	23.3	31.4	–0.9	16.2	19.6	19.6	–3.6
Nonfuel (average based on world commodity export weights)	–1.5	6.8	2.7	–0.7	10.3	1.9	1.3	1.9
Consumer Prices								
Advanced Economies	0.8	1.7	2.0	1.9	1.2	1.7	2.1	1.9
Emerging Market and Developing Economies[6]	4.2	4.3	5.0	5.2	4.2	3.7	4.6	4.1
London Interbank Offered Rate (percent)								
On US Dollar Deposits (six month)	1.1	1.5	2.5	3.4	. . .	. . .	. . .	. . .
On Euro Deposits (three month)	–0.3	–0.3	–0.3	–0.2	. . .	. . .	. . .	. . .
On Japanese Yen Deposits (six month)	0.0	0.0	0.0	0.1	. . .	. . .	. . .	. . .

[5]Simple average of prices of UK Brent, Dubai Fateh, and West Texas Intermediate crude oil. The average price of oil in US dollars a barrel was $52.81 in 2017; the assumed price, based on futures markets, is $69.38 in 2018 and $68.76 in 2019.

[6]Excludes Venezuela but includes Argentina starting from 2017 onward. See country-specific notes for Argentina and Venezuela in the "Country Notes" section of the Statistical Appendix.

[7]For World Output, the quarterly estimates and projections account for approximately 90 percent of annual world output at purchasing-power-parity weights. For Emerging Market and Developing Economies, the quarterly estimates and projections account for approximately 80 percent of annual emerging market and developing economies' output at purchasing-power-parity weights.

WEO. In 2018, weaker-than-expected outturns in the first half of the year have led to downward revisions for the euro area and the United Kingdom. In 2019, recent trade measures are expected to weigh on economic activity, especially in the United States, where the 2019 growth forecast was revised down by 0.2 percentage point. Growth is expected to decline to 1.8 percent in 2020 as the US fiscal stimulus begins to unwind and euro area growth moderates toward its medium-term potential. Growth is projected to fall to 1.4 percent later on as working-age population growth continues to slow and productivity growth remains moderate.

With emerging Asia continuing to expand at a strong pace—despite a 0.3 percentage point downward revision to the 2019 growth forecast mostly driven by recently announced trade measures—and activity in commodity exporters firming, growth in the emerging market and developing economy group is set to remain steady at 4.7 percent in 2018–19. Over the medium term, growth is projected to rise to slightly less than 5 percent. Beyond 2019, the aggregate growth rate for the group reflects offsetting developments as growth moderates to a sustainable pace in China, while it improves in India (owing to structural reforms and a still-favorable demographic dividend), commodity exporters (though to rates below the average of recent decades), and some economies experiencing macroeconomic stress in 2018–19. In comparison with the April 2018 WEO, the growth forecast for emerging market and developing economies was marked down for 2018 and 2019 by 0.2 percentage point and 0.4 percentage point, respectively, and for 2020–23 by about 0.2 percentage point. For 2018–19, the main sources of the downward revision are the negative expected impact of the trade measures implemented since the April 2018 WEO on activity in China and other economies in emerging Asia, much weaker activity in Iran following the reimposition of US sanctions, a sharp projected slowdown in Turkey following the ongoing market turmoil, and a more subdued outlook for large economies in Latin America (Argentina, Brazil, Mexico). Over 2020–23, the revisions primarily reflect a downward reassessment of the still-strong growth prospects for India and a lower growth forecast for Pakistan and Turkey, in addition to continued weaker growth in Iran.

Inflation Outlook

Largely reflecting recent increases in commodity prices, inflation is expected to rise this year across both advanced and emerging market and developing economies. In advanced economies, it is projected to pick up to 2 percent in 2018, from 1.7 percent in 2017. Inflation in emerging market and developing economies excluding Venezuela is expected to increase to 5.0 percent this year from 4.3 percent in 2017 (Box 1.4 provides details of the inflation outlook for individual countries).

Among advanced economies, core inflation will rise over the forecast horizon, with differentiation across countries mostly based on cyclical positions. In the United States, for example, core personal consumption expenditure price inflation, the Federal Reserve's preferred measure, is expected to rise to 2.1 percent in 2018 and 2.3 percent in 2019 (from 1.6 percent in 2017), as the sizable, procyclical fiscal stimulus lifts output above potential. Core inflation is assumed to gradually decline to 2 percent thereafter, with a monetary policy response that ensures expectations remain well anchored. In the euro area, core harmonized index of consumer prices inflation is projected to increase slowly to 2 percent by 2022, reflecting the influence of backward-looking elements in the inflation processes.

Within the group of emerging market and developing economies, core inflation rates are expected to be more dispersed than among advanced economies. To a large extent, the dispersion reflects variation in cyclical positions, anchoring of inflation expectations, and inflation targets.

External Sector Outlook

Current Account Positions

After remaining broadly stable in 2017, current account deficits and surpluses in 2018 are, on the whole, forecast to widen slightly from 2017 (Figure 1.14). The most notable drivers of predicted current account changes for 2018 are the increase in oil prices, which is expected to result in an improvement in the current account balance of oil exporters of about 3 percent of their GDP, and strong growth in the United States, which is projected to lead to a modest widening of the US current account deficit for this year. Given that most fuel exporters were already running surpluses in 2017, both factors will lead to some widening of global current account imbalances.

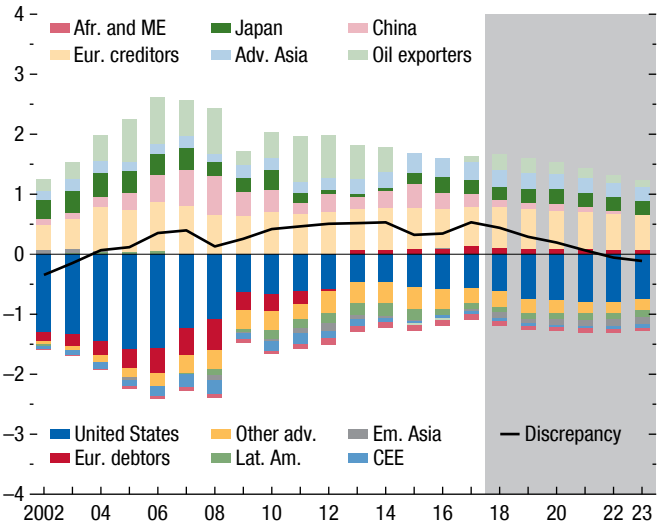
Forecasts for 2019 and beyond indicate a gradual decline in the current account balances of oil exporters (because average oil prices are projected to decline compared with their current levels), as well as an initial

further widening of the US current account deficit, driven by expansionary fiscal policy. Over the medium term, current account balances should narrow again, with a stabilization in the US current account deficit as the expansionary effects of fiscal policy wane, coupled with some narrowing of surpluses in China and, to a lesser extent, in Europe. The recently imposed trade measures by the United States and retaliatory actions by trading partners are expected to have a limited impact on external imbalances (see 2018 *External Sector Report* for a discussion of the relation between trade costs and external imbalances).

As highlighted in the IMF's 2018 *External Sector Report*, many countries' current account imbalances in 2017 were too large in relation to country-specific norms consistent with underlying fundamentals and desirable policies. It is therefore interesting to document how current account balances are projected to evolve in coming years. As shown in panel 1 of Figure 1.15, current account balances in 2018 are projected to move in a direction consistent with some reduction in those excess imbalances (despite a larger deficit in the United States and a larger surplus in Germany). Medium-term projections suggest, on average, further movement of current account balances in the same direction, but also feature a widening of the US current account deficit and persistent large surpluses in many advanced European and Asian economies (Figure 1.15, panel 2).[7] At the same time, given that changes in macroeconomic fundamentals relative to 2017 affect not only current account balances but also their equilibrium values, the path of future excess imbalances cannot be precisely inferred from this exercise.[8]

Figure 1.14. Global Current Account Balance
(Percent of world GDP)

After a slight widening in 2018, current account balances are expected to narrow marginally over the medium term as the surpluses of oil exporters decline and the US current account deficit stabilizes with the fading of the expansionary effects of fiscal policy.



Source: IMF staff estimates.
Note: Adv. Asia = advanced Asia (Hong Kong SAR, Korea, Singapore, Taiwan Province of China); Afr. and ME = Africa and the Middle East (Democratic Republic of the Congo, Egypt, Ethiopia, Ghana, Jordan, Kenya, Lebanon, Morocco, South Africa, Sudan, Tanzania, Tunisia); CEE = central and eastern Europe (Belarus, Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Slovak Republic, Turkey, Ukraine); Em. Asia = emerging Asia (India, Indonesia, Pakistan, Philippines, Thailand, Vietnam); Eur. creditors = European creditors (Austria, Belgium, Denmark, Finland, Germany, Luxembourg, Netherlands, Norway, Sweden, Switzerland); Eur. debtors = European debtors (Cyprus, Greece, Ireland, Italy, Portugal, Spain, Slovenia); Lat. Am. = Latin America (Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay); Oil exporters = Algeria, Azerbaijan, Iran, Kazakhstan, Kuwait, Nigeria, Oman, Qatar, Russia, Saudi Arabia, United Arab Emirates, Venezuela; Other adv. = other advanced economies (Australia, Canada, France, Iceland, New Zealand, United Kingdom).

International Investment Positions

Changes in international investment positions reflect both net financial flows and valuation changes arising from fluctuations in exchange rates and asset prices. Given that WEO projections assume broadly stable real effective exchange rates and limited variation in asset prices, changes in international investment positions are driven by projections for net external borrowing and lending (in line with the current account balance), with their ratios to domestic and world GDP affected by projected growth rates for individual countries and for the world economy as a whole.[9,10]

[7]The change in the current account balance over 2018 would offset, on average, about one-fifth of the 2017 current account gap, while the change between 2017 and 2023 would offset about half of the 2017 gap.

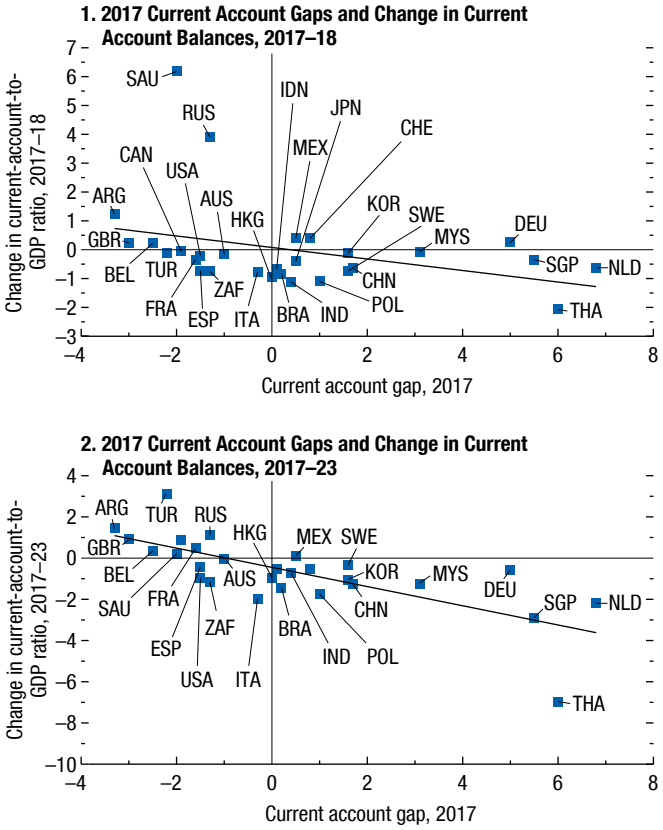
[8]For instance, an improvement in the terms of trade is typically associated with a larger equilibrium current account balance and a more appreciated equilibrium exchange rate.

[9]WEO forecasts include projections of 10-year government bond yields, which would affect bond prices going forward, but the impact of those changes in bond prices on the valuation of external assets and liabilities is typically not included in international investment position forecasts.

[10]Exchange rate changes can affect the evolution of international investment positions. For instance, according to estimates by the United States Bureau of Economic Analysis, the 7 percent depreciation of the US dollar in nominal effective terms between the end of 2016 and the end of 2017 improved the US net international investment position by about 6 percent of GDP by increasing the domestic currency value of foreign currency assets held by US residents.

Figure 1.15. Current Account Balances in Relation to Economic Fundamentals

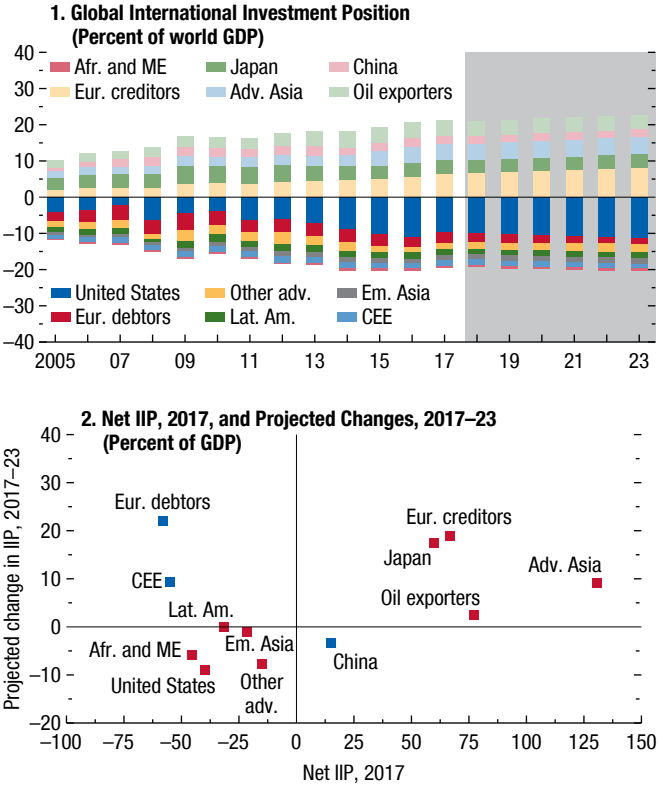
Current account balances in 2018 are projected to move in a direction consistent with some reduction in excess imbalances. Medium-term projections suggest further modest movement of current account balances in the same direction.



Source: IMF staff calculations.
Note: Data labels use International Organization for Standardization (ISO) country codes.

Figure 1.16. Net International Investment Position

Creditor and debtor net international investment positions are projected to widen slightly over the medium term.



Source: IMF staff estimates.
Note: Adv. Asia = advanced Asia (Hong Kong SAR, Korea, Singapore, Taiwan Province of China); Afr. and ME = Africa and the Middle East (Democratic Republic of the Congo, Egypt, Ethiopia, Ghana, Jordan, Kenya, Lebanon, Morocco, South Africa, Sudan, Tanzania, Tunisia); CEE = central and eastern Europe (Belarus, Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Slovak Republic, Turkey, Ukraine); Em. Asia = emerging Asia (India, Indonesia, Pakistan, Philippines, Thailand, Vietnam); Eur. creditors = European creditors (Austria, Belgium, Denmark, Finland, Germany, Luxembourg, Netherlands, Norway, Sweden, Switzerland); Eur. debtors = European debtors (Cyprus, Greece, Ireland, Italy, Portugal, Spain, Slovenia); IIP = international investment position; Lat. Am. = Latin America (Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay); Oil exporters = Algeria, Azerbaijan, Iran, Kazakhstan, Kuwait, Nigeria, Oman, Qatar, Russia, Saudi Arabia, United Arab Emirates, Venezuela; Other adv. = Other advanced economies (Australia, Canada, France, Iceland, New Zealand, United Kingdom).

As panel 1 of Figure 1.16 shows, over the next five years, creditor and debtor positions as a share of world GDP are projected to widen slightly. On the creditor side, this is explained primarily by the growing creditor positions of a group of European advanced economies, a result of large projected current account surpluses. On the debtor side, this reflects some increase in the debtor position of the United States and other advanced economies (a group including Canada, France, and the United Kingdom, among others), partially offset by a further sizable improvement in the position of euro area debtor countries.

Similar trends are highlighted in panel 2 of Figure 1.16, which shows projected changes in net international investment positions as a percentage of domestic GDP across countries and regions between 2017 and 2023, the last year of the WEO projection horizon. The net creditor position of advanced European economies is projected to exceed 85 percent of GDP and of Japan to exceed 75 percent of GDP, while the net debtor position of the United States is projected to approach 50 percent of GDP, some 9 percentage points above the 2017 estimate. In contrast, the net international investment position of a group of euro area debtor countries,

including Italy and Spain, is expected to improve by more than 20 percentage points of their collective GDP, and by 2023, net foreign liabilities would be about half their level a decade earlier.

Domestic and External Contributions to GDP Growth

Another way to look at the prospects for global rebalancing is to examine the domestic and external contributions to GDP growth in creditor and debtor countries. Growth in domestic demand was faster in creditor countries than in debtor countries in 2017, as in previous years, primarily reflecting high growth in China (Figure 1.17). At the same time, the net external contribution to growth was again positive for creditors, driven this time by positive contributions from China, creditor Europe, and Japan. For 2018, the net external contribution to growth is slightly negative for creditors, with a positive contribution from creditor Europe, Japan, and other advanced Asian economies broadly offset by negative contributions from China and oil exporters. Among debtor countries, the net external contribution to growth is forecast to be positive for Latin American debtor countries and to remain negative for the United States because of expansionary fiscal policy.

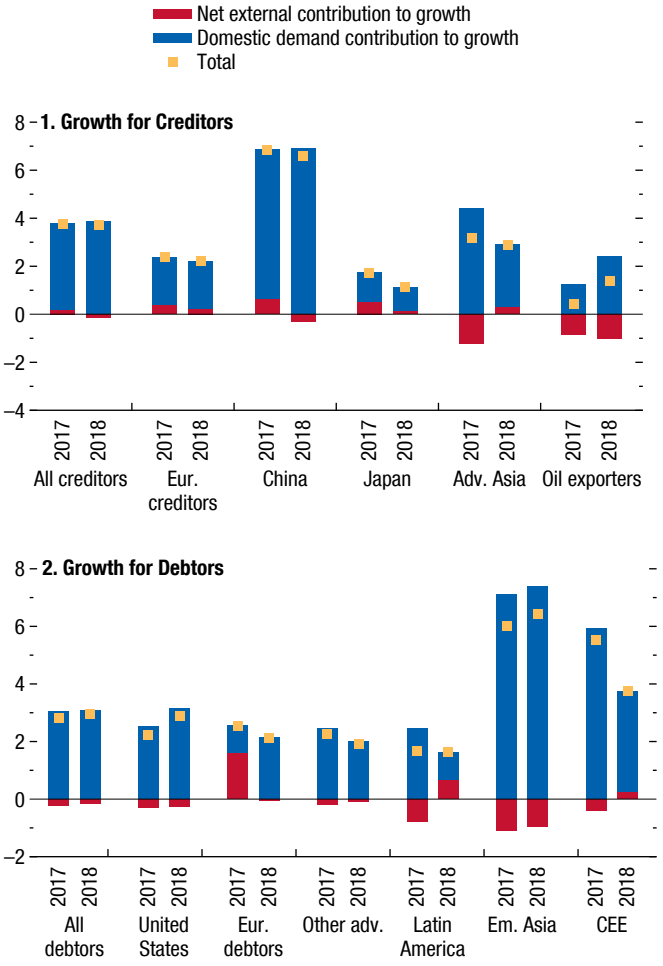
Implications of Imbalances

Sustained excess external imbalances in the world's key economies and policy actions that threaten to widen such imbalances pose risks to global stability. The fiscal easing under way in the United States is leading to a tightening of monetary conditions, a stronger US dollar, and a larger US current account deficit. These trends risk aggravating trade tensions and may result in a faster tightening of global financing conditions, with negative implications for emerging market economies, especially those with weak external positions. Over the medium term, widening debtor positions in key economies could constrain global growth and possibly result in sharp and disruptive currency and asset price adjustments.

As discussed in the section titled "Policy Priorities," the US economy, which is already operating beyond full employment, should implement a medium-term plan to reverse the rising ratio of public debt, accompanied by fiscal measures to gradually boost domestic capacity. This would help ensure more sustainable growth dynamics as well as contain external imbalances. Stronger reliance on demand growth in some

Figure 1.17. Growth for Creditors and Debtors
(Percent)

In 2017 and 2018, domestic demand growth was faster in creditor countries than in debtor countries.



Source: IMF staff calculations.
Note: Adv. Asia = advanced Asia (Hong Kong SAR, Korea, Singapore, Taiwan Province of China); CEE = central and eastern Europe (Belarus, Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Slovak Republic, Turkey, Ukraine); Em. Asia = emerging Asia (India, Indonesia, Pakistan, Philippines, Thailand, Vietnam); Eur. creditors = European creditors (Austria, Belgium, Denmark, Finland, Germany, Luxembourg, Netherlands, Norway, Sweden, Switzerland); Eur. debtors = European debtors (Cyprus, Greece, Ireland, Italy, Portugal, Spain, Slovenia); Latin America = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay; Other adv. = other advanced economies (Australia, Canada, France, Iceland, New Zealand, United Kingdom); Oil exporters = Algeria, Azerbaijan, Iran, Kazakhstan, Kuwait, Nigeria, Oman, Qatar, Russia, Saudi Arabia, United Arab Emirates, Venezuela.

creditor countries, especially those with policy space to support it, such as Germany, would help facilitate domestic and global rebalancing while sustaining world growth over the medium term.

Risks

The balance of risks to the short-term global growth forecast has now shifted to the downside. The potential for upside surprises has receded, given the tightening of financial conditions in some parts of the world, the rise in trade costs, slow implementation of reforms recommended in the past, and waning growth momentum, reflected in worse-than-anticipated outturns in several large economies, weakening growth of industrial production, and a softening of some high-frequency indicators. At the same time, several of the downside risks highlighted in the April 2018 WEO have become more pronounced or have partially materialized—such as rising trade barriers and a reversal of capital flows to emerging market economies with weaker fundamentals and higher political risk. With protectionist rhetoric increasingly turned into action with the United States imposing tariffs on a wide range of imports and retaliatory actions by trading partners, escalation of trade tensions to an intensity that carries systemic risk is a distinct possibility without policy cooperation. And global financial conditions, while still generally easy, could tighten sharply, triggered by faster-than-anticipated monetary policy tightening in advanced economies or the emergence of other risks that would cause market sentiment to deteriorate suddenly. With public and corporate debt near record levels in many countries, such developments would expose vulnerabilities that have built up over the years, dent confidence, and undermine investment—a key driver of the baseline growth forecast.

In the medium term, risks to the growth outlook remain skewed to the downside as they were in April. These risks stem from a continued buildup of financial vulnerabilities, the implementation of unsustainable macroeconomic policies in the face of a subdued growth outlook, rising inequality, and declining trust in mainstream policies. A range of other noneconomic factors continue to cloud the outlook. If any of these risks materializes, the likelihood of other destabilizing developments could increase, amplifying negative growth consequences. The limited policy space to counteract downturns in advanced and emerging market economies further exacerbates concerns about these undesirable possibilities.

Trade Tensions and Policy Uncertainty

Escalating trade tensions and the potential shift away from a multilateral, rules-based trading system are key threats to the global outlook. Discontent with trade practices and the rules-based trading system has led to a range of trade actions since January, as noted in the section titled "Recent Developments." A cooperative approach to reduce trade costs and resolve disagreements without raising tariff and nontariff barriers has so far proved elusive, with the United States imposing tariffs on a variety of imports and trading partners undertaking retaliatory measures. As discussed in the 2018 *External Sector Report*, widening external imbalances in some large economies, such as the United States—where the fiscal expansion will likely increase the country's current account deficit—could further fuel protectionist sentiments. The proliferation of trade actions and threats, and the ongoing renegotiations of major free trade agreements, such as NAFTA and the economic arrangements between the United Kingdom and the rest of the European Union, have created pervasive uncertainty about future trade costs.[11] An intensification of trade tensions and the associated further rise in policy uncertainty could dent business and financial market sentiment, trigger financial market volatility, and slow investment and trade. An increase in trade barriers would disrupt global supply chains, which have become an integral part of production processes in the past decades, and slow the spread of new technologies, ultimately lowering global productivity and welfare. It would also make tradable consumer goods less affordable, harming low-income households disproportionately. In addition to their negative effects on domestic and global growth, protectionist policies would likely have very limited effect on external imbalances, as discussed in the 2018 *External Sector Report*.

Scenario Box 1 discusses the potential economic consequences of further escalation in trade tensions and rising trade barriers. Illustrative simulations suggest that a combination of higher import tariffs by the United States (along the lines threatened by the US administration so far) and retaliatory measures

[11]As discussed in the 2016 United Kingdom IMF Article IV Selected Issues paper and the 2018 Euro Area IMF Article IV Selected Issues paper, the rise in trade barriers between the United Kingdom and the European Union would imply sizable losses for the UK economy and, to a lesser extent, for its trading partners, with negative impacts concentrated in countries with the largest trade links with the United Kingdom.

by its trading partners could inflict significant costs on the global economy, especially through its impact on confidence and financial conditions. According to model simulations, global GDP would fall by more than 0.8 percent in 2020 and remain roughly 0.4 percent lower in the long term compared with a baseline without trade tensions. The disruption caused by an escalation of trade restrictions could be particularly large in the United States and China, with GDP losses of more than 0.9 percent in the United States and over 1.6 percent in China in 2019, and in the NAFTA trading partners, where GDP is simulated to be more than 1.6 percent lower in 2020 than in the absence of tariff measures.

As discussed in the July 2018 Group of Twenty Surveillance Note and the October 2016 WEO, such illustrative scenarios likely understate the negative repercussions of rising trade tensions on the global economy. Inward-looking trade policies could come together with tighter restrictions on the cross-border flows of factors of production. Curbs to migration would prevent aging economies from taking advantage of demographic trends in other parts of the world to ease labor supply pressures (Chapter 2 of the April 2018 WEO). The disruption to international economic links would also make it harder for countries to tackle cooperatively, and in a coordinated manner, the other multilateral challenges they face, now or in the future.

Beyond trade, recent and forthcoming elections have raised the prospect of realigned policy agendas. Political and policy uncertainty could deter private investment and weaken economic activity in several countries by raising the possibility of slower reform or of significant change to policy objectives. For example, the recent difficulties with forming a government in Italy and the possibility of reversal of reforms or the implementation of policies that would harm debt sustainability triggered a sharp widening in spreads. In Turkey, growing concerns about the credibility of the policy agenda, underlying fundamentals, and political tensions with the US were the main factors behind the sharp depreciation of the Turkish lira, the decline in asset prices, and widening spreads in August. In China, the recent shift to a more accommodative macro policy stance, while fine-tuning the pace of deleveraging, has brought renewed attention to the difficult trade-off between growth and stability that policymakers face. These developments are consistent with an overall increase in global economic policy uncertainty since the start of this year (Figure 1.18). IMF staff analysis suggests that 2019 and 2020 growth forecast revisions compared with the April 2018 WEO are slightly more negative for countries that trade extensively with the United States—which could serve as a proxy for the global repercussions of the uncertain direction of US trade policy (Figure 1.18, panel 2).

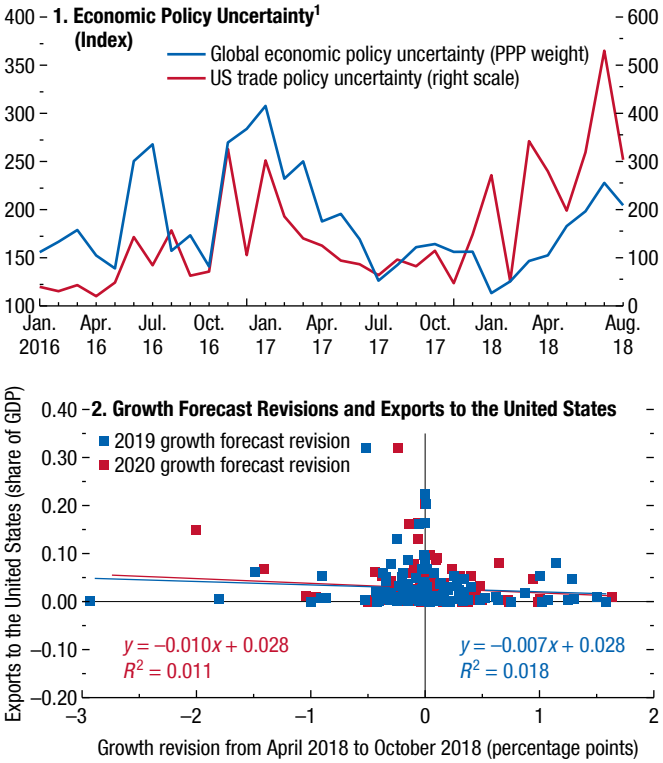
Financial Tensions

After years of an extremely supportive financial environment, the global economy remains vulnerable to a sudden tightening of financial conditions. As discussed in the April and October 2018 GFSRs, measures of equity valuations appear stretched in some markets, investors have moved into riskier asset classes in search of yield, and the share of firms with low investment-grade ratings in advanced economy bond indices has increased significantly. Across many economies, government and corporate debt is substantially higher than before the global financial crisis (April 2018 *Fiscal Monitor*). In some emerging markets, there are concerns about rising contingent liabilities and increasing balance sheet mismatches. A surprise tightening of global financial conditions could expose these vulnerabilities and derail the expansion.

As discussed in previous WEOs, various factors could trigger a sudden change in global financial conditions. Signs of firmer-than-expected inflation in the United States (for example, as capacity constraints become more binding) could lead to a shift in market expectations of US interest rate hikes, which are currently well below those assumed in the WEO baseline forecast. A negative shock could trigger a sudden deterioration of risk appetite, which in turn could lead to disruptive portfolio adjustments, accelerate and broaden the reversal of capital flows from emerging markets, and lead to further US dollar appreciation, straining economies with high leverage, fixed exchange rates, or balance sheet mismatches. Rising trade tensions and political and policy uncertainty could also make market participants abruptly reassess fundamentals and risks. The recent turmoil in Turkey, exacerbated by political tensions with the United States against the backdrop of deteriorating fundamentals, including a belated monetary policy response to increasing inflation, exemplifies the increased salience of this risk for other vulnerable emerging markets. In an environment of gradually tightening global interest rates and rising uncertainty, the likelihood of contagion from such episodes to other economies has also

Figure 1.18. Policy Uncertainty and Trade Tensions

Global economic policy uncertainty has increased sharply since the beginning of the year. Growth forecast revisions for 2019 and 2020 are slightly more negative for countries with larger trade exposure to the United States.



Sources: Baker, Bloom, and Davis (2016); United Nations COMTRADE database; and IMF staff calculations.
Note: PPP = purchasing power parity. Baker-Bloom-Davis index of Global Economic Policy Uncertainty (GEPU) is a GDP-weighted average of national EPU indices for 20 countries: Australia, Brazil, Canada, Chile, China, France, Germany, Greece, India, Ireland, Italy, Japan, Korea, Mexico, the Netherlands, Russia, Spain, Sweden, the United Kingdom, and the United States.
[1]Mean of global economic policy uncertainty index from 1997 to 2015 = 100; mean of US trade policy uncertainty index from 1985 to 2010 = 100.

risen. The increase in Italian sovereign yields since May is another case in point. A significant further decline in sovereign bond prices, with possible contagion effects, would impose valuation losses on investors, worsen public debt dynamics, and weaken bank balance sheets, reigniting concerns about sovereign-bank feedback loops in the euro area.

Financial tensions could also arise from regulatory actions. In China, where the authorities are taking welcome steps to slow credit growth, uncoordinated financial and local government regulatory action could have unintended consequences that trigger disorderly repricing of financial assets, increase rollover risks, and lead to stronger-than-forecast negative effects on activity. More broadly, an indiscriminate rollback of postcrisis regulatory reform and oversight—both domestically and internationally—could encourage excessive risk taking, leading to a further buildup of financial vulnerabilities.

Cybersecurity breaches and cyberattacks on critical financial infrastructure represent an additional source of risk because they could undermine cross-border payment systems and disrupt the flow of goods and services. Continued rapid growth of crypto assets could create new vulnerabilities in the international financial system.

Other Factors

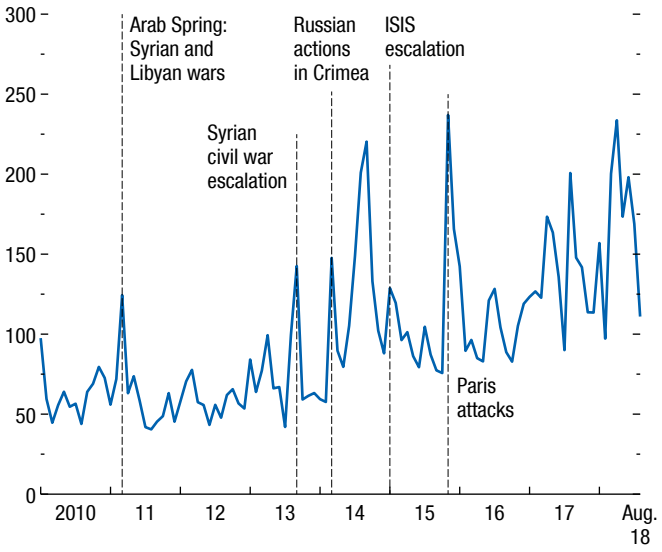
A range of other factors continues to influence the medium-term outlook in various regions. Geopolitical risks (Figure 1.19) and domestic strife are weighing on the outlook in several economies, especially in the Middle East and sub-Saharan Africa. Box 1.5 documents the depth of macroeconomic distress in several countries (such as Libya, Venezuela, and Yemen) and compares it to other cases of large GDP collapses in recent history. While the baseline forecast assumes a gradual easing of existing strains, an intensification of conflicts in the Middle East and Africa not only would have large negative domestic repercussions (Box 1.1 of the April 2017 WEO), but could trigger a rise in migrant flows into Europe, potentially deepening political divisions. In several systemically important economies, declining trust in national and regional institutions may increase the appeal of politically popular but unsustainable policy measures, which could harm confidence, threaten medium-term sustainability, and, in the case of Europe, undermine regional cohesion. Furthermore, many countries remain vulnerable to the economic and humanitarian costs of extreme weather events and other natural disasters, with potentially significant cross-border ramifications through migration flows.

Fan Chart Analysis

A fan chart analysis—based on equity and commodity market data as well as the dispersion of inflation and term spread projections of private forecasters—shows a downward shift in the balance of risks relative to the October 2017 WEO, as shown in Figure 1.20. The shift is broad based—with all indicators showing a decline in the current year extending into 2019. The worsening of the risk profile mostly reflects anticipated exacerbation of global trade tensions, which will weigh on investment and growth. These measures already

Figure 1.19. Geopolitical Risk Index
(Index)

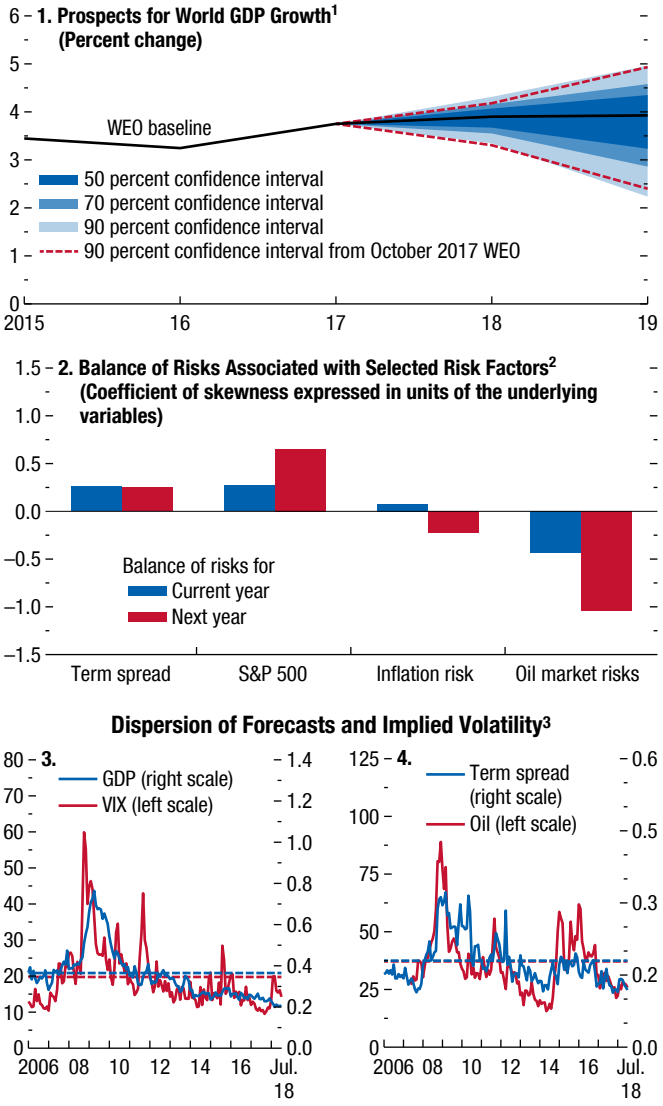
Geopolitical risks continue to trend upward.



Source: Caldara and Iacoviello (2018).
Note: ISIS = Islamic State.

Figure 1.20. Risks to the Global Outlook

The risks around the central global growth forecast for 2018 and 2019 have tilted to the downside.



Sources: Bloomberg Finance L.P.; Chicago Board Options Exchange (CBOE); Consensus Economics; Haver Analytics; and IMF staff estimates.
[1]The fan chart shows the uncertainty around the October 2018 *World Economic Outlook* (WEO) central forecast with 50, 70, and 90 percent confidence intervals. As shown, the 70 percent confidence interval includes the 50 percent interval, and the 90 percent confidence interval includes the 50 and 70 percent intervals. See Appendix 1.2 of the April 2009 WEO for details. The 90 percent intervals for the current-year and one-year-ahead forecasts from the October 2017 WEO are shown.
[2]The bars depict the coefficient of skewness expressed in units of the underlying variables. The values for inflation risks and oil market risks enter with the opposite sign since they represent downside risks to growth.
[3]GDP measures the purchasing-power-parity-weighted average dispersion of GDP growth forecasts for the Group of Seven economies (Canada, France, Germany, Italy, Japan, United Kingdom, United States), Brazil, China, India, and Mexico. VIX is the CBOE Standard & Poor's (S&P) 500 Implied Volatility Index. Term spread measures the average dispersion of term spreads implicit in interest rate forecasts for Germany, Japan, the United Kingdom, and the United States. Oil is the CBOE crude oil volatility index. Forecasts are from Consensus Economics surveys. Dashed lines represent the average values from 2000 to the present.

appear, at least in part, to be priced into US equities, whose risk profile has worsened. A greater likelihood of higher energy prices adds to downside risks. Box 1.6 discusses the challenges of predicting recessions.

As discussed in the October 2018 GFSR, growth-at-risk analysis suggests a slight increase in short-term downside risks to global financial stability compared with the April 2018 GFSR, and continued risks to medium-term growth that are well above historical norms.

Policy Priorities

With risks shifting to the downside, domestic and multilateral policies have a vital role to play in sustaining the global expansion and enhancing prospects for strong and inclusive growth. Global growth remains above trend but, with momentum appearing to peak, strengthening resilience and tackling long-standing challenges become more urgent.

Policies—Advanced Economies

In *advanced economies*, the macroeconomic policy stance should be tailored to the maturing cyclical

position. While rising oil prices are largely responsible for higher headline inflation, core inflation has also been firming in the context of narrowing or closing output gaps. Where inflation is close to or above target, data-dependent and well-communicated monetary normalization is appropriate. In cases where inflation is still significantly below target, continued accommodative monetary policy remains appropriate. As much as possible, countries should use this period of sustained growth to rebuild fiscal buffers. Structural reforms aimed at increasing labor productivity, labor force participation, and flexibility of the labor market would be welcome. Investments in physical and digital infrastructure, as well as reduced barriers to entry in services markets, could boost growth potential in the medium term.

Monetary Policy: Data Dependent, Well Communicated, Country Specific

In the *United States*, the monetary policy stance should be gradually tightened as inflation pressures emerge amid solid growth and historically low unemployment. The large and procyclical fiscal stimulus places an additional burden on the Federal Reserve to raise policy rates to keep inflation expectations anchored around the target and prevent the economy from overheating. In this context, the Federal Reserve's continued adherence to data-dependent policymaking and clear communication will be vital to ensuring a smooth adjustment—both domestically and abroad.

In the *United Kingdom*, where the output gap is closed and unemployment is low, a modest tightening of monetary policy may be warranted, although at a time of heightened uncertainty, monetary policy should remain flexible in response to changing conditions associated with the Brexit negotiations.

In the *euro area* and *Japan*, accommodative monetary policies remain appropriate. In the *euro area*, positive output gaps and tightening labor markets should eventually lift inflation, but the increase is projected to happen slowly over the forecast horizon, given a strong backward-looking element in the inflation process. The European Central Bank's expectation that policy rates will remain low through the summer of 2019, and beyond, if necessary, together with the net asset purchases until the end of the year (and the sizable stock of acquired assets and the associated reinvestments), are therefore vital. In *Japan,* where inflation is not expected to reach the target over the next five years, a sustained accommodative monetary stance is also a necessity. The Bank of Japan recently reinforced its commitment to reflate the economy by introducing forward guidance on policy interest rates and increasing flexibility of market operations to make the accommodative monetary stance more sustainable.

Fiscal Policy: Rebuild Buffers, Enhance Inclusiveness, and Boost Medium-Term Potential

Above-trend growth in many advanced economies offers a chance to build fiscal buffers and prepare for the next downturn. Figure 1.21 highlights that, while public debt is projected to decline in many of the largest advanced economies over the next five years, projected changes in public debt are uncorrelated with initial debt levels.[12] Procyclical fiscal stimulus should be avoided and rolled back (for example, in the United States), while further steps should be taken by countries with fiscal space and excess external surpluses to boost domestic growth potential and address global imbalances (for example, in Germany). In cases where fiscal consolidation is appropriate, the pace of fiscal tightening should depend on economic conditions and avoid exerting sharp drags on demand, and efforts should be made to reorient the composition of spending and revenues to enhance inclusiveness and protect vulnerable people. Fiscal spending should prioritize areas that can support growth, such as investing in physical and digital infrastructure, boosting labor force participation where aging threatens future labor supply, and enhancing workforce skills.

In the *United States*, the tax overhaul and higher spending will widen the fiscal deficit, which was already set to deteriorate over the long term because of aging-related spending. Against the backdrop of record low unemployment rates, the deficit expansion is providing a short-term boost to activity in the United States and many of its trading partners, but at the cost of elevated risks to the US and global economies. The larger deficit not only will leave fewer budget resources to invest in supply-side reforms, but will add to an already-unsustainable public debt and contribute to a rise in global imbalances. With the US economy already operating above potential, expansionary fiscal policy could lead to an inflation surprise, which may trigger a faster-than-currently anticipated rise in US interest rates, a tightening of global financial conditions, and further US dollar appreciation, with potentially negative

[12]The October 2018 *Fiscal Monitor* discusses the evolution of public sector balance sheets, which provide a more comprehensive view of the state of public finances.

spillovers for the global economy. The preferred policy course would be to increase the revenue-to-GDP ratio through greater reliance on indirect taxes.

In the *United Kingdom*, the fiscal targets—which envisage the cyclically adjusted public sector deficit falling below 2 percent of GDP and public debt beginning to decline by 2020–21—provide an anchor for medium-term objectives while allowing for flexibility in the short term. The pace of fiscal consolidation can be eased if risks materialize and growth slows sharply.

In *Japan*, the debt trajectory needs to be anchored by a credible medium-term fiscal consolidation plan, which should be based on gradual increases in the consumption tax rate beyond the 2 percentage-point increase envisaged for October 2019. However, in the short term, premature fiscal tightening should be avoided to support growth momentum and reflation.

In the *euro area*, countries with currently limited fiscal space (for example, *France*, *Italy*, *Spain*) should use this period of above-potential growth and accommodative monetary policy to rebuild fiscal buffers, which would help alleviate bank-sovereign strains. France's plan to restrain spending is a welcome step. Countries with fiscal space, such as *Germany,* should fund measures that would raise potential output and facilitate external rebalancing, for example, by increasing public investment in physical and human capital.

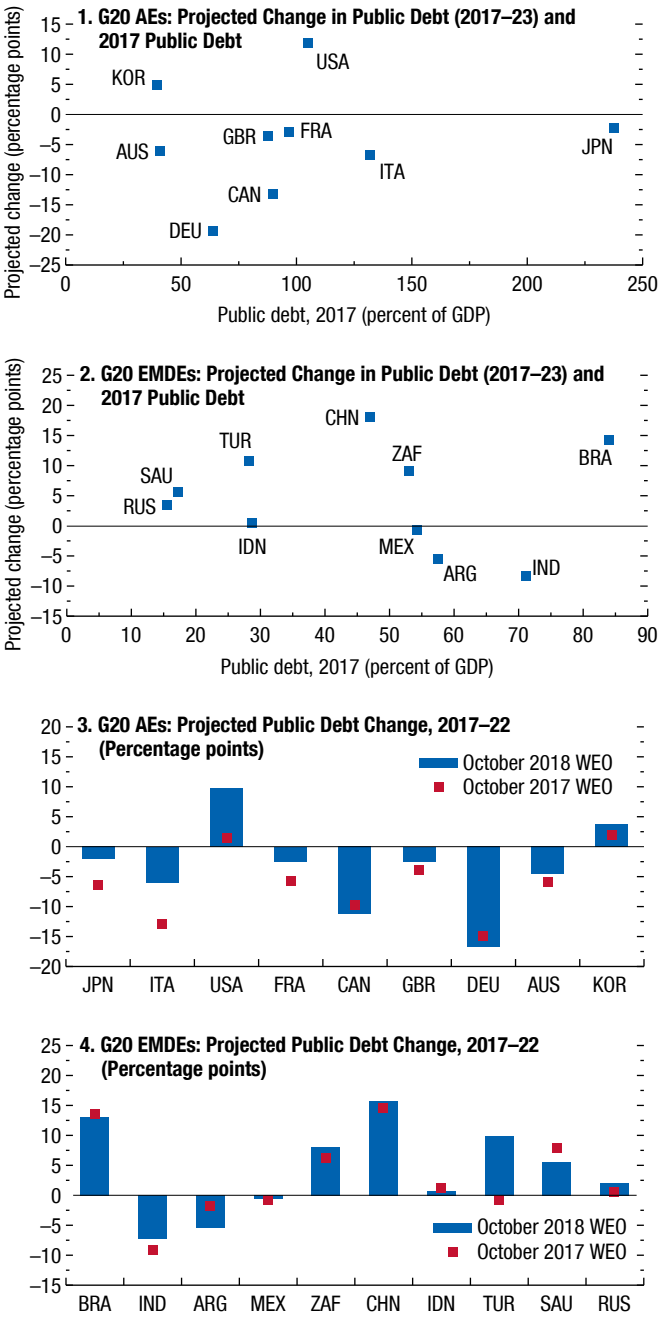
Structural Policies: Boost Potential Growth

Low productivity and an aging workforce weigh heavily on the medium-term growth prospects of advanced economies. Reforms of product and labor markets could boost medium-term productivity, labor supply, and growth potential and are especially important when fiscal and monetary policy are constrained. Reforms that strengthen education and health care would help tackle poverty and inequality and prepare workers for challenges arising from rapid progress in labor-saving technologies and globalization.

In the *euro area*, structural reforms have attracted much discussion in individual countries, but progress has been mixed. *France* has made welcome strides in improving labor market flexibility, and, more recently, in legislating measures to better align workforce skills with business needs to boost employment. Continued progress with planned reforms that aim to ease corporate administrative burdens would also benefit long-term growth. In *Germany*, policies to increase labor supply and investment, as well as to support entrepreneurship and advance digital transformation,

Figure 1.21. Projected Change in Public Debt

Public debt in most major advanced economies is projected to decline over 2017–23, while it is projected to increase in some of the largest emerging market and developing economies. But there is no clear relationship between the projected change in debt ratios and the level of debt prevailing in 2017.



Source: IMF staff calculations.
Note: AEs = advanced economies; EMDEs = emerging market and developing economies; G20 = Group of Twenty; WEO = *World Economic Outlook.*

would all be beneficial, and should be supported with available fiscal space—particularly in contexts such as the current year in which the budget is in surplus. In *Italy*, past pension and labor market reforms should be preserved, and further measures should be pursued, such as decentralizing wage bargaining to align wages with labor productivity at the firm level. In *Spain*, the structural reform agenda, which aims to raise the effectiveness of active labor market policies and reduce labor market segmentation, needs new impetus.

In *Japan*, the foremost priority should be labor market reform that could help lift productivity and wage inflation. For example, the government's Work Style Reform appropriately focuses on reducing labor market duality via the "equal pay for equal work" pillar. Boosting labor force participation rates among women and older workers, and allowing more use of foreign labor, would help support an aging population, but might add to deflationary pressures in the short term and should be tackled after the Work Style Reform.

In the *United States*, labor supply could be incentivized among lower-income households by increasing the generosity of the Earned Income Tax Credit and raising the federal minimum wage. Education reforms could focus on expanding apprenticeships and vocational programs to offer attractive noncollege career paths, designing new federal financing options for tertiary education, reducing funding differences across districts, and offering more support to low-income areas.

In the *United Kingdom*, where goods and labor markets are already flexible, reforms should focus on easing planning restrictions to boost housing supply, improving the quality of transport infrastructure, and raising human capital among the lower skilled (such as by raising the basic skills of high school graduates). Active labor market policies should facilitate the relocation of workers in industries that are likely to be more affected by higher trade barriers after Brexit.

Financial Sector Policies: Complete Balance Sheet Cleanup, Increase Resilience to Shocks

The potential for greater financial market volatility requires fortifying financial systems and avoiding a rollback of the postcrisis regulatory reforms. As discussed in the October 2018 GFSR, macroprudential tools need to be developed and deployed, and macroprudential policy buffers need to be rebuilt, including by raising capital buffers, to provide insurance against a future tightening of financial conditions. In the *euro area*, completing the banking union remains a priority. Continued progress with balance sheet cleanup is essential to strengthen credit intermediation in several economies. There is also a general need to improve euro area banks' cost efficiency and profitability through proactive supervision, greater use of digitization, and revamped business models. In *Japan*, the drag on bank profitability from low interest rates and demographic headwinds could be remedied by increasing fee-based income and diversifying revenue sources, together with consolidation. In the *United States*, rising leverage, a weakening of underwriting standards for corporate credit, the growth of passively managed investment products, and cyber risks bear close monitoring. Changes to financial oversight should continue to ensure that the current risk-based approach to regulation, supervision, and resolution is preserved (and strengthened in the case of nonbanks).

Policies—Emerging Market Economies

With advanced economy interest rates expected to increase from current still-accommodative levels and with trade tensions rising, emerging market and developing economies need to be prepared for an environment of higher volatility. Many need to enhance resilience through an appropriate mix of fiscal, monetary, exchange rate, and prudential policies to lessen their vulnerability to tightening global financial conditions, sharp currency movements, and reversals in capital flows. Given subdued medium-term prospects for per capita incomes in many countries and mounting downside risks to growth, reforms need to be enacted to bolster growth potential and ensure that all segments of society have access to opportunities.

Managing Trade-Offs and Enhancing Resilience

Although global financial conditions remain generally supportive from a historical perspective, continued monetary policy normalization in the United States and a stronger US dollar, coinciding with country-specific factors, have put pressure on the exchange rates and funding costs of some emerging market economies (for example, *Brazil, India, Indonesia, Mexico, South Africa,* and especially *Argentina and Turkey*), and have led to further reductions in capital inflows. Policy reactions have been varied. In addition to allowing the exchange rate to adjust, albeit to varying degrees, countries resorted to interest rate hikes (such as in *Argentina, Indonesia*, *Mexico*, *Turkey*), the activation of official financing (for example, in *Argentina*), and intervention in the

foreign exchange market (*Argentina* and *Brazil*). The challenges that Turkey faces will require a comprehensive policy package comprising monetary, fiscal, quasi-fiscal, and financial sector policies.

Monetary policy in emerging market economies will need to manage the trade-off between supporting activity should external financial conditions tighten further, and keeping inflation expectations anchored. As Chapter 3 demonstrates, firmer anchoring of inflation expectations—fostered, for example, by credible fiscal and monetary policy frameworks—reduces inflation persistence and limits the pass-through of currency depreciations to domestic prices, allowing greater leeway for monetary policy to support output.

Turning to individual countries, monetary policy should be tightened to reanchor expectations where inflation continues to be high (as recently done in *Argentina*), where it is increasing further in the wake of a sharp currency depreciation (*Turkey*), or where it is expected to pick up (*India*). Monetary policy should instead remain accommodative in *Brazil*, where unemployment remains high and inflation is gradually increasing toward the inflation target. In *Mexico*, conditional on expectations remaining anchored, monetary policy may become accommodative to support activity once inflation is firmly on a downward path. Given the inflation outlook, monetary policy could also be adjusted from its moderately tight stance toward a neutral stance in *Russia.* Recent tightening in *Indonesia* was broadly appropriate to tackle risks to inflation from exchange rate depreciation and rising inflation expectations. Given external uncertainty, monetary policy may stay on hold in the immediate future, while the impact of recent actions is assessed. In *South Africa,* possible exchange rate pressures amid US monetary policy tightening, rising risk aversion, and higher oil prices pose upside risks to inflation.

Exchange rate flexibility can help economies absorb external shocks, although the effects of exchange rate depreciations on private and public sector balance sheets and on domestic inflation expectations require close monitoring. Under floating exchange rate regimes, foreign exchange interventions should be limited to addressing disorderly market conditions while protecting reserve buffers (for example, in *Argentina, Brazil, India, Indonesia, Mexico, South Africa, Turkey*). As highlighted in Chapter 2, countries with flexible exchange rate regimes and those with lower financial vulnerabilities experienced less damage to output in the aftermath of the global financial crisis.

Long-standing advice on the importance of reining in excess credit growth where needed, supporting healthy bank balance sheets, containing maturity and currency mismatches, and maintaining orderly market conditions has become even more relevant in the face of renewed market volatility. In *China*, it will be important, despite growth headwinds from slower credit growth and trade barriers, to maintain the focus on deleveraging and continue regulatory and supervisory tightening, greater recognition of bad assets, and more market-based credit allocation to improve resilience and boost medium-term growth prospects. In *India,* reform priorities include reviving bank credit and enhancing the efficiency of credit provision by accelerating the cleanup of bank and corporate balance sheets and improving the governance of public sector banks.

Considerable progress was made in *Russia* in recent years to shore up financial stability, including by closing weak banks, introducing reforms to the resolution framework, enacting measures to reduce dollarization, and increasing the risk weights of unsecured consumer and mortgage loans. However, efficiency, competition, and governance in the banking system should still be improved. In *Turkey,* where significant stress is emerging in bank and corporate balance sheets, further progress should be made in strengthening bank supervision and enhancing the crisis management framework.

In *Brazil*, the financial sector has proved resilient, despite the severity of the 2015–16 recession, yet bank credit is lagging, especially for nonfinancial firms. Key reforms have strengthened supervision and regulation but remaining vulnerabilities, including related-party exposures and transactions, large exposures, country and transfer risk, and restructured loans, still need to be addressed and the safety net strengthened. *Mexico* remains exposed to bouts of financial volatility in global markets, given its open capital account and deep financial integration with the rest of the world. The exchange rate should remain the main shock absorber, and foreign exchange intervention should only be used to guard against disorderly market conditions. The Flexible Credit Line provides additional insurance in case of tail events.

South Africa has a range of buffers, including a floating exchange rate, deep financial markets, contained foreign currency exposures, and long debt maturities. However, significant vulnerabilities arise from large gross external financing needs. Deepening reforms to improve governance and the business environment would help reduce such vulnerabilities.

In *Saudi Arabia*, further financial development and inclusion should be pursued while maintaining financial stability. Increased finance for small and medium-sized enterprises; more developed debt markets; and improved financial access, especially for women; will support growth and equality. Reforms should focus on removing structural impediments that may dissuade financial institutions from entering these markets. In *Egypt,* while healthy foreign reserves and a flexible exchange rate leave the economy well positioned to manage any acceleration in outflows, maintenance of sound macroeconomic frameworks and consistent policy implementation, which have led to a successful macroeconomic stabilization, is important.

Rebuilding Fiscal Buffers

Public debt has increased in emerging markets over the past decade, and is projected to increase further in many of the largest economies over the next five years (Figure 1.21). This highlights the need to preserve and rebuild buffers. The composition of spending and revenues should be growth friendly and protect the most vulnerable. As shown in Chapter 2, strong fiscal positions before the global financial crisis helped lessen damage to GDP in its aftermath.

A gradual fiscal consolidation is needed in *China* to preserve policy space and ensure broader macroeconomic sustainability. The composition of fiscal policy should support the needed rebalancing from investment to private consumption, and reverting to infrastructure stimulus to boost slowing growth should be avoided. In *India*, a high interest burden and risks from rising yields also require continued focus on debt reduction to establish policy credibility and build buffers. These efforts should be supported by further reductions in subsidies and enhanced compliance with the Goods and Services Tax. Fiscal policy is appropriately geared toward rebuilding fiscal buffers in *Indonesia*, but untargeted subsidies should continue to be reduced, and a medium-term strategy should be put in place to increase the tax ratio, which is low by international standards.

Fiscal consolidation is a key priority in *Brazil* as well. Pension reform is essential for securing fiscal sustainability and ensuring fairness, given that pension expenditures are high and rising and pensions are unduly generous for some segments of the population. While recent measures to increase transparency are welcome, the fiscal framework needs to be strengthened, including by increasing budget flexibility. It will also be necessary to continue restraining the government wage bill, harmonizing the federal and state tax regimes, and improving subnational government finances, while protecting effective social programs. A more ambitious medium-term fiscal target in *Mexico* would help ensure continued market confidence, rebuild fiscal space, and prepare the country to better deal with long-term demographics-related spending pressures. Significant upfront fiscal adjustment is needed in *Argentina* to lessen the federal financing burden and put public debt on a firm downward trajectory.

Further fiscal consolidation is needed over the medium term in *Russia*, and should continue in line with the fiscal rule, to rebuild fiscal buffers in the short term; the recent relaxation of the fiscal rule could weaken the hard-won credibility of the authorities' macroeconomic framework. To finance increased spending on health, education, and infrastructure, other spending could be reduced, alongside raising the main value-added tax rate, strengthening tax compliance, and broadening the tax base. Parametric pension reform could provide some fiscal space as well. Fiscal and quasi-fiscal consolidation is also needed as part of *Turkey*'s policy package. Specific measures are needed to secure Turkey's stated medium-term program targets, and, on the quasi-fiscal side, public-private partnership activity needs to be managed carefully, and state loan guarantees should be gradually reduced and limited to cases of clear market failures. In *South Africa*, a gradual and growth-friendly fiscal consolidation will be needed to strengthen public finances, focusing on wage savings and complemented by measures to boost efficiency of other current spending, including through better targeting of education subsidies and the rationalization of transfers to public entities.

Structural Reforms to Boost Growth

Structural reforms remain essential to raising growth potential and spreading its benefits more widely, including through streamlining regulations and enhancing competitiveness, investing in infrastructure and human capital, and increasing labor market efficiencies.

Despite a growing emphasis in *China* on the quality rather than the speed of growth, tensions persist between stated development goals and intentions to reduce leverage and allow market forces to play a larger role in the economy. An overarching priority is to continue with reforms, even if the economy slows down, and to avoid a return to credit- and investment-driven stimulus. Key elements of the

reform agenda should include strengthening financial regulation and tightening macroprudential settings to rein in the rapid increase in household debt; deepening fiscal structural reforms to foster rebalancing (making the personal income tax more progressive and increasing spending on health, education, and social transfers); tackling income inequality by removing barriers to labor mobility and strengthening fiscal transfers across regions; more decisively reforming state-owned enterprises; and fostering further market liberalization, particularly in services. Addressing the distortions that affect trade and cross-border flows is also needed.

In *India*, important reforms have been implemented in recent years, including the Goods and Services Tax, the inflation-targeting framework, the Insolvency and Bankruptcy Code, and steps to liberalize foreign investment and make it easier to do business. Looking ahead, renewed impetus to reform labor and land markets, along with further improvements to the business climate, are also crucial. In *Indonesia*, the priorities are to enhance infrastructure, streamline regulations to boost competition and competitiveness, improve education quality, and ease labor market regulation to support employment.

In *Brazil*, recent advances in trade facilitation and reforms of the labor and subsidized credit markets are welcome, but more reforms are needed to boost productivity, including by improving financial intermediation, investing in infrastructure, and effectively implementing anti–money laundering and anticorruption measures. In *Argentina*, reforms will need to ensure that the benefits from stronger, sustained growth extend to all parts of society by strengthening the social safety net, including through a redesign of assistance programs.

Priority areas in *Russia* include improving property rights and governance, enhancing the institutional infrastructure, reforming labor markets, and investing in innovation and infrastructure. Structural reforms in *Turkey* should focus on increasing labor market flexibility to help lower unemployment and the output costs of disinflation, and strengthening the business climate to help improve the composition of external inflows and enhance resilience.

Recent reforms in *South Africa*, such as measures adopted to tackle corruption, to strengthen procurement, and in the intention to eliminate wasteful expenditure, are welcome. However, further reforms are needed to increase policy certainty, improve the efficiency of state-owned enterprises, enhance flexibility in the labor market, improve basic education, and align training with business needs.

Policies—Low-Income Developing Countries

Despite an uptick in growth in 2017–18, many low-income countries continue to face substantial risks, including from a tightening of global financial conditions, heightened trade tensions, and domestic policy slippages. Many continue to grapple with noneconomic challenges, such as rising temperatures, natural disasters, and internal conflict. Low-income countries therefore need to take advantage of the growth recovery to enact reforms that help build resilience, raise potential growth and its inclusiveness, and move closer toward achieving the Sustainable Development Goals.

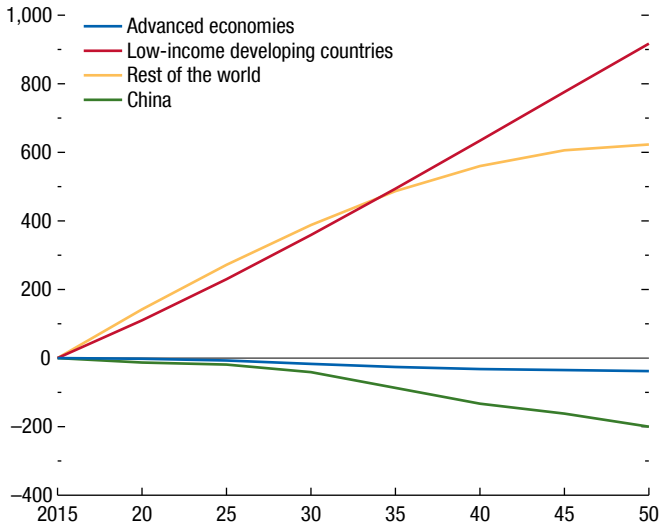
Rebuilding Fiscal Buffers and Enhancing Financial Resilience

Despite recent narrowing of fiscal deficits as a result of stronger fuel revenues and some fiscal consolidation efforts, public debt burdens have risen in many low-income countries in the past several years. For oil exporters in *sub-Saharan Africa*, foreign-currency-denominated public debt has increased by as much as 80 percent from 2010–13 to 2017, while for non-resource-intensive countries the increase is about 18 percent over the same period (April 2018 *Regional Economic Outlook: Sub-Saharan Africa*). Many low-income countries are increasingly shifting away from traditional multilateral and bilateral sources of debt toward bond issuances and non–Paris Club bilateral creditors, resulting in higher debt-service costs.

Strengthening of fiscal positions is necessary to reduce debt vulnerabilities. Fuel exporters should guard against the temptation to let higher oil prices delay reforms. Despite their recent recovery, oil prices are projected to remain below the 2013 peak. Boosting non-oil revenues and continuing fiscal consolidation plans remain key goals for oil exporters. The focus should be on growth-friendly fiscal adjustment, with a shift in spending toward productive and social outlays accompanied by frontloaded domestic revenue mobilization, through, for example, broadening the tax base and strengthening revenue administration. Moreover, enhancing financial resilience through proactive banking supervision, ensuring adequate provisioning for losses by banks, and improving resolution frameworks to keep expensive public bailouts at bay can help foster a financial system supportive of growth.

Figure 1.22. Change in the Working-Age Population (15–64) Relative to 2015 Levels
(Millions)

By 2035 the number of people in low-income countries reaching working age (15–64) will exceed that of the rest of the world combined.



Sources: UN (2017); and IMF staff calculations.

Building More Robust and Diverse Economies

Under current policies in many low-income countries, per capita income growth is projected to remain sluggish and below past averages. Many low-income countries are also facing pressure to accommodate a rapid increase in the working-age population. It is estimated that by 2035, the number of people in low-income countries reaching working age (15–64) will exceed that of the rest of the world combined (Figure 1.22). Creating enough jobs to absorb the new entrants will be vital for welfare and social and political stability. In this regard, economic diversification into labor-intensive activities outside agriculture, and away from excessive dependence on commodities for resource-intensive exporters, is critical. While the manufacturing sector has traditionally served as a source of well-paying jobs for low- to middle-skilled workers in developing economies, market services sectors such as retail, transport, telecommunications, and financial and business services can be viable alternatives (Chapter 3 of the April 2018 WEO). Facilitating private sector development—including by strengthening investor rights and the rule of law, reducing the cost of doing business, and enhancing infrastructure and openness to trade—would help strengthen investment and growth. Improving education standards will be essential to ensure that the growing pool of workers has the necessary skills.

Achieving robust growth will also require enhancing the macroeconomic resilience of low-income countries, including against climate change. Stronger buffers and sound macroeconomic policy frameworks, alongside policies and institutions that make it easier for labor and capital to move across economic sectors and geographic regions, are essential to that end. To reduce adverse consequences from climate change, countries could also invest in specific adaptation strategies that reduce exposure and vulnerability to weather shocks, such as climate-smart infrastructure, the adoption of appropriate technologies and regulations, and putting in place well-targeted social safety nets that can promptly deliver support (Chapter 3 of the October 2017 WEO).

Fostering Inclusive Growth

Although inequality has declined since 2000 across sub-Saharan Africa, Asia, and Latin America, low-income countries continue to experience significant inequality (October 2017 *Fiscal Monitor*). Policies to address inequality include ensuring macroeconomic stability to improve the sustainability of growth; investing in physical infrastructure, especially in poor regions; and creating an enabling environment for competition and trade, for instance through product market reforms that treat all market entrants equally. Other policies entail enabling access to financial services for low-income households and small and medium-sized enterprises, for example by leveraging recent developments in fintech. Finally, investments in accessible and good-quality education, including early childhood development, and broad-based health care are essential.

Multilateral Policies

Avoiding protectionist reactions to structural change and finding cooperative solutions that promote continued growth in goods and services trade will be essential to preserve and extend the global expansion. Global cooperation remains vital to dealing with challenges that transcend countries' borders and resolving disagreements that threaten the gains from international economic integration. To preserve and broaden these gains, countries need to work together in several areas.

- *Trade*: Trade openness under a rules-based, multilateral trading system has helped diffuse innova-

tion, lift productivity, and expand the variety of goods and services available globally. Policymakers should aim to reduce trade costs further and resolve disagreements without raising tariff and nontariff barriers while facilitating the adjustment of those displaced by trade and technology. Such efforts could significantly raise global welfare, as documented in Chapter 2 of the October 2016 WEO. To best support a strong, stable global economy, World Trade Organization (WTO) rules and commitments should be strengthened to address areas of growing relevance, such as services and e-commerce. Quickly resolving the impasse over the WTO's Appellate Body will help ensure that existing rules are applied and enforced. While agreements at the global level are especially important, well-designed and ambitious regional arrangements—such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership—can also help. The signing of the African Continental Free Trade Area, and of the new Economic Partnership Agreement between the euro area and Japan, and recent steps to reinvigorate negotiations of the EU–China Comprehensive Agreement on Investment are encouraging.

- *Global financial stability*: Cooperative global efforts on regulatory reform have been crucial in enhancing the safety of the financial system in the decade since the global financial crisis, as discussed in Chapter 2 of the October 2018 GFSR, and pressures to roll back portions of the reform should be resisted. Key areas for more action include completing the implementation of the reform agenda—such as fully implementing the leverage ratio and net stable funding ratio, devising effective resolution frameworks, and enhancing supervisory intensity for globally important financial institutions (especially across borders); bolstering tools and policymaking capabilities of macroprudential entities; and mitigating systemic risk from nonbank financial institutions via continued vigilance on the regulatory perimeter and filling data gaps. Continued close cooperation is also needed to confront emerging risks, such as those arising from the growing systemic importance of central counterparties and the potential for cybersecurity breaches, as well as to combat cross-border money laundering and the financing of terrorism. As global banks withdraw from high-risk lending, correspondent banking relationships—through which global banks provide deposit-taking and remittance services to smaller banks in low-income countries—are under pressure. These relationships play a crucial role because they ensure that these countries have access to vital international payments. To preserve them, domestic regulators will need to, among other things, address gaps in anti–money laundering and combating the financing of terrorism where needed. The rapid development of financial technology offers opportunities, including for enhanced financial inclusion, but risks should also be carefully monitored. In addition, an adequately financed global safety net remains critical so that countries have quick and predictable access to international financing in times of need.
- *Migration*: Immigration can relieve the strain of aging and contribute to productivity. However, although migrant skills typically complement those of the native population, immigration can provoke a political backlash. For source countries, emigration can weigh on long-term growth, including through lost human capital, though remittances and diaspora networks have mitigating effects. Cooperation between source and destination countries should facilitate prompt integration of migrants and support remittance flows. Recurrent surges in international migration, prompted by conflicts or climate-related events, cannot be avoided without cooperative action to improve international security, support low-income countries' efforts in achieving the Sustainable Development Goals, and resist and adapt to climate change.
- *Excess imbalances*: As discussed in the section titled "External Sector Outlook" and the 2018 *External Sector Report*, both deficit and surplus economies must implement measures that help rebalance the composition of global demand and prevent a further buildup of excess global imbalances.
- *Taxation*: Various features of the current international tax system are conducive to tax avoidance. The many possibilities that multinational enterprises have for shifting profits to jurisdictions with low tax rates reduce tax revenues and put downward pressure on corporate income tax rates. The complex treaty network can be exploited through "treaty shopping," which allows corporations to avoid or reduce any withholding taxes on dividends or interest. Further multilateral cooperation on taxation is therefore needed to continue efforts aimed at fighting profit shifting, such as through the Organisation for Economic Co-operation and Development–Group of Twenty Base Erosion and Profit Shifting initiative. In

the longer term, conceptual and practical problems, which are intensifying as a result of globalization, may require more fundamental reforms.

- *Other issues*: A range of noneconomic factors imperils the sustainability and inclusiveness of global growth. Cross-border cooperation remains vital for mitigating greenhouse gas emissions and for containing the associated adverse consequences of rising global temperatures and devastating climate events. These developments disproportionately hurt low-income countries that have contributed the least to emissions and have low capacity to cope with their effects (see Chapter 3 of the October 2017 WEO). By adding to migrant flows, climate-related events compound an already-complex situation of refugees fleeing conflict areas, often to countries already under severe strain. Finally, a truly global effort is also needed to curb corruption, which is undermining faith in government and institutions in many countries.

Scenario Box 1. Global Trade Tensions

The Global Integrated Monetary and Fiscal Model (GIMF) is used to simulate the economic impact of the tariffs that have recently been imposed between the United States and several of its trading partners as well as some trade measures that have been announced or considered, but not yet imposed. The simulations capture several channels through which the rise in trade tensions can affect global economic activity. In addition to the direct impact of higher trade costs, the analysis includes estimates of how the trade tensions could affect confidence and thus firms' investment plans as well as how financial markets could react and the resulting implications for firms' cost of capital. The scenario, which builds on the one presented in the July 2018 Group of Twenty (G20) Surveillance Note, has been constructed with five distinct layers.

- The first layer corresponds to measures that have already been implemented and thus are included in the *World Economic Outlook* baseline projections. It estimates the impact of the United States imposing a 10 percent tariff on all aluminum imports, a 25 percent tariff on all steel imports, a 25 percent tariff on $50 billion of imports from China, and a 10 percent tariff on an additional $200 billion of imports from China that subsequently increases to 25 percent. All US trading partners are assumed to respond and levy tariffs on an equivalent amount of US exports, except in the case of the 10 percent tariff on $200 billion in Chinese imports. In this case, China is assumed to respond with an average tariff of 7 percent on $60 billion of US imports that rises to 17 percent when the US tariff increases to 25 percent. The steel and aluminum tariffs imposed by the United States are assumed to fall exclusively on intermediate goods, while the tariff responses by China and other US trading partners fall on a mix of final and intermediate goods. These tariffs are assumed to be permanent and take effect in the second half of 2018, except for the 10 percent tariff on $200 billion of Chinese imports and the associated retaliation, which is assumed to take place in the fourth quarter of 2018. The increase in the tariff from 10 to 25 percent on the $200 billion of imports from China and China's associated retaliation are assumed to occur in 2019.
- The second layer estimates the impact of the United States imposing a 25 percent tariff on a further $267 billion of imports from China and China responding by raising both the base that tariffs apply to and the tariff rates such that all goods imports from the United States also face a 25 percent tariff (roughly $130 billion in imports from the United States). These tariffs fall on a mix of intermediate and final goods, are assumed to be permanent, and take effect in 2019.
- The third layer estimates the impact of the United States following through on the proposal to impose a 25 percent tariff on all imported cars and car parts (worth about $350 billion). Again, affected US trading partners are assumed to respond with similar tariffs on US exports of cars and car parts as well as other goods such that they are imposing tariffs on an equivalent amount of US exports. These tariffs are assumed to be permanent and take effect in 2019.
- The fourth layer estimates the potential impact that rising trade tensions could have on confidence and thus firms' investment plans. To calibrate how large this effect might be, it uses the Baker-Bloom-Davis overall Economic Policy Uncertainty measure and its estimated impact on investment in the United States.[1] A one standard deviation increase in the uncertainty measure (which is roughly one-sixth of the change that occurred during the global financial crisis) leads to an estimated 1 percent drop in the level of investment in the United States in one year. Half of this decline in US investment is assumed to occur in 2018, with the remainder coming in 2019. The impact of the decline in investment in other countries is then scaled by their trade openness relative to the United States—hence, countries more dependent on trade see a larger fall in investment than does the United States.
- The final layer estimates the impact of a potential tightening of financial conditions for corporates. The magnitude of this tightening is based on estimates by several financial market participants of the impact on US corporate earnings of a worst-case United States-versus-China trade war.[2] Based on historical relationships, this estimated 15 percent decline in earnings is then mapped into an increase in US corporate spreads. This rise in US spreads

[1]For details on the Economic Policy Uncertainty measure, see http://www.policyuncertainty.com.

[2]The worst-case scenario is the United States imposing tariffs of 25 percent on all Chinese imports and China responding in a reciprocal fashion.

Scenario Box 1 *(continued)*

is then mapped into corporate spreads in other countries, based on their credit rating relative to US corporates. This increase in spreads is assumed to occur in 2019, with half of the increase remaining in corporate spreads in 2020.

With regard to the room for a policy response to the macroeconomic implications of these trade measures, all layers assume that the euro area and Japan are unable to ease (conventional) monetary policy further in response to macroeconomic developments owing to the zero lower bound on nominal interest rates. Should additional unconventional monetary policy measures be implemented, the decline in GDP in Japan and the euro area would be about half as large in the short and medium terms than estimated here. In all other countries/regions, conventional monetary policy responds according to a Taylor-type reaction function. In addition, to better capture the potentially disruptive impact of tariffs on extended global value chains, the scenario assumes that, in the short term, firms have limited ability to substitute between imported intermediate inputs, whether from different countries or domestic sources. Over the long term, the substitutability between intermediate inputs is notably higher, on par with the substitutability between final goods.

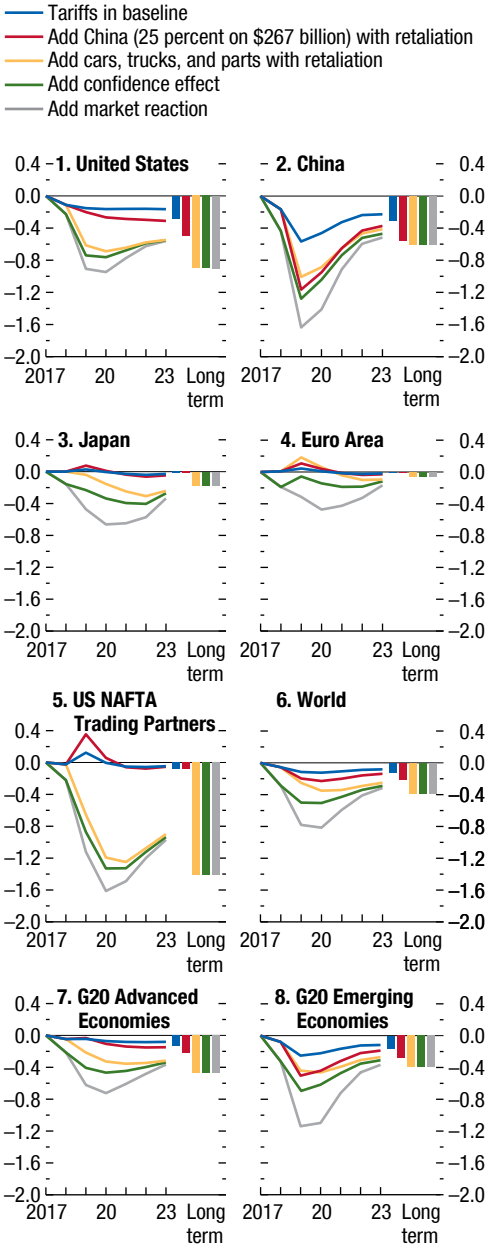
Before turning to the results, it is important to note that these model simulations are illustrative of the disruptions that an escalation in trade restrictions could impose on the global economy, but are of course subject to limitations. Global macroeconomic models, such as GIMF, provide important insights into the cross-border transmission of shocks and the dynamic behavior of macroeconomic variables in response to policy changes, but cannot capture some of the sectoral distortions that the proposed trade restrictions are likely to generate. Given the structure of the model, the impact of higher tariffs on a specific sector of the economy—cars, for example—is derived by assuming a (much more modest) general increase in tariffs: for instance, if cars represent 20 percent of US imports, the impact of a 20 percent tariff on cars would be calculated as the impact of a 4 percent tariff on all US imports (and similarly for steel and aluminum). As a result, the sectoral distortions imposed by tariffs are not fully captured in the simulations. In addition, there is a high degree of uncertainty about the magnitude and persistence of both the confidence effects on investment and the tightening of corporate spreads. These effects could turn out to be milder or more severe than assumed here and, in part, this motivates providing them as separate layers. Regarding the layer that contains the tightening of corporate spreads, one aspect that is not included in the analysis is the potential for safe-haven flows to mitigate the impact of the financial tightening in such countries as the United States, Germany, and Japan.

Turning to the simulated macroeconomic effects illustrated in Scenario Figure 1, the first point to note is that the impact of the tariffs that have been imposed to date (blue line) is small, but material, with the United States and China bearing the brunt of the costs. These costs would roughly double if the United States imposes a 25 percent tariff on an additional $267 billion of imports from China and if China responds with 25 percent tariffs on all US exports (red line). Some countries, however, do benefit in the short term, as households and firms in China and the United States substitute away from the higher-priced imports, now subject to tariffs, to imports from other countries. Over time, as Chinese and US households and firms are able to source domestically more of the goods that were previously imported, the benefits to other countries disappear. If the United States were to follow through with the imposition of tariffs on imported cars and car parts, and trading partners respond as assumed, the negative impact on the US economy is estimated to increase sharply (yellow line). This is due to the large volume of imports to which the tariffs apply and the fact that almost half are car parts (intermediate inputs that, it is assumed, are difficult, in the short term, to substitute away from). For similar reasons, other countries tightly linked to the US car market, such as its partners in the North American Free Trade Agreement (NAFTA) and Japan, would also see notable declines in output. As in the previous layer, some regions temporarily benefit (in this case China and the euro area), but once households and firms in the most affected countries have sufficient time to make the desired substitutions, the impact is negative everywhere. It is worth noting that these short-term benefits could be overstated. This arises because, as noted above, this car tariff layer is implemented as a much smaller but broad-based change in tariffs, which could result in overestimating

Scenario Box 1 *(continued)*

Scenario Figure 1. Real GDP in Trade Tensions Scenario

(Percent deviation from control)



Source: IMF staff estimates.
Note: G20 = Group of Twenty; NAFTA = North American Free Trade Agreement.

the short-term substitutability between imports from China and the euro area and those now higher-priced tariffed goods.

Not surprisingly, if firms curtail investment, given their concerns about the impact of a deteriorating global trading environment, output suffers everywhere, with the impact more pronounced where there are constraints on conventional monetary policy (green line). Also, if financial markets respond to the deterioration in the global trading environment by tightening financial conditions for firms, the output declines would be even sharper, with emerging markets potentially suffering even more (gray line).

In the long term, once all adjustment has occurred (colored bars), output in the United States is almost 1 percent below a baseline with no tariffs, and output in China is just over ½ percent below baseline. The bulk of the negative impact outside of the United States and China is driven by the tariffs on cars and car parts. US NAFTA partners suffer the most, with output almost 1½ percent below baseline. In Japan, the long-term decline in GDP is just under 0.2 percent, and it is less than 0.1 percent in the euro area. Global GDP is down by roughly 0.4 percent in the long term, with advanced G20 economies bearing a slightly higher burden.

Box 1.1. Increasing Market Power

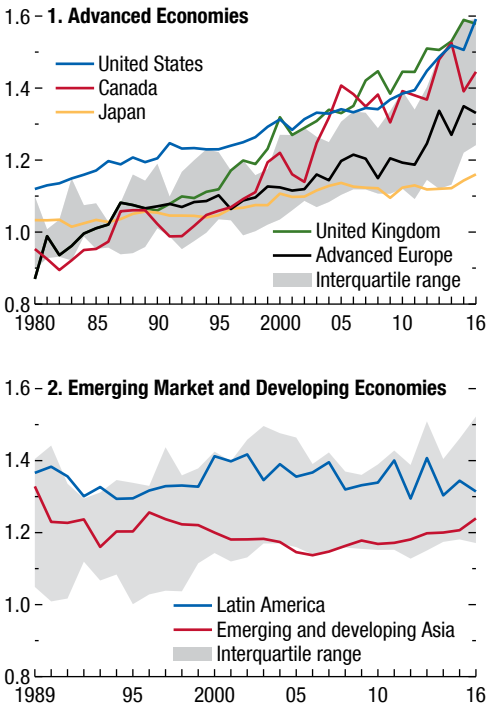
Concern over and the public policy debate about corporate market power are both growing. Concerns arise for at least two reasons. First, rising corporate market power may help account for several puzzling, and often worrisome, macroeconomic trends in advanced economies over the past two decades—low investment despite rising corporate profits, declining business dynamism, slow productivity growth, and falling labor income shares (Autor and others 2017; De Loecker and Eeckhout 2017; Gutiérrez and Philippon 2017). Second, the rise of tech giants has raised fresh questions about whether this trend might continue and, if so, whether some rethinking of policy is needed to maintain fair and strong competition in the digital age. However, corporate market power is hard to measure, and common indicators, such as the Herfindahl index or market concentration ratios, can be misleading. Beyond the United States and select advanced economies, evidence of how corporate market power has evolved is also scarce.

This box presents new evidence, based on data from a large number of publicly traded firms, on trends in corporate market power across 74 advanced and emerging market and developing economies.[1] Market power, measured as firms' markups—the ratio of the price at which firms sell their output to the marginal cost of production—has generally increased, especially in advanced economies (Figure 1.1.1).

The authors of this box are Federico Díez, Daniel Leigh, and Suchanan Tambunlertchai.

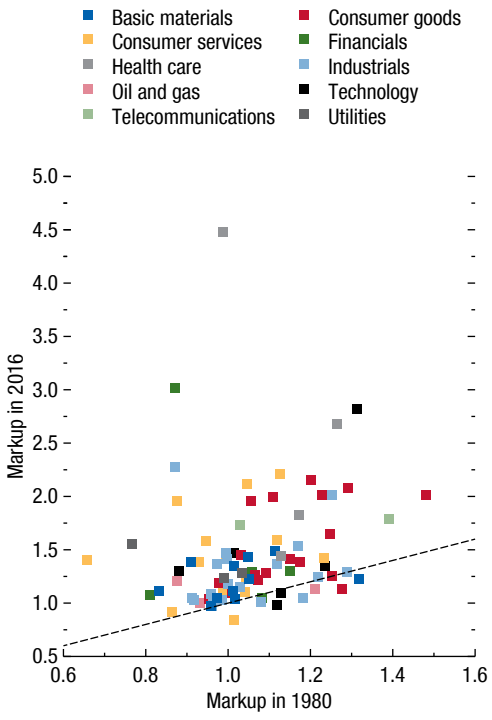
[1]The evidence presented in the box draws on Díez, Leigh, and Tambunlertchai (2018), who calculate firm-level markups using the approach of De Loecker and Warzynski (2012) and De Loecker and Eeckhout (2017), and investigate the relationship between markups, investment, innovation, and the labor share of income at the firm level.

Figure 1.1.1. Market Power over Time
(Estimated markups)



Sources: Thomson Reuters Worldscope; and IMF staff calculations.
Note: Average markups of listed firms weighted by sales.

Figure 1.1.2. Markup Increase, by Subsector



Sources: Thomson Reuters Worldscope; and IMF staff calculations.
Note: Dashed line indicates 45-degree line along which markups are equal over time.

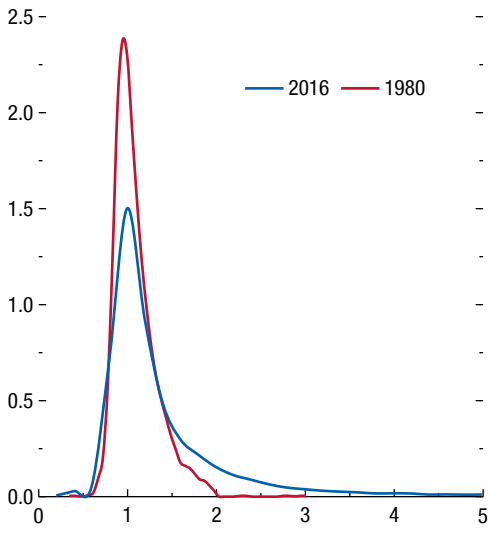
Box 1.1 *(continued)*

Figure 1.1.1 unveils two clear facts. First, markups among advanced economies have significantly increased since the 1980s, by 43 percent on average, and this trend has accelerated during the current decade. Second, emerging market and developing economies show less evidence of a rise in markups.[2]

The pattern of rising markups in advanced economies is found across all broad economic sectors. Figure 1.1.2 presents, for each narrowly defined economic subsector, the markup in 2016 compared with that in 1980, where the color refers to the corresponding 10 broad FTSE Russell Industry Classification Benchmark economic sectors. In the figure, a colored marker located above the 45-degree line indicates an increase in markups. Markups increased across almost all narrow sectors, but there is significant heterogeneity in the magnitudes of the increases. Markups more than doubled in the biotechnology, retail real estate investment trusts (retail REITs), consumer finance, and software subsectors. In contrast, subsectors, such as auto parts, computer hardware, and electrical components and equipment, saw markups decline. So, while markups have generally increased since 1980, much cross-sector heterogeneity is observed.

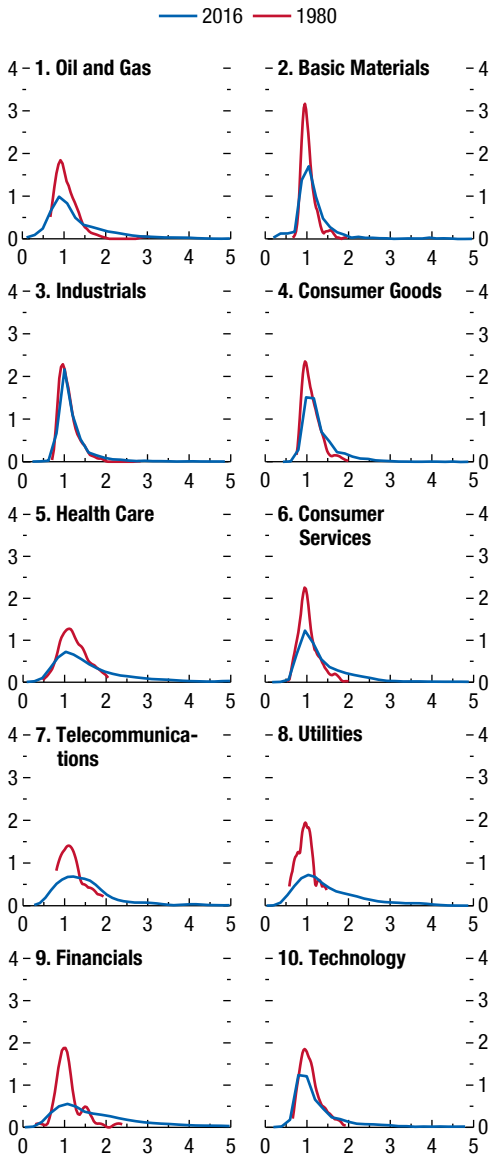
[2]This increase, documented by Díez, Leigh, and Tambunlertchai (2018), is also consistent with the findings by De Loecker and Eeckhout (2018). Furthermore, the increase in markups is accompanied by an increase in profits, strengthening the notion of increased corporate market power.

Figure 1.1.3. Advanced Economies: Distribution of Markups of All Firms
(Kernel density)



Sources: Thomson Reuters Worldscope; and IMF staff calculations.
Note: *X*-axis truncated at 5 for graphical clarity.

Figure 1.1.4. Advanced Economies: Distribution of Markups of Firms, by Industry
(Kernel density)



Sources: Thomson Reuters Worldscope; and IMF staff estimates.
Note: Results for 10 "industries" of the FTSE Russell Industrial Classification Benchmark from Thomson Reuters Worldscope. *X*-axis truncated at 5 for graphical clarity.

Box 1.1 *(continued)*

More in-depth analysis shows that the increase in market power in advanced economies is mostly driven by a fraction of "superstar" firms that have managed to extract especially large markups, while the market power of other firms has increased little since 1980. This fact implies that the rise in markups has been accompanied by an increasingly skewed distribution, not only at the aggregate level, but also within broad economic sectors (Figures 1.1.3 and 1.1.4).

This increase in corporate market power has important macroeconomic effects. Most strikingly, starting from low levels, higher markups are initially associated with increasing investment and innovation, but this relationship becomes negative when market power becomes too strong. The inverted U-shape relationship between competition on one hand and investment and innovation on the other is consistent with findings by Aghion and others (2005) and suggests that, at low levels of market power, firms invest to escape competition, whereas, at high levels of market power, firms have weaker incentives to invest because of the lack of competitive pressure. Furthermore, higher corporate market power also seems to be associated with lower labor shares: the fraction of firms' revenue going to workers decreases, while the share of revenue going to profits increases.

The ultimate policy implications will depend on the drivers of this increase in global market power, which are still being debated. The potential causes include, among others, the rise of intangible assets (for example, patents), network effects in the digital economy (see April 2018 *Fiscal Monitor*), and outdated or weaker enforcement of antitrust laws. More research is needed to disentangle the various factors at play.

Box 1.2. Growth Outlook: Advanced Economies

Advanced economies are projected to expand by 2.4 percent in 2018 (a marginally faster pace than in 2017) and 2.1 percent in 2019. Growth in advanced economies is expected to decline to 1.7 percent in 2020 as the US tax cuts are partially reversed, and to 1.5 percent in the medium term as working-age population growth continues to slow.

- Growth in the *United States* is expected to peak at 2.9 percent in 2018, supported by the procyclical fiscal stimulus after eight consecutive years of expansion and still-loose financial conditions (despite expected monetary tightening). Growth is expected to soften to 2.5 percent in 2019 (a downward revision of 0.2 percentage point relative to the April 2018 *World Economic Outlook* (WEO) due to the recently introduced trade measures) and to drop to 1.8 percent in 2020 as the fiscal stimulus begins to unwind. Strong domestic demand is projected to push the economy above full employment and increase imports and the current account deficit. Medium-term growth is forecast to temporarily decline below potential at 1.4 percent as the positive output gap is gradually closed.
- Growth is projected to remain strong in the *euro area*, but has been revised down by 0.4 percentage point to 2.0 percent for 2018, reflecting weaker-than-expected performance in the first half of the year. Growth is forecast to gradually slow further to 1.9 percent in 2019, 0.1 percentage point lower than the April forecast. Healthy consumer spending and job creation amid supportive monetary policy are expected to continue to provide strong aggregate demand, though at a moderating pace. Short-term profiles of country-specific growth rates vary. In *France*, growth is expected to moderate to 1.6 percent in 2018 and 2019, 0.5 (0.4) percentage point weaker than in the April 2018 WEO for 2018 (2019), reflecting softer external demand as well as lower outturns and high-frequency indicators in 2018. In *Germany*, growth was revised down to 1.9 percent in 2018 and 2019 (by 0.6 percentage point and 0.1 percentage point, respectively) because of a slowdown in exports and industrial production. *Italy*'s growth forecast is also lower than in the April 2018 WEO, estimated at 1.2 percent for 2018 and 1 percent in 2019, because of the underlying deterioration in external and domestic demand and uncertainty about the new government's policy agenda. In *Spain*, growth is expected to be 2.7 percent in 2018 and 2.2 percent in 2019, which is a 0.1 percentage point decline relative to the April forecast for 2018, and no change for 2019. Medium-term growth in the *euro area,* projected at about 1.4 percent, is expected to be constrained by slow productivity growth and unfavorable demographics.
- In the *United Kingdom*, growth is projected to slow to 1.4 percent in 2018 and 1.5 percent in 2019 (from 1.7 percent in 2017). This forecast represents a downward revision of 0.2 percentage point for 2018 relative to the April 2018 WEO, driven by weak growth in the first quarter of the year, partly due to weather-related factors. The medium-term growth forecast remains at 1.6 percent, weighed down by the anticipated higher barriers to trade following Brexit. (Assumptions regarding the Brexit outcome remain broadly unchanged relative to the April 2018 and October 2017 WEOs. Tariffs on trade with the European Union are expected to remain at zero, and nontariff costs will likely increase moderately.)
- *Japan*'s growth is projected to moderate to 1.1 percent in 2018 (from a strong, above-trend outturn of 1.7 percent in 2017), before softening to 0.9 percent in 2019. The downward revision of 0.1 percentage point for 2018 relative to the April 2018 WEO is largely due to the contraction observed in the first quarter of 2018, and given the uptick in growth and domestic demand in the second quarter of 2018, this is likely to represent a temporary dip rather than the beginning of a turn in the cycle. Japan's medium-term prospects are impeded by unfavorable demographics and a trend decline in the labor force.
- Among other advanced economies, growth is projected to moderate in *Canada* to 2.1 percent in 2018 and 2.0 percent in 2019, and to exceed 3 percent in *Australia* in 2018, before declining to 2.8 percent in 2019. In *Korea*, growth is projected at 2.8 percent in 2018 and 2.6 percent in 2019. The downward revisions to the 2019 growth forecast for Australia and Korea relative to the April 2018 WEO partially reflect the negative effect of the recently introduced trade measures.

The author of this box is Natalija Novta.

Box 1.3. Growth Outlook: Emerging Market and Developing Economies

Growth in emerging market and developing economies is expected to remain steady at 4.7 percent in 2018–19, and to rise modestly over the medium term.

- In *China*, growth is projected to moderate from 6.9 percent in 2017 to 6.6 percent in 2018 and 6.2 percent in 2019, reflecting slowing external demand growth and necessary financial regulatory tightening. The 0.2 percentage point downgrade to the 2019 growth forecast is attributable to the negative effect of recent tariff actions, assumed to be partially offset by policy stimulus. Over the medium term, growth is expected to gradually slow to 5.6 percent as the economy continues to make the transition to a more sustainable growth path with continued financial de-risking and environmental controls.
- Growth is projected to remain strong elsewhere in emerging and developing Asia. *India*'s growth is expected to increase to 7.3 percent in 2018 and 7.4 percent in 2019 (slightly lower than in the April 2018 *World Economic Outlook* [WEO] for 2019, given the recent increase in oil prices and the tightening of global financial conditions), up from 6.7 percent in 2017. This acceleration reflects a rebound from transitory shocks (the currency exchange initiative and implementation of the national Goods and Services Tax), with strengthening investment and robust private consumption. India's medium-term growth prospects remain strong at 7¾ percent, benefiting from ongoing structural reform, but have been marked down by just under ½ percentage point relative to the April 2018 WEO. In the ASEAN-5 (*Indonesia, Malaysia, Philippines, Thailand, Vietnam*), growth is expected to be 5.3 percent in 2018, before softening to 5.2 percent in 2019. The 0.2 percentage point downward revision to the 2019 growth forecast reflects largely the economic costs of recent trade measures.
- Growth in *Latin America and the Caribbean* is projected to decrease from 1.3 percent in 2017 to 1.2 percent in 2018 and to rise to 2.2 percent in 2019, a more subdued recovery than envisaged in the April 2018 WEO.
  - *Mexico*'s growth is projected to increase from 2.0 percent in 2017 to 2.2 percent in 2018 and 2.5 percent in 2019, supported by higher US growth. The growth forecast is, however, lower than expected in the April 2018 WEO, reflecting the impact on investment and domestic demand of prolonged uncertainty related to trade.
  - *Brazil*'s economy is expected to grow at 1.4 percent and 2.4 percent in 2018 and 2019, respectively, up from 1 percent growth in 2017, driven by a recovery of private demand as the output gap gradually closes. The growth forecast for 2018 is lower than in the April 2018 WEO by 0.9 percentage point on account of disruptions caused by the nationwide truck drivers' strike and tighter external financial conditions, which are a source of risk to the outlook. Growth is expected at 2.2 percent in the medium term.
  - After growing by 2.9 percent in 2017, *Argentina* is expected to contract by 2.6 percent in 2018, a large downward revision relative to the April 2018 WEO forecast, reflecting recent financial market disruptions, high real interest rates, and the faster fiscal consolidation under the exceptional access Stand-By Arrangement approved in June. The economy is expected to contract by a further 1.6 percent in 2019. Growth of 3.2 percent is expected over the medium term under the steady implementation of reforms and returning confidence.
  - *Venezuela*'s economy continues to decline for the fifth consecutive year, following a 14 percent drop in 2017. Real GDP is projected to shrink by 18 percent in 2018 and a further 5 percent in 2019, driven by plummeting oil production, and political and social instability.
- The outlook for the *Commonwealth of Independent States* is more favorable than in the April 2018 WEO, with growth for the region expected at 2.3 percent in 2018 and 2.4 percent in 2019 (up from 2.1 percent in 2017), moderating to 2.1 percent in the medium term. Growth in *Russia* is projected at 1.7 percent in 2018, up from 1.5 percent in 2017, supported by higher oil prices and recovering domestic demand. Medium-term growth is expected to remain muted at about 1.2 percent, absent structural reforms. Growth projections for *Kazakhstan* have been revised upward to 3.7 percent in 2018 and 3.1 percent in 2019, reflecting higher non-oil growth and increased oil production.
- Growth in *emerging and developing Europe* is projected to moderate from 6.0 percent in 2017

The authors of this box are Wenjie Chen and Zsóka Kóczán.

Box 1.3 *(continued)*

to 3.8 percent in 2018 and decline further to 2.0 percent in 2019 (well below the April 2018 WEO forecasts). *Poland* is in a strong cyclical upswing, with growth projected at 4.4 percent in 2018 (revised up by 0.3 percentage point since the April 2018 WEO, reflecting stronger-than-expected investment growth), though it is expected to moderate to 3.5 percent in 2019 and 2.8 percent in the medium term, held back by adverse demographics and structural bottlenecks. *Romania*'s economy grew at a robust 6.9 percent in 2017 on fiscal stimulus and strong external demand. Growth is expected to decline to 4 percent in 2018 and further to 3.4 percent in 2019 (1.1 and 0.1 percentage points lower than in the April 2018 WEO) as the stimulus moderates. Growth in *Turkey* was very strong in 2017 and early 2018, but is expected to slow sharply. Real GDP growth is projected at 3.5 percent in 2018 but to drop to 0.4 percent in 2019 (some 3.6 percentage points lower for 2019 than in the April 2018 WEO) as the weaker lira, higher borrowing costs, and elevated uncertainty weigh on investment and consumer demand. Turkey's economy remains highly vulnerable to sudden shifts in capital flows and geopolitical risks.

- Growth is on the mend for *sub-Saharan Africa*, with the region's average growth projected to rise to 3.1 percent in 2018 (from 2.7 percent in 2017) and 3.8 percent in 2019. The growth forecast for 2018 is 0.3 percentage point lower than the April 2018 WEO forecast. The acceleration relative to 2016–17 reflects a more supportive external environment, including stronger global growth, higher commodity prices, and improved capital market access, following efforts to improve fiscal balances in the aftermath of the commodity price slump. Growth performance varies, however, across countries. About half of the expected pickup in growth between 2017 and 2018 reflects the growth rebound in *Nigeria*. Nigeria's growth is projected to increase from 0.8 percent in 2017 to 1.9 percent in 2018 and 2.3 percent in 2019 (0.4 percentage point higher than in the April 2018 WEO for 2019), buoyed by the impact of recovering oil production and prices. In *Angola*, the region's second largest oil exporter, real GDP is expected to shrink by 0.1 percent in 2018, following a 2.5 percent contraction in 2017, but is projected to increase by 3.1 percent in 2019, with the recovery driven by a more efficient foreign currency allocation system and additional availability of foreign currency due to higher oil prices. Meanwhile, in *South Africa*, prospects remain modest amid uncertainty in the run-up to the 2019 general elections, with growth projected to fall to 0.8 percent in 2018 from 1.3 percent in 2017, before recovering to 1.8 percent in the medium term. The pace of structural reform implementation and the level of policy credibility will determine the extent of economic recovery.
- In the *Middle East, North Africa, Afghanistan, and Pakistan* region, growth is projected to increase from 2.2 percent in 2017 to 2.4 percent in 2018 and to 2.7 percent in 2019, stabilizing at about 3 percent in the medium term—a sizable downward revision compared with the April 2018 WEO forecast. The downward revisions reflect to an important extent the worsening of growth prospects for *Iran*, following the reimposition of US sanctions. The economy is now forecast to contract in 2018 (–1.5 percent) and especially in 2019 (–3.6 percent) on account of reduced oil production, before returning to modest positive growth in 2020–23. Elsewhere, in *Saudi Arabia*, following a 0.9 percent contraction in 2017, output is projected to expand by 2.2 percent in 2018 and 2.4 percent in 2019 (0.5 percentage point higher for both years than in the April 2018 WEO), driven by a pickup in non-oil economic activity and a projected increase in crude oil production in line with the revised Organization of the Petroleum Exporting Countries Plus agreement. Growth in *Egypt* is projected to rise to 5.3 percent in 2018 and 5.5 percent in 2019, up from 4.2 percent in 2017, reflecting a recovery in tourism, rising natural gas production, and continued improvements in confidence due to implementation of an ambitious reform program supported by the IMF's Extended Fund Facility. Growth in *Pakistan* is expected to strengthen from 5.4 percent in 2017 to 5.8 percent in 2018 (0.2 percentage point higher than in the April 2018 WEO), underpinned by improved energy supply, investment related to the China-Pakistan Economic Corridor, and strong credit growth. However, macroeconomic stability gains have been eroding, putting the outlook at risk. Growth is expected to moderate to 4.0 percent in 2019, and slow to about 3.0 percent in the medium term. The medium-term growth revisions for Pakistan, together with those for *Iran* and a sizable markdown in prospects for *Sudan*, explain the lower projected growth for the region beyond 2019.

Box 1.4. Inflation Outlook: Regions and Countries

Inflation in advanced economies is projected at 2.0 percent in 2018, up from 1.7 percent in 2017. Inflation in emerging market and developing economies excluding Venezuela is expected to increase to 5.0 percent this year, up from 4.3 percent in 2017. These weighted averages mask significant heterogeneity across countries depending on their cyclical positions as well as the impact of currency depreciations and rising energy prices.

Advanced Economies

- In the *United States*, headline consumer price inflation is projected to increase to 2.4 percent in 2018 and 2.1 in 2019, from 2.1 percent in 2017. Core personal consumption expenditure price inflation, the Federal Reserve's preferred measure, is expected to be 2.1 percent in 2018 and 2.3 percent in 2019 compared with 1.6 percent in 2017, as output climbs above potential following the sizable fiscal expansion. This projection slightly exceeds current Federal Reserve projections and suggests earlier-than-anticipated overshooting of the Federal Reserve's target inflation rate. Toward the end of the projection horizon (2022–23), inflation is assumed to decline to the target, thanks to a monetary policy response that will keep expectations and actual inflation well anchored.
- Headline inflation in the *euro area* is expected to be 1.7 percent in 2018 and 2019. With the recovery boosting growth above potential for 2018–19, core inflation is expected to increase to 1.2 percent in 2018 and 1.6 percent in 2019, up from 1.1 percent in 2017. The core harmonized index of consumer prices is projected to increase slowly to 2 percent by 2022, given a strong backward-looking element in the euro area inflation process.
- In *Japan*, headline inflation is expected to increase to 1.2 percent in 2018, up from 0.5 percent in 2017, again mainly due to rising global energy prices. Inflation excluding fresh food and energy prices is expected to rise to 0.5 percent in 2018 and further to 0.8 percent in 2019, up from 0.1 percent in 2017. Inflation is still expected to remain below the Bank of Japan's target over the five-year forecast horizon, given tepid wage growth and stickiness in inflation expectations.
- In the *United Kingdom*, as the pass-through effects of the pound depreciation fade, core inflation is expected to decline to 2.1 percent in 2018, down from 2.4 percent in 2017, and is expected to stabilize at its medium-term level of 2.0 percent in early 2020. Headline inflation is expected to edge down to 2.5 percent in 2018, from 2.7 percent in 2017, with a gradual convergence to 2 percent projected in 2020.

Emerging Market and Developing Economies

- Headline inflation in *China* is expected to pick up to 2.2 percent this year, up from 1.6 percent in 2017, and to about 3 percent over the medium term, driven by higher food and energy prices. Inflation in *India* is on the rise, estimated at 3.6 percent in fiscal year 2017/18 and projected at 4.7 percent in fiscal year 2018/19, compared with 4.5 percent in fiscal year 2016/17, amid accelerating demand and rising fuel prices.
- In *Mexico,* inflation is projected to continue to fall—to 4.8 percent in 2018—and to converge toward the central bank's 3 percent target in 2020, as monetary policy remains tight. In contrast, inflation is projected to accelerate in *Brazil* to 3.7 percent in 2018 and 4.2 percent in 2019, as monetary policy remains supportive and food price inflation rebounds after a notable drop caused by an exceptional harvest in 2017. In *Argentina,* inflation is expected to reach 31.8 percent in 2018, driven by the significant currency depreciation, and to remain at broadly the same level (31.7 percent) in 2019. *Venezuela*'s hyperinflation is expected to worsen rapidly, fueled by monetary financing of large fiscal deficits and loss of confidence in the currency.
- *Russia*'s inflation, expected to average 2.8 percent in 2018, is below the target of 4 percent, driven by moderately tight monetary policy. However, it is projected to rise to 5.1 percent in 2019, supported by an ongoing recovery in domestic demand, higher fuel prices, and pass-through from the recent depreciation. *Turkey*'s inflation is projected at 15 percent in 2018 and 16.7 percent in 2019, reflecting pass-through from the lira's depreciation, higher energy prices, high wage growth, and unanchored inflation expectations.
- Inflation pressures in *sub-Saharan Africa* have broadly softened, with annual inflation projected to drop to 8.6 percent in 2018 and 8.5 percent in 2019, from 11 percent in 2017. In *South Africa*, inflation has moderated to 4.8 percent in 2018 from 5.3 percent in 2017 with the easing of drought conditions, but is expected to edge back to 5.3 percent in 2019 as temporary disinflationary effects subside. In *Nigeria* and *Angola*, tighter monetary policy and moderation in food price increases contributed to tapering inflation. In *Nigeria*, inflation is projected to fall to 12.4 percent in 2018, from 16.5 percent in 2017, and to rise to 13.5 percent in 2019. In *Angola*, inflation is projected to fall to 20.5 percent in 2018 from 29.8 percent in 2017 and to decline further to 15.8 percent in 2019.

The authors of this box are Wenjie Chen, Zsóka Kóczán, and Natalija Novta.

Box 1.5. Sharp GDP Declines: Some Stylized Facts

A number of countries, including Greece, have suffered very large declines in GDP per capita in the aftermath of the global financial crisis. In some countries affected by conflict, such as Libya, South Sudan, Syria, and Yemen, ongoing declines in GDP per capita have been staggering.[1] In Venezuela, GDP per capita is estimated to have declined by more than 35 percent over 2013–17 and is projected to decline by close to 60 percent between 2013 and 2023. Are these episodes rare occurrences? To address this question, this box documents the frequency and characteristics of large declines in GDP per capita over the past 50 years. It shows that such episodes are unfortunately not rare. They tend to be protracted and originate from a variety of sources, and the post-trough recovery, in many cases, is insufficient to even restore the starting level of GDP per capita.

The chosen threshold (a decline in GDP per capita of at least 20 percent from peak to trough) is designed to isolate extreme episodes, typically occurring over several years, rather than more frequent cases of macroeconomic distress (caused, for example, by a financial or exchange rate crisis).

There is a vast literature on the macroeconomic implications of different types of crises (financial, external, currency, banking, fiscal). While these crises are typically associated with severe macroeconomic distress, such distress rarely causes a decline in the level of GDP exceeding 20 percent. The literature on large GDP declines is relatively small. An important study in this respect is by Becker and Mauro (2006), who examine output drops in a large panel of countries and systematically relate them to a variety of shocks (terms-of-trade declines, financial shocks, wars, and so on). A related literature looks at large declines in GDP and consumption ("disasters") with the objective of calibrating the impact of these rare events on financial market variables such as equity premiums (see, for instance, Barro and Ursua 2008; Barro and Jin 2011; Nakamura and others 2013). These studies typically rely on long time series data (stretching to the early 19th century) for advanced economies and a few emerging markets.[2]

There are four main causes, often intertwined, of GDP declines in the sample under consideration. These include strife (war, civil war, armed rebellion), commodity shocks,[3] crises (including banking crises, external crises, and so on), and the transition from a centrally planned to a market economy. Misguided macroeconomic policies during the episodes play a role in a number of cases as well, often interacting with other factors. Prime examples are cases of hyperinflation, including the ongoing case of Venezuela. Declines attributable to other causes (for example, natural disasters) are much less frequent—the one example in the sample is the 2015 Ebola epidemic in Sierra Leone.

Stylized Facts on Sharp GDP Declines

The 133 episodes of large GDP per capita declines identified in the period 1960–2017 are listed in Table 1.5.1.[4]

They affect 92 countries (a number of them repeatedly).[5] Figure 1.5.1 depicts the number of ongoing episodes of sharp declines in GDP per capita by year, as well as the share of countries affected (in relation to the total number with available data). The figure indicates that the lion's share of episodes took place during the 1980s, following the global economic

The author of this box is Gian Maria Milesi-Ferretti.

[1]Data for Syria since the start of the conflict are not available, but estimates presented in Gobat and Kostial (2016) and WB (2017) point to a dramatic collapse in GDP exceeding 50 percent.

[2]Applying the same definition of output declines to the Barro and Ursua (2008) data set yields episodes concentrated around the two World Wars and the Great Depression.

[3]The "shock" can be a decline in a country's export prices (such as oil price declines affecting fuel exporters), or a decline in domestic production (for instance, declining oil production in Timor-Leste in recent years or dwindling phosphate deposits in Kiribati in the 1970s).

[4]It should be kept in mind that data availability is spotty for the earlier part of the sample and that data limitations are severe, particularly for low-income countries. These limitations can become even more severe during periods of distress, such as those studied in this box.

[5]The length of an episode is measured as the number of years between a peak in GDP per capita and its subsequent trough, as long as the peak-to-trough decline in GDP per capita is at least 20 percent. If GDP per capita falls substantially below a previous trough within a few years of that trough the episode is deemed a continuation of the preceding one. Otherwise, the episode is potentially considered a distinct one (as long as GDP per capita falls by at least 20 percent between the new peak and the new trough).

Box 1.5 *(continued)*

Table 1.5.1. Episodes of Declines in GDP per Capita Exceeding 20 Percent

	Peak	Trough	GDP per capita at peak	Percent change in GDP per capita
Albania	1989	1992	2,193	–41
Algeria	1960	1962	2,466	–34
Andorra	1974	1994	44,648	–27
Andorra	2006	2012	49,708	–23
Angola	1974	1982	3,029	–31
Angola	1988	1994	2,248	–41
Antigua and Barbuda	2007	2011	15,467	–24
Argentina	1980	1990	8,053	–26
Argentina	1998	2002	8,729	–22
Armenia	1990	1993	1,797	–51
Azerbaijan	1990	1995	3,119	–61
The Bahamas	1969	1975	27,539	–39
Bahrain	1978	1986	21,788	–24
Bangladesh	1970	1972	406	–22
Belarus	1990	1995	3,102	–35
Bolivia	1977	1986	1,745	–26
Brunei Darussalam	1979	1993	66,002	–44
Burundi	1991	2005	338	–35
Cameroon	1986	1994	1,834	–42
Central African Republic	1977	1983	625	–22
Central African Republic	1986	1996	530	–24
Central African Republic	2012	2013	476	–37
Chad	1962	1973	715	–25
Chad	1977	1981	593	–32
Chile	1971	1975	5,001	–22
China	1960	1962	192	–31
Comoros	1984	1999	938	–20
Congo, Democratic Republic of the	1974	1983	1,134	–29
Congo, Democratic Republic of the	1986	2002	832	–67
Congo, Republic of	1984	1999	3,292	–31
Côte d'Ivoire	1978	1994	2,392	–47
Cuba	1985	1993	4,480	–38
Cyprus	1973	1975	11,321	–33
Djibouti	1990	2001	1,932	–37
El Salvador	1978	1986	3,157	–35
Equatorial Guinea	1980	1991	646	–25
Equatorial Guinea	2008	2017	20,334	–44
Eritrea	1997	2008	622	–24
Ethiopia	1987	1992	223	–27
Gabon	1976	1982	19,493	–40
Gabon	1984	1987	12,666	–26
Gabon	1998	2009	11,926	–29
Georgia	1990	1994	3,525	–73
Ghana	1971	1976	1,121	–20
Ghana	1978	1983	960	–27
Greece	2007	2013	30,055	–26
Guinea-Bissau	1997	1999	732	–30
Guyana	1976	1984	2,156	–28
Haiti	1980	1994	1,106	–38
Iran	1976	1981	10,266	–57
Iran	1983	1988	5,557	–34
Iraq	1980	1985	3,346	–22
Iraq	1990	1991	4,079	–65
Iraq	1999	2003	4,379	–42
Jamaica	1972	1980	5,368	–32
Jordan	1986	1991	3,270	–28
Kazakhstan	1990	1995	5,890	–37
Kiribati	1975	1981	4,521	–54
Kiribati	1984	1995	2,225	–27
Kuwait	1971	1975	84,352	–26
Kuwait	1979	1982	64,424	–50
Kuwait	1989	1991	32,605	–33
Kuwait	1993	2001	49,737	–30
Kuwait	2007	2017	49,589	–32
Kyrgyz Republic	1990	1995	1,096	–51
Lebanon	1973	1976	10,752	–71
Lebanon	1981	1982	5,653	–37
Lebanon	1987	1989	8,287	–59
Liberia	1979	1995	1,575	–93
Liberia	2002	2003	395	–31
Libya	1979	1988	24,382	–61
Libya	1991	2002	12,012	–30
Libya	2010	2011	12,121	–62
Libya	2012	2016	10,209	–43
Macao SAR	2013	2016	72,184	–28
Madagascar	1971	2002	755	–50
Malawi	1979	1994	417	–24
Maldives	1972	1978	2,645	–26
Marshall Islands	1995	1999	3,176	–22
Mauritania	1970	1994	1,296	–25
Moldova	1992	1999	1,611	–41
Mongolia	1989	1993	1,856	–27
Mozambique	1981	1986	195	–33
Myanmar	1985	1988	240	–20
Nicaragua	1977	1979	2,565	–36
Nicaragua	1981	1993	1,704	–38
Niger	1965	1976	716	–37
Niger	1979	1984	545	–31
Niger	1988	2000	408	–21
Nigeria	1965	1968	1,459	–25
Nigeria	1977	1987	2,040	–44
Papua New Guinea	1973	1990	1,943	–23
Papua New Guinea	1994	2003	2,105	–23
Peru	1987	1992	3,791	–31
Qatar	1973	1991	115,147	–67
Russian Federation	1990	1998	9,534	–42
Rwanda	1962	1964	340	–24

(continued)

Box 1.5 *(continued)*

Table 1.5.1. (continued)

	Peak	Trough	GDP per capita at peak	Percent change in GDP per capita
Rwanda	1992	1994	401	–49
San Marino	2008	2015	84,794	–38
São Tomé and Príncipe	1980	1993	1,352	–36
Saudi Arabia	1974	1987	39,125	–60
Senegal	1961	1994	1,083	–27
Sierra Leone	1982	2001	502	–45
Sierra Leone	2014	2015	563	–22
Solomon Islands	1979	1986	1,643	–24
Solomon Islands	1995	2002	1,655	–36
South Sudan	2011	2012	3,111	–54
South Sudan	2013	2017	1,789	–26
St. Vincent and the Grenadines	1972	1975	2,319	–28
Sudan	1962	1973	900	–22
Sudan	1977	1985	984	–28
Suriname	1978	1987	8,724	–38
Tajikistan	1990	1996	1,278	–71
Timor-Leste	2012	2014	4,058	–37
Togo	1980	1983	683	–21
Togo	1989	1993	561	–27
Trinidad and Tobago	1982	1989	9,856	–34
Turkmenistan	1990	1997	3,713	–49
Uganda	1970	1980	407	–30
Ukraine	1990	1998	3,965	–57
United Arab Emirates	1970	1978	126,104	–26
United Arab Emirates	1980	1988	113,682	–50
United Arab Emirates	1997	2010	64,176	–45
Uruguay	1981	1984	7,420	–21
Uzbekistan	1990	1996	997	–27
Venezuela	1977	1985	15,557	–24
Venezuela	1997	2003	12,787	–24
Venezuela	2012	2017	14,474	–37
West Bank and Gaza	1999	2002	2,683	–23
Yemen	2010	2017	1,309	–70
Zambia	1972	1994	1,613	–44
Zimbabwe	1974	1978	1,347	–21
Zimbabwe	1998	2008	1,348	–56

Source: IMF staff calculations based on data from the World Economic Outlook and World Bank World Development Indicators databases.
Note: Peak indicates the year before the decline in GDP per capita begins, and trough the year in which GDP per capita is at the lowest level in the episode. GDP per capita at peak indicates GDP per capita in constant 2010 US dollars the year before the decline starts (source: World Bank). "Percent change in GDP per capita" indicates the percent change in per capita GDP from peak to trough.

downturn and the 1982 debt crisis. The number of episodes declined in the late 1980s but rose again in the early 1990s because of the GDP declines associated with the transition to a market economy in countries of the former Soviet Union and in central and eastern Europe. The number of ongoing episodes has since declined sharply, despite some increase associated with the global financial crisis and its aftermath. Episodes associated with war are the most frequent, followed by commodity shocks, crises, and transition.

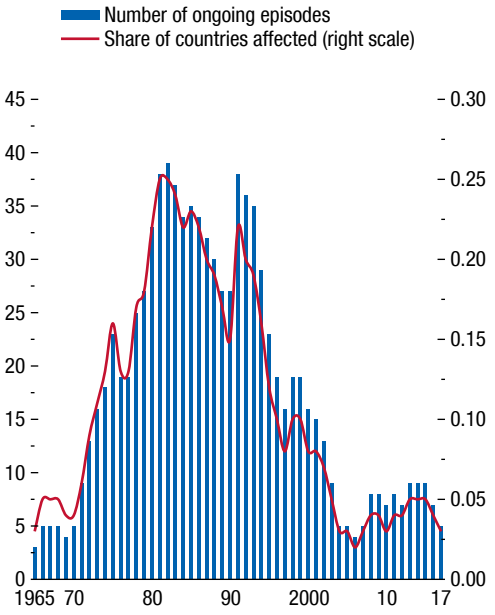
Table 1.5.2 provides some stylized facts on these downturn episodes. It shows mean and median declines in GDP per capita of more than one-third. These episodes are typically protracted, lasting over five years, and the growth rate in the five years after the end of the episode generally fails to return GDP per capita to its predecline level. Distinguishing among episodes according to their main driving factor suggests that for the median country in episodes involving wars, GDP and GDP per capita are lower, the median duration of the episode is shorter (4.5 years), and the increase in GDP per capita after the crisis is larger (some 15 percent). Transition episodes feature the largest median decline in GDP per capita (45 percent), a relatively short duration (five years), and an increase in GDP per capita after the crisis of about 14 percent. The median crises and commodity shock episodes last longer and have weaker postdecline rebounds in GDP per capita.

The Aftermath of GDP Declines

The focus now turns to the speed at which GDP per capita rebounds after these sharp declines. For that purpose, the analysis considers both the growth rate in the five years following a trough as well as the length of time it takes for countries to return to their predecline levels of GDP, and explores whether these variables are correlated with basic characteristics of the episodes: the initial level of development, the size of the country, the extent of the GDP decline, and the duration of the episode. Constructing these postdecline variables reveals a striking stylized fact: out of the 92 countries experiencing a sharp decline in GDP

Box 1.5 *(continued)*

Figure 1.5.1. Ongoing Episodes of Large Declines in GDP per Capita (20 percent or more)



Source: IMF staff calculations.

per capita in the sample, 45 had GDP per capita in 2017 still below its predecline level.[6] These countries account for over 5 percent of global GDP at purchasing power parity in 2017, and about 7½ percent of world population. They are predominantly small. Exceptions include Iran, Ukraine, Venezuela, and some economies in the Gulf Cooperation Council with high GDP per capita that have experienced very rapid population growth, including because of immigration (Kuwait, Qatar, Saudi Arabia, United Arab Emirates). Excluding these four countries, those countries still below their past peak in GDP per capita account for about 3 percent of global GDP.

- Table 1.5.3 presents the results of simple regression analyses. In columns (1) and (2), the dependent variable is the growth rate in the five years after a trough; in columns (3) and (4), it is the number of years following the trough it takes for GDP per capita to return to its level immediately before the collapse. The purpose of these regressions is simply to identify correlations in the data—there are clearly many omitted factors that can play a role in explaining postcollapse economic performance, ranging from economic policies to the external environment (growth in trading partners, terms of trade, and so on). With those caveats in mind, a surprising result is that the postdecline growth rate is uncorrelated with the extent of the previous change in GDP per capita, holding constant the length of the episode. In other words, deeper downturns are not followed by sharper recoveries. However, the postdecline growth rate is strongly negatively correlated with the length of that decline. The regressions also suggest that, on average, recoveries tend to be weaker in smaller countries, consistent with the evidence on challenges to economic performance in small states. The sample size for the second set of regressions, in which the dependent variable is the number of years it takes to return to the predecline level of GDP per capita, is considerably smaller given that, as mentioned above, many countries have not yet reached that predecline level.

[6]Using the data from the *World Economic Outlook* projection period changes results only slightly—three countries (Djibouti, Kyrgyz Republic, Sierra Leone) are projected to reach their precollapse levels of GDP per capita during 2018–23 but Sudan is projected to experience a more than 20 percent decline in GDP per capita during the projection period.

Table 1.5.2. Declines in GDP per Capita: Stylized Facts

	Mean	Median	Standard Deviation	Observations
GDP per Capita at Beginning of Episode (in constant 2010 US dollars)	11,933	2,466	23,639	133
Percent Change in GDP per Capita in the Five Years before the Peak	24	14	34	101
Percent Change in GDP per Capita Peak to Trough	–36	–32	14	133
Length of Episode of GDP Decline in Years	8	6	6	133
Percent Change in GDP per Capita in the Five Years after the Trough	14	11	18	121
Number of Years to Return to Predecline GDP per Capita	12	10	7	70

Source: IMF staff calculations based on data from the World Economic Outlook and World Bank World Development Indicators databases.

Box 1.5 *(continued)*

Table 1.5.3. Postcrisis Outcomes and Crisis Depth

	Cumulative Growth in the Five Years after the Trough		Number of Years to Return to Precrisis Peak	
	(1)	(2)	(3)	(4)
Log GDP per Capita at Peak	–0.70	0.01	–1.41**	–1.13*
	(–0.72)	(0.01)	(–2.28)	(–1.86)
Log GDP at Peak	1.75***	1.39**	–0.25	–0.15
	(2.77)	(2.08)	(–0.62)	(–0.40)
Change in GDP per Capita (peak to trough)	0.02	–0.02	–0.11*	–0.12**
	(0.33)	(–0.23)	(–1.68)	(–2.13)
Length of GDP Decline (years)	–0.61***	–0.79***	0.39**	0.47***
	(–2.84)	(–3.37)	(2.57)	(3.57)
Adjusted R^2	0.09	0.15	0.11	0.16
Number of Observations	120	102	69	64

Source: IMF staff calculations based on data from the World Economic Outlook and World Bank World Development Indicators databases.
Note: Robust errors in parenthesis. *** (**) indicate statistical significance at the 99 (95) percent confidence level. Columns (2) and (4) exclude episodes when the five years after the trough include the beginning of a new GDP decline episode.

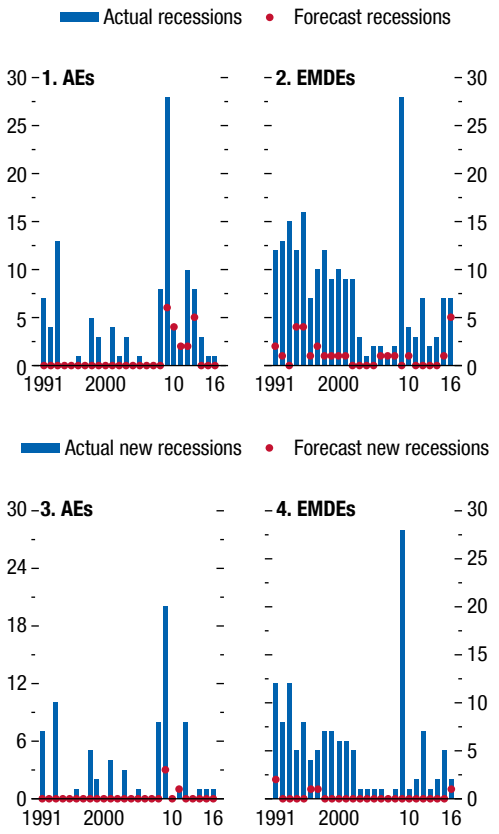
For this more restricted sample, results suggest that, as expected, it takes longer to recover from deeper and longer-duration GDP declines. They also suggest that GDP per capita in poorer countries takes longer to recover from sharp declines. These results warrant a closer look at these episodes of large declines in GDP per capita and their driving factors in future research.

Box 1.6. Predicting Recessions and Slowdowns: A Daunting Task

Statistical models generally have limited success in accurately predicting recessions—a decline in the level of GDP.[1] *World Economic Outlook* (WEO) forecasts might be expected to do better, given that they also incorporate judgment about how policies, external factors, and recent economic news affect economies' growth trajectories. However, an analysis of WEO and private sector forecasts over 1991–2016 confirms the difficulties of forecasting recessions.[2]

The number of economies experiencing negative growth in any given year has been systematically underpredicted in the October WEO forecasts of the previous year, both for advanced economies and emerging market and developing economies (Figure 1.6.1). While the average country in the sample experienced 2.7 recessions during 1991–2016, out of the 313 recessions in a sample of 117 economies, only 47 have been anticipated.[3] Even for 2009, the year after global output shrank when Lehman Brothers collapsed, only six advanced economies (and no emerging market and developing economies) had been predicted in the October 2008 WEO to enter into a recession; subsequently, output was estimated to have contracted in 56 (almost half) of the economies in the sample.[4] The accuracy in predicting a switch from positive (or zero) to negative growth has been even lower: only nine out of 212 "new" recessions were accurately forecast between 1991 and 2016.

Figure 1.6.1. World Economic Outlook Data: Recessions, Actual and Forecast
(Number of countries)



Source: IMF staff calculations.
Note: AEs = advanced economies; EMDEs = emerging market and developing economies. In the top two panels, dots denote the number of recessions (output contractions) forecast in the October WEO of the previous year; bars denote the number of actual recessions (based on the October WEO estimates of the subsequent year). In the bottom two panels, dots denote the number of new recessions forecast in the October WEO of the previous year; bars denote the number of actual new recessions (based on the October WEO estimates of the subsequent year). New recessions are years in which growth turns from nonnegative to negative.

The unsatisfactory record, however, is common across forecasters. Data from Consensus Economics, reflecting the average of private forecasters' expectations for 44 economies (as of October of the previous year), reveal a pattern that is strikingly comparable to that of the WEO forecasts (Figure 1.6.2). For

The author of this box is Francesco Grigoli. Jungjin Lee and Jillian Zirnhelt provided research support.

[1]See, for example, Estrella and Mishkin (1998); Berge and Jordà (2011); Levanon (2011); Liu and Moench (2014); Ng (2014); Bluedorn, Decressin, and Terrones (2016); and Ergungor (2016). Stock and Watson (2003) provide a review of the variables generally used to predict recessions.

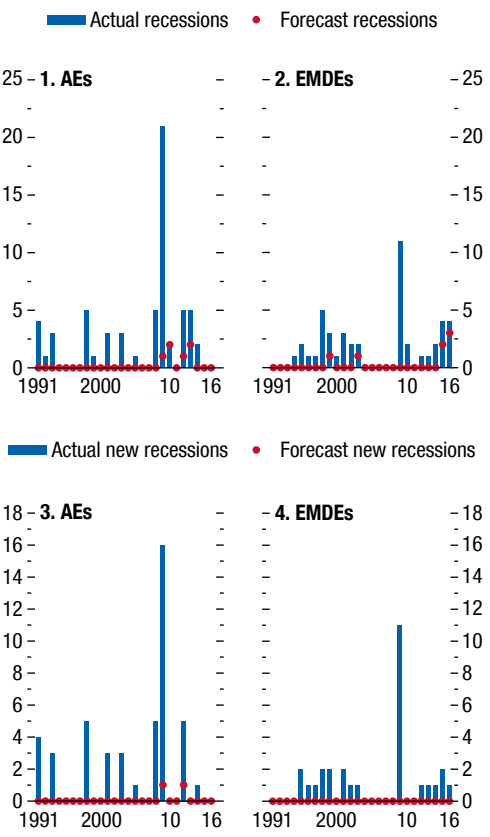
[2]IMF forecasts represent the growth outcome seen as most likely by IMF staff; that is, the mode, rather than the mean, of the distribution of expected growth.

[3]The analysis is based on annual data, which are available for most of the member countries. Observations corresponding to years in which natural disasters caused damage of at least 1 percent of GDP, data for economies that had at least one conflict during 1991–2017, and data for economies with average populations smaller than 1 million people are excluded from the WEO data set.

[4]Forecasts are formulated based on the information set available in real time, hence ex post assessments of the forecasts' accuracy should rely on first estimates rather than the latest estimates of actual data. The use of revised data would unfairly underestimate the forecasts' accuracy, given that real GDP growth is generally revised downward over time.

Box 1.6 *(continued)*

Figure 1.6.2. Consensus Economics Data: Recessions, Actual and Forecast
(Number of countries)



Source: IMF staff calculations.
Note: AEs = advanced economies; EMDEs = emerging market and developing economies. In the top two panels, dots denote the number of recessions (output contractions) forecast in the October Consensus Economics of the previous year; bars denote the actual number of recessions (based on the October Consensus Economics estimates of the subsequent year). In the bottom two panels, dots denote the number of new recessions forecasted in the October Consensus Economics of the previous year; bars denote the number of actual new recessions (based on the October Consensus Economics estimates of the subsequent year). New recessions are years in which growth turns from nonnegative to negative.

this restricted sample of 44 economies through 1991–2016, the WEO and Consensus Economics forecasts projected a similar number of recessions, 16 and 13, respectively, out of 107 cases of negative GDP growth. In 2009, only one advanced economy was projected to fall into recession, but by the end of the year output had contracted in 32 economies. Going back to the full period under analysis, if one exclusively considers the instances in which the economies were not already in a recession in the previous year, Consensus Economics predicted only two out of 75 "new" recessions in its forecasts.

The poor track record of predicting recessions is symptomatic of the overall difficulty of forecasting slowdowns in growth. WEO forecasts do a somewhat better job of predicting slowdowns—defined as declines in the rate of real GDP growth—compared with recessions. Across all economies over 1991–2016, growth slowdowns occurred about half of the time, and about half of those were accurately forecast (in the sense that the WEO forecasts predicted a decline in growth for that year). The predictive performance was somewhat better in 2009, when three-fourths of the 96 slowdowns were correctly predicted. However, restricting the 1991–2016 sample to "new" slowdowns reveals that the direction of the change in growth is correctly anticipated only about half of the time.

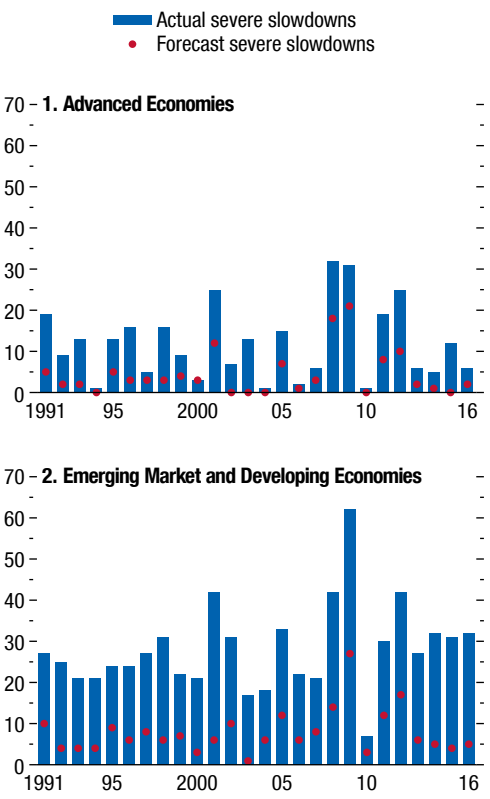
The slowdown metric does not distinguish between *mild* slowdowns and *severe* ones. Focusing only on severe slowdowns—defined as episodes in which real GDP growth fell by more than the 75th percentile of growth declines in the sample period—is an alternative approach. To account for differences in growth volatility across advanced economies and emerging market and developing economies, thresholds are based on group-specific distributions, leading to the exclusion of growth declines smaller than 0.5 percentage point and 0.6 percentage point in the two groups, respectively.[5] Over 1991–2016, the average country faced 9.3 severe slowdowns, and the count of severe slowdowns in the sample reached 1,040 (Figure 1.6.3). In these episodes, declines in growth were anticipated in 54 percent of the cases, while severe slowdowns (slowdowns of 0.5–0.6 percentage point or more) were forecast only in 31 percent.[6]

[5]The standard deviation of real GDP growth during severe slowdowns ranges between 2.6 percentage points in Latin America and the Caribbean and 4.4 percentage points in the Commonwealth of Independent States. Despite this, the results are qualitatively unchanged if the 75th percentiles are calculated using country-specific distributions.

[6]A severe slowdown is defined as being "anticipated" if the forecast decline in growth is at least 0.5 percentage point for advanced economies and 0.6 percentage point for emerging market and developing economies.

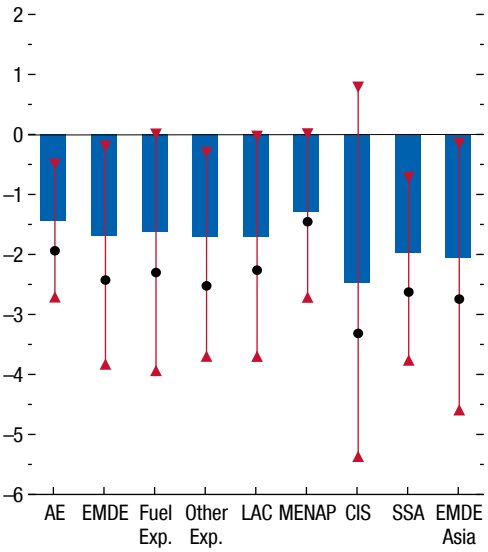
Box 1.6 *(continued)*

Figure 1.6.3. Severe Slowdowns, Actual and Forecast
(Number of countries)



Source: IMF staff calculations.
Note: WEO = *World Economic Outlook*. Bars denote the number of severe slowdowns (growth declines larger than 0.5 percentage point and 0.6 percentage point for advanced economies and emerging market and developing economies, respectively) in the October WEO of the previous year; dots denote the number of forecasted severe slowdowns (based on the October WEO estimates of the subsequent year).

Figure 1.6.4. Forecast Errors during Severe Slowdowns
(Percentage points)



Source: IMF staff calculations.
Note: AE = advanced economies; CIS = Commonwealth of Independent States; EMDE = emerging market and developing economies; Fuel exp. = fuel exporters; LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa, and Pakistan; Other exp. = other exporters; SSA = sub-Saharan Africa; WEO = *World Economic Outlook*. Bars denote the median of the real GDP growth forecast errors (calculated as the estimate for growth in year t as of the October WEO of year $t+1$ minus the forecast for growth in year t as of the October WEO of year $t-1$) during severe slowdowns. The vertical lines and the dots denote the interquartile ranges and the averages, respectively.

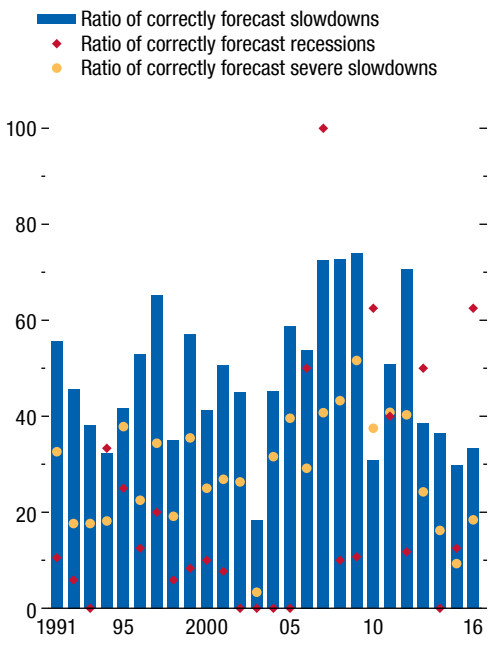
Errors in forecasting growth tend to be larger in years of severe slowdowns than in other years. The median forecast error (defined as actual minus predicted growth) during severe slowdowns is –1.6 percentage points, revealing a positive bias in the forecasts for those years (the median forecast error is –0.2 percentage point for nonsevere, or mild, slowdowns; –0.2 percentage point if all observations are considered; and 0.5 percentage point for nonslowdown years). Across groups, the median forecast error during severe slowdowns is –1.4 percentage points for advanced economies and –1.7 percentage points for emerging market and developing economies (Figure 1.6.4). Across regions in the latter group, it ranges between –2.5 percentage points in the Commonwealth of Independent States and –1.3 percentage points in the Middle East, North Africa, Afghanistan, and Pakistan.[7]

In years of synchronized slowdowns, accurately predicting the growth rate of advanced economies helps improve the accuracy of growth predictions for other economies. Severe slowdowns appear more

[7]Means and medians of the forecast errors for all groups are different from zero at the 10 percent significance level, except the median for emerging and developing Asia.

Box 1.6 *(continued)*

Figure 1.6.5. Forecast Performance
(Percent)



Source: IMF staff calculations.

synchronized in some years. For instance, in 2001, 2008, 2009, and 2012, more than 20 (40) advanced economies (emerging market and developing economies) experienced a significant decline in growth. The median decline in growth in these years was as large as 2.7 percentage points, almost 1 percentage point larger than for the severe slowdowns that occurred in other years, consistent with a larger drag from weaker external demand during synchronized slowdowns. Forecast errors were larger, at –2.4 percentage points, in these episodes, compared with –1.3 percentage points for other severe slowdowns. A simple regression of the probability of accurately predicting a severe slowdown in emerging market and developing economies on the share of the correctly predicted severe slowdowns in advanced economies suggests that, if severe slowdowns in advanced economies are missed, the chances of successfully predicting severe slowdowns elsewhere are significantly reduced.[8]

All in all, WEO forecasts perform somewhat better in predicting growth slowdowns than in predicting recessions, but the record leaves much room for improvement in both cases, and forecast errors during episodes of severe slowdowns are large (Figure 1.6.5).

[8]Probit regressions reveal that a 1 percentage point increase in the share of correctly predicted severe slowdowns in advanced economies is associated with a 29 percent higher probability of accurately predicting a severe slowdown in emerging market and developing economies.

Special Feature: Commodity Market Developments and Forecasts with a Focus on Recent Trends in Energy Demand

Energy prices have increased since the release of the April 2018 World Economic Outlook *(WEO), mostly driven by higher oil prices. Notwithstanding record-high US production, tight supply conditions and sustained economic activity in the first half of 2018 reduced Organisation for Economic Co-operation and Development (OECD) oil inventories rapidly, pushing up oil prices in May and June to their highest levels since November 2014. Since then, however, higher production in Saudi Arabia and Russia has rebalanced the oil market. A decline in metals demand from China and trade tensions have put downward pressure on metals prices. Agricultural market fundamentals, in contrast, remain solid and have partially offset the introduction of tariffs on some key agricultural products. This special feature includes an in-depth analysis of the long-term determinants of energy demand.*

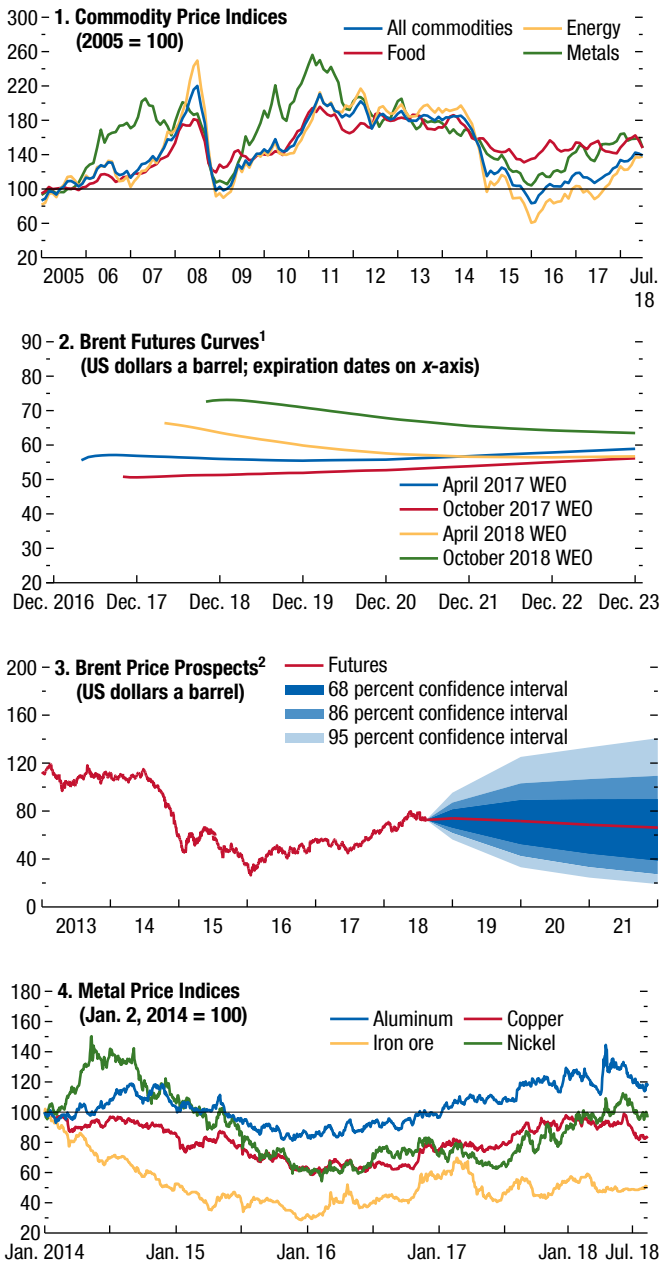
The IMF's Primary Commodities Price Index rose 3.3 percent between February 2018 and August 2018, the reference periods for the April 2018 and current WEOs, respectively (Figure 1.SF.1, panel 1). Energy prices drove that increase, rising by 11.1 percent; food prices declined by 6.4 percent, while metals prices decreased by 11.7 percent because of trade tensions and weaker-than-expected metal demand from China. Oil prices increased to more than $76 a barrel in June, attaining their highest level since November 2014. Since July, however, oil prices have stabilized as Organization for the Petroleum Exporting Countries (OPEC) and non-OPEC oil exporters (including Russia) agreed to boost production. Coal prices increased strongly because of relatively tight supply conditions, while natural gas prices increased in part following higher oil and coal prices.

Oil Prices at the Highest Level since 2014

On June 22, 2018, OPEC agreed to increase its members' oil output by 0.7 million barrels a day (mbd) to offset declining output in Angola and especially in Venezuela, both OPEC members, and regain its origi-

The authors of this special feature are Christian Bogmans, Lama Kiyasseh, Akito Matsumoto (team co-leader), Andrea Pescatori (team leader), and Julia Xueliang Wang, with research assistance from Rachel Yuting Fan, Lama Kiyasseh and Julia Xueliang Wang.

Figure 1.SF.1. Commodity Market Developments



Sources: Bloomberg Finance L.P.; Thomson Reuters Datastream; IMF, Primary Commodity Price System; and IMF staff estimates.
Note: WEO = *World Economic Outlook*.
[1]WEO futures prices are baseline assumptions for each WEO and are derived from futures prices. October 2018 WEO prices are based on August 13, 2018, closing.
[2]Derived from prices of futures options on August 13, 2018.

nal target level set in the November 2016 agreement.[1] Notwithstanding record-high US production, tight supply conditions and sustained economic activity in the first half of 2018 reduced OECD oil inventories from historically high levels to their five-year average, pushing oil prices to more than $76 a barrel in June—the highest level since November 2014. In July, however, oil prices retrenched from recent peaks and, as of August, stood at about $71 a barrel as higher Saudi and Russian production offset the effects of unplanned outages in Canada and Libya and a tougher US stance on the implementation of sanctions on Iran. Natural gas and coal prices have increased, supported by strong demand from China and India.

Oil futures contracts point to a decline of prices to about $60 a barrel in 2023 (Figure 1.SF.1, panel 2). Baseline assumptions for the IMF's average petroleum spot prices, based on futures prices, suggest average annual prices of $69.3 a barrel in 2018—an increase of 31 percent from the 2017 average—and $68.8 a barrel in 2019 (Figure 1.SF.1, panel 3). On one hand, global economic growth is expected to be relatively strong, albeit with regional differences, supporting underlying oil demand—the International Energy Agency expects oil demand to grow by 1.4 mbd and 1.5 mbd in 2018 and 2019, respectively. On the other hand, the US Energy Information Administration expects US crude production to reach 10.7 mbd in 2018 and 11.7 mbd in 2019, putting downward pressure on oil prices in the medium term. Canada's oil production is expected to grow steadily, too.

Although risks are balanced, uncertainty remains substantial around the baseline assumptions for oil prices because Saudi Arabia's spare capacity is shrinking and US sanctions against Iran will both weigh on Iran's oil production prospects in the medium term and reduce Iran's crude exports in the short term, requiring others with spare production capacity to step in. Upside risks to prices in the short term include a faster-than-expected deterioration of Venezuelan production and a larger-than-anticipated reduction in Iran's crude exports. Downside risks include higher OPEC output and stronger-than-expected Canadian and US production even though, in the short term, the United States faces bottlenecks caused by labor shortages and lack of pipeline infrastructure.

[1]The 0.7 mbd increase is the production increase necessary to bring OPEC output back to 100 percent compliance from current overcompliance (the calculations are based on International Energy Agency data).

In addition, trade tensions and other risks to global growth (highlighted in the section titled "Risks" in Chapter 1) can potentially affect global activity and its prospects, reducing, in turn, oil demand. Coal prices are expected to decline from current levels due to a rebound in supply and in line with declining oil and natural gas prices.

Metal Prices Decreasing

After peaking in February, metal prices declined by 11.7 percent between February 2018 and August 2018 because of weaker metal demand from China following stringent environmental regulations and tighter credit conditions. Global trade tensions have also added downward price pressures and substantially increased volatility in metal markets.

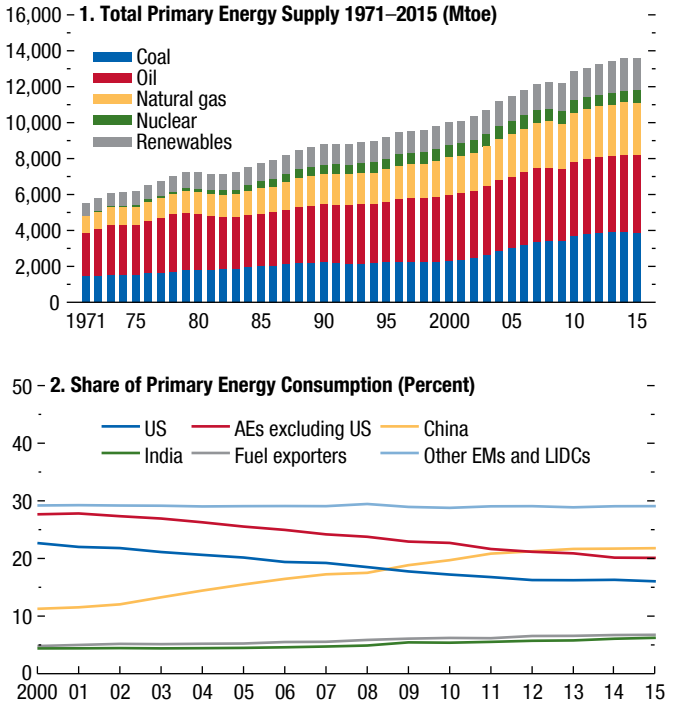
The price of iron ore, the key input in steelmaking, dropped by 12.4 percent between the reference periods because of US tariffs on steel, substitution with scrap by Chinese steelmakers, and China's production curbs across major steel mills. Copper prices declined after the fear of a strike at the world's largest copper mine in Chile faded, while aluminum prices went through a period of high volatility following US sanctions on the giant Russian aluminum and alumina producer (United Company Rusal), along with trade tensions. Nickel, the main input for stainless steel and batteries in electric vehicles, reached multiyear highs in early June 2018 and then declined to its February price on trade tensions. Zinc, mainly used to galvanize steel, dropped 28.9 percent between February and August 2018 following surging stockpiles and weak demand from China.

The IMF annual metals price index is projected to increase by 5.3 percent in 2018 (relative to its average in 2017) but to decline by 3.7 percent in 2019 from its 2018 average. Upside risks to the outlook for metal prices include sanctions against metals producers and easing environmental regulations in China. Downside risks are mounting because of trade tensions, higher-than-expected metals production in China, and a slowdown of the Chinese economy, which accounts for more than half of the world's metals consumption.

Food Prices Decreasing and Trade Risks Remain

Although agricultural market fundamentals remain solid, the IMF's agricultural price index decreased between February 2018 and August 2018

Figure 1.SF.2. Primary Energy Consumption and Supply



Sources: International Energy Agency; and IMF staff calculations.
Note: AEs = advanced economies; EMs = emerging markets; LIDCs = low-income developing countries; Fuel exporters = Algeria, Angola, Azerbaijan, Bahrain, Bolivia, Brunei Darussalam, Ecuador, Gabon, Iraq, Kazakhstan, Kuwait, Libya, Nigeria, Oman, Qatar, Saudi Arabia, United Arab Emirates, Venezuela; Mtoe = million tons of oil equivalent.

by 6.4 percent on trade tensions and concerns over global growth.

Wheat prices increased by 22.6 percent between February 2018 and August 2018 following adverse weather conditions during spring and summer in Russia and western Europe, respectively. Soybean prices fell sharply, however, in June and July after China announced a 25 percent retaliatory tariff on US soybean imports and US production numbers for 2018 were revised upward. As a result, prices stood 14.7 percent lower in August 2018 than in February 2018.

Food prices are projected to increase in 2018 by 2.3 percent, and by a further 1.7 percent in 2019. Weather disruptions are an upside risk to the forecast. As of August 9, 2018, the National Oceanic and Atmospheric Administration puts the chances of El Niño during winter 2018–19 at 70 percent. A deepening of the trade conflict between the United States—the world's largest food exporter—and several of its key trading partners constitutes a major downside risk.

Global Energy Demand

The consumption of energy services and liquid fuels is pervasive and essential in the economic system and is the major driver of demand for primary energy sources, such as fossil fuels, nuclear, and renewables. Increased energy efficiency, however, has raised the possibility of reaching a saturation point in the global demand for energy (or some of its primary energy sources), which could leave producer countries with overcapacity and stranded assets. Moreover, the use of energy, especially in the form of fossil fuels, gives rise to a multitude of environmental externalities, the severity of which, in turn, depends on the energy mix used and the technologies adopted (Stern 2006; IPCC 2014).

This section analyzes the main drivers of energy demand and the evolution of the primary energy–source mix by looking at long-term trends in energy efficiency; exploring the role of power generation in energy demand; and investigating the presence of an S-shaped relationship between energy and income that would, ultimately, induce saturation in energy demand (Wolfram, Shelef, and Gertler 2012).

Basic Facts

The demand for energy services and liquid fuels induces a direct and indirect (through power generation) demand for primary energy sources. Electricity has been a key force in the past decades: energy demand from power generation increased by nearly 300 percent between 1971 and 2015—almost twice the rate of total energy. This phenomenon, dubbed *electrification*, has sustained the demand for coal and has led to a major decline of oil as a share of total energy and to increases in natural gas usage, and, more recently, in renewables (Figure 1.SF.2, panel 1). Indeed, power generation today accounts for more than 40 percent of the demand for primary energy, and for about 55 percent if oil is excluded, which instead is mostly used in the transport sector.

Although power generation has contributed significantly to global energy demand growth, it is worth looking at contributions by country. Emerging markets, especially China and, more recently, India, have driven most of the energy demand growth of the past 15 years (Figure 1.SF.2, panel 2), while the contribution of advanced economies has been minimal, leading to a decline in their world consumption shares and raising the prospects of saturation in energy

Table 1.SF.1. Total Demand Determinants for Baseline Specification

	(1)	(2)	(3)	(4)
Population	1.079***	0.965***	0.959***	1.161***
GDP per Capita	–7.103*	–8.676**	–5.068*	–6.889***
(GDP per Capita)^2	0.843*	1.044**	0.639*	0.865***
(GDP per Capita)^3	–0.0293	–0.0378**	–0.0231	–0.0330***
Area		0.0798	0.0953*	
Oil Exporter		–0.0173	0.00523	
Gas Exporter		0.0483	–0.0478	
Coal Exporter		0.378**	0.315**	
Coal Producer		0.251*	0.132	
Latitude			0.0138***	
Static Saturation Point	401,087	179,389	323,516	82,921
Dynamic Saturation Point (1% eff. gain)	127,286	63,590	74,050	17,831
Dynamic Saturation Point (spec. eff. gain)	33,576	38,410	41,298	25,281
Inflection Point	14,447	10,039	10,184	6,204
Max Elasticity	0.9723	0.9416	0.8280	0.6660
Average Elasticity	0.9721	0.9233	0.8177	0.5888
R^2	0.95	0.96	0.97	1.00
Model	WLS	WLS	WLS	WLS – FE

Sources: International Energy Agency; World Bank, World Development Indicators database; and IMF staff calculations.
Note: Energy exporters and producers are derived from the International Energy Agency. Average elasticity is calculated at $15,000 2011 international US dollars. "eff. gain" is efficiency gain. "spec. eff. gain" is specific efficiency gain calculated using each specification's average growth of time dummies. FE = fixed effects; WLS = weighted least squares. Latitude is the absolute value of latitude in degrees for national capitals.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

demand for advanced economies (Wolfram, Shelef, and Gertler 2012). This dissimilarity suggests a relationship between stages of development and the elasticity of energy demand to income. Farrell (1954) and, more recently, Gertler and others (2016) postulate an S-shaped relationship between electricity demand and household purchases of durable goods (such as domestic appliances and automobiles). Dargay and Gately (1999) and Dargay, Gately, and Sommer (2007) find such an S-shaped relationship for car ownership. The next section tests whether such a relationship holds more generally for energy demand and income.

Energy and Income: An S-Shaped Relationship

Using an unbalanced panel of 136 countries, this analysis tests for the presence of an S-shaped relationship between energy demand and per capita income, controlling for the size of the country (that is, population and land area) and fossil fuel abundance. Time fixed effects are used to capture worldwide gains in energy efficiency and fluctuations in global economic activity and energy prices. The sample is annual and spans 1971–2015, covering two major energy price cycles. Specifically, the exercise estimates the following specification relating (log) total energy demand E to (log) population, *pop*; a third-order polynomial in (log) income per capita, *gdp*; and a vector of control variables, X:[2]

$$E_{it} = \beta_0 + \beta_1 pop_{it} + \beta_2 gdp_{it} + \beta_3 (gdp_{it})^2 + \beta_4 (gdp_{it})^3 + \beta_5 \times X_{it} + \lambda_t + \varepsilon_{it} \quad (1.1)$$

in which λ_t are year fixed effects, while X_{it} includes a time-varying energy-export and coal producer dummy, distance from the equator, and the log of land area; the indices i and t refer to countries and years, respectively.[3]

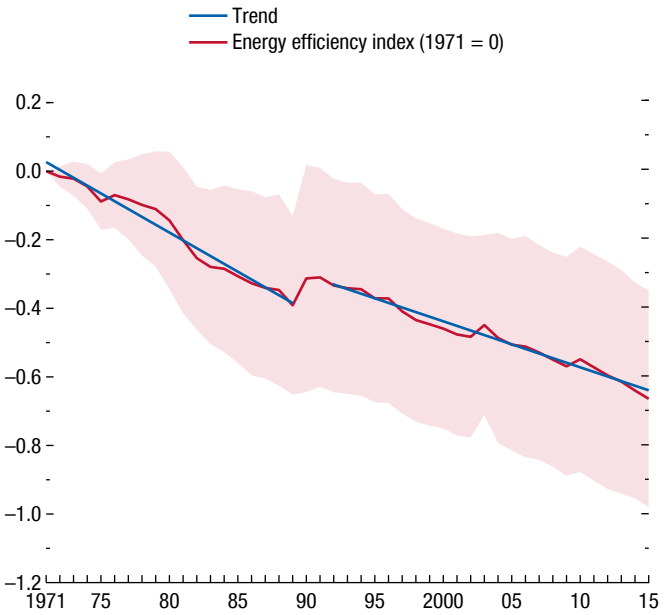
Results for the baseline specification, column (2), and robustness checks are reported in Table 1.SF.1 and in Online Annex 1.SF.1.[4] Not surprisingly, the analysis finds that energy demand moves in lockstep with population. Point estimates suggest that having a sizable land

[2]Energy demand (in million tons of oil equivalent) is the sum of electricity and primary energy supply (that is, coal, oil, natural gas, hydropower, nuclear energy, and renewables). Energy data are from the International Energy Agency; data on population, GDP per capita (in 2011 US dollars), and country area size (in square kilometers) are from the World Bank's World Development Indicators database. Latitude is from the GeoDist database by Centre d'Etudes Prospectives et d'Informations Internationales.

[3]An oil exporter is defined as having oil production exceeding consumption. A similar definition is used for natural gas and coal exporters. A coal producer is defined as having production able to satisfy between 60 percent and 100 percent of the country's coal consumption. Distance from equator is the absolute value of latitude.

[4]The annex is available online at www.imf/en/Publications/WEO.

Figure 1.SF.3. Energy Efficiency



Sources: International Energy Agency; World Bank, World Development Indicators database; and IMF staff calculations.
Note: The red line represents the time fixed effects estimated in Table 1.SF.1 column (2) with 95 percent confidence intervals (shaded area). The blue line is a linear trend estimated for the period 1971–89 (1992–2015) with a slope of 0.23 (0.13).

area, coupled with being a coal exporter (producer), increases energy demand by about 45 (33) percent.

Turning to income, the data strongly support the presence of an S-shaped relationship between per capita energy consumption and per capita income. The inflection point in the energy-income relationship (that is, the maximum income elasticity) is about $10,000 (in 2011 US dollars), which is below the global per capita income in 2015, which stood at $15,000 (2011 US dollars). Indeed, this inflection point has already been reached by many emerging markets. At that income level, the energy income elasticity is close to one.

At higher income levels, the elasticity starts to decline. Ultimately, as income keeps growing, the economy would reach a saturation point for energy demand; however, at an estimated $180,000 per capita (in 2011 US dollars) the saturation point looks, at current technology, to still be very far into the future.[5]

Energy-saving technologies, however, can lead to faster actual saturation by shifting the energy-income curve downward because the same economic activities (such as heating, cooling, and transport) require less energy. In the regression, improvements in energy efficiency globally are captured by the time dummies, which show a remarkably steady decline (Figure 1.SF.3).

Indeed, except for during 1990–92 (mostly affected by the inclusion in the sample of former Soviet Union countries, whose energy efficiency was lower), the improvement in energy efficiency has been very steady, averaging about 1 percent a year over the entire sample. If it is conservatively assumed that energy efficiency globally keeps increasing at its historical rate of 1 percent a year, the saturation point previously estimated drops to about $64,000 per capita.[6]

The estimated S-shaped energy-income relationship (Figure 1.SF.4) not only predicts energy demand growth to be highest in emerging markets but also captures the behavior of energy demand at low-income levels. Typically, in most low-income countries, energy consumption initially declines in response to income growth probably as the result of graduation from biomass (solid biofuels excluding charcoal)—an inefficient source of energy. Biomass, in fact, is an inferior good, implying that households reduce its use as income grows. The share of biomass in total primary energy supply of the country tends to decline as income grows (Figure 1.SF.5).

In conclusion, the evidence suggests that the relationship between energy demand and income follows an S-shaped curve, with an initial decline of energy demand at low levels of income followed by stages of acceleration and then saturation at middle- and high-income levels, respectively. Thus, the main driver of future energy demand hinges on the dynamics of middle-income countries. In fact, even though some advanced economies may have already reached saturation in energy demand, estimates suggest that global saturation is still far into the future. However, total energy is not all that matters. The same level of energy consumption can be the result of varying mixes of primary energy sources, which is the topic of the next section.

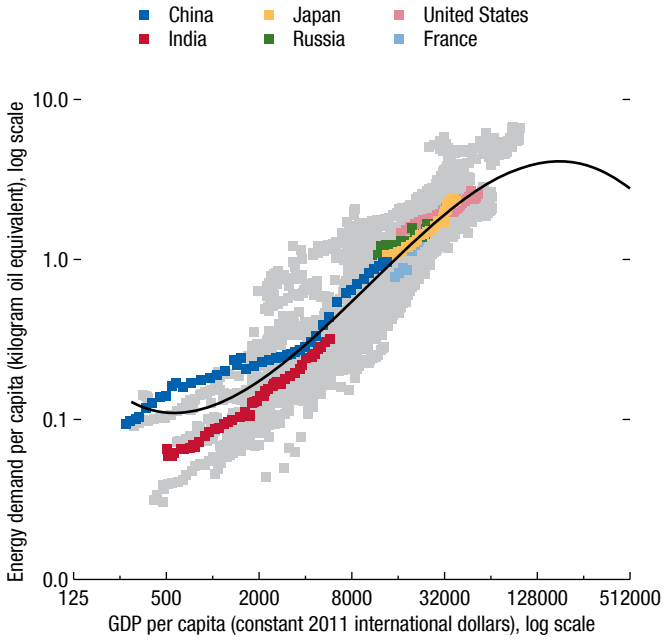
The Primary Energy Mix

The optimal energy mix in each country is the result of relative resource abundance, technology, and social

[5]An economy with a $50,000 per capita income today (for example, Germany) growing at 2 percent a year would take 65 years to reach a per capita income of $180,000.

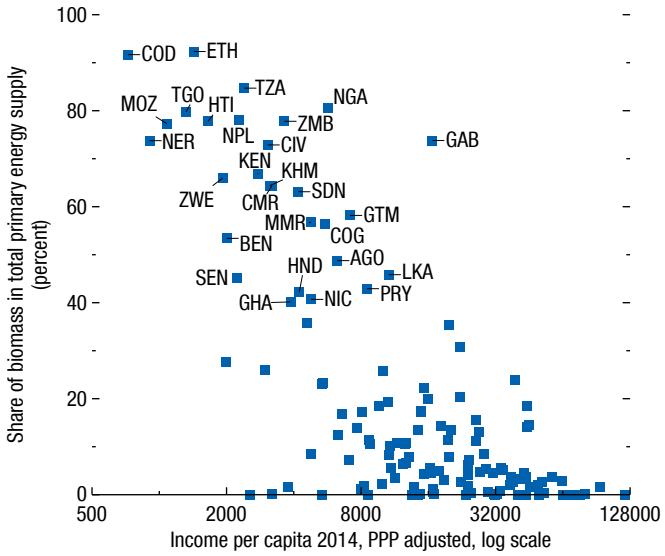
[6]An economy with a $50,000 per capita income today (for example, Germany) growing at 2 percent a year would take 13 years to reach a per capital income of $64,000.

Figure 1.SF.4. Energy Demand and GDP per Capita



Sources: International Energy Agency; World Bank, World Development Indicators database; and IMF staff calculations.
Note: Adjusted fitted values show the S-shaped energy-income relation (constructed using the cubic polynomial) while energy demand per capita is adjusted for estimated time fixed effects. Estimates are from the baseline specification.

Figure 1.SF.5. Biomass



Sources: International Energy Agency, IEA Renewables Information Statistics; World Bank, World Development Indicators database; and IMF staff calculations.
Note: Data labels for countries with biomass shares greater than 40 percent are displayed in the figure. Data labels in the figure use International Organization for Standardization (ISO) country codes. PPP = purchasing power parity.

preferences. The local relative abundance or availability of an energy source determines its local costs, while the efficiency of use in production determines its desirability (that is, its marginal benefit).[7] These two factors combined help determine the relative price of an energy source. Technical substitutability across resources then determines the impact of changes in efficiency of use or relative prices on the energy mix. For example, the relative importance of oil as a primary energy source has substantially declined over time as other energy sources became cheaper (such as coal and nuclear in the early part of the sample) or more desirable to use (such as natural gas and, more recently, renewables). The link between high and volatile crude oil prices and the decline in the oil share is indeed noticeable (Figure 1.SF.6).[8] Over the long term, however, efficiency is also determined by capital investment, which allows the potential of an energy source (for example, investment in solar power or natural gas infrastructure) to be better exploited. This generates a relationship between the energy mix and the stage of development (see Online Annex 1.SF.1 for further details).

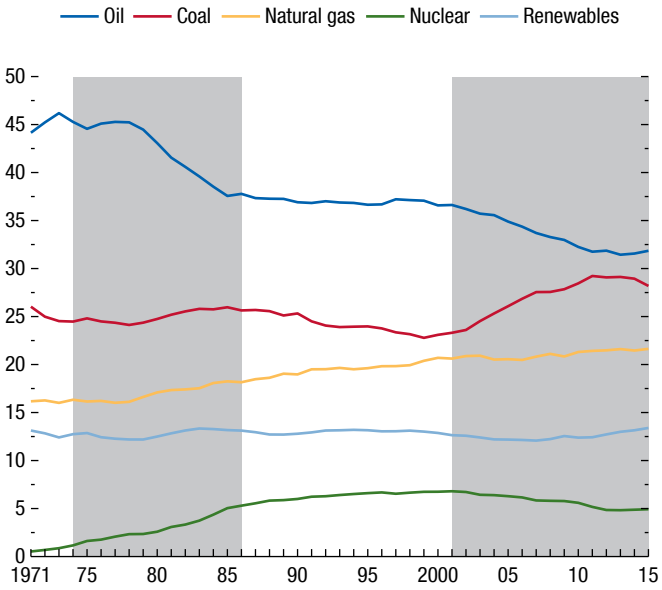
At medium- and low-income levels, the semi-elasticity of the oil share to income is positive as the transport sector expands (for example, car and truck ownership increases), but it turns negative at higher income levels when the stock of motor vehicles plateaus, fuel efficiency reduces gasoline consumption, and cleaner natural gas is preferred in heating and power generation. Regressions, indeed, suggest that peak oil demand may have already been reached for some advanced economies, given that their oil share declines while energy demand is close to saturation (see Online Annex 1.SF.1). In contrast, the share of natural gas seems mostly independent of income.

The relationship between income and the share of coal is weak because higher incomes are associated with cleaner energy sources but also with higher electrification rates (the main driver of coal consumption). At medium incomes, however, coal has proved

[7]It is up to policy to align private and social marginal benefits.

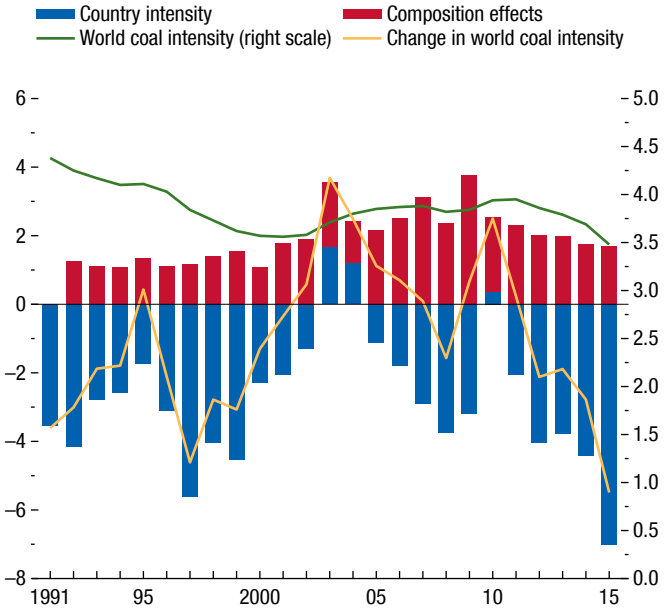
[8]In most advanced economies, the two oil shocks of the 1970s that generated high oil prices called into question the energy security of oil and led to a switch in the power sector, with oil being replaced by alternative sources of power generation, such as coal, natural gas, and nuclear power.

Figure 1.SF.6. Primary Energy Source Shares
(Percent)



Sources: International Energy Agency; and IMF staff calculations.
Note: Sample is International Energy Agency world aggregate; grey shaded area = high and volatile oil prices; nonshaded area = low and stable oil prices.

Figure 1.SF.7. Decomposition of Change in World Coal Intensity
(Percent)



Sources: International Energy Agency; World Bank, World Development Indicators database; and IMF staff calculations.

to be a cheap and abundant energy source able to satisfy a quickly growing demand for electricity, especially in some large, coal-abundant emerging markets, such as China and India (being a coal producer or exporter increases a country's coal share by 10 percentage points or 18 percentage points, respectively). Hence, notwithstanding a reduction of coal intensity at the country level, the legacy of high coal usage in large and fast-growing economies led to a surprise increase in global coal intensity in the mid-2000s (Figure 1.SF.7). As China and other major emerging markets develop, however, demand for cleaner fuels is expected to increase, leading to a decline in the coal share.

Although it is too early to assess the evolution of renewables, the analysis clearly points to an increase in the use of renewables in high-income countries, especially for power generation. Advanced economies, in fact, are typically highly electrified while emerging markets, as they become more urbanized and expand the electricity grid, are expected to substantially increase their electrification rate in the medium term. The projected rise of the electric car and growth in the services sector, moreover, are expected to increase the electrification rate in advanced economies, too.

The implication of higher electrification rates is important for primary energy demand. In fact, while oil saturation will probably be reached sooner than total energy saturation (as oil's share in the mix declines), saturation for natural gas and renewables will come later. Recent sharp declines in the price of solar photovoltaic cells and government support for the development of renewables are paving the way for the rapid growth of renewables (see Box 1.SF.1). Although coal may remain attractive for some countries, local air pollution has compelled China and India, to some extent, to shift toward renewables. Thus, cost changes and environmental concerns will play a key role for the increased penetration of renewables and the saturation point for coal.

Conclusion

Most of the increase in energy consumption is expected to come from emerging markets whose energy demand is approximately at its peak income elasticity, which is about one. In contrast, that elasticity is close to zero for advanced economies, suggesting that their

contribution to energy demand growth will be more modest or possibly absent. Nonetheless, emerging markets' saturation point for energy demand is still far in the future—even assuming steady gains in energy efficiency. Saturation, however, is probably much closer for some energy sources, such as coal and oil, raising the risk of stranded assets for high-cost projects, while other sources, such as natural gas and renewables, are expected to become more important in the energy mix as electrification rates increase. Even though dynamics in energy transitions and technological innovations are hard to predict, substantial long-term investment is required to change the energy infrastructure of an economic system (for example, the life of power plants and airplanes is about 40 years). Nonetheless, climate concerns, energy policies, and market forces will be key in forging future energy markets as energy regulation and prices interact to stimulate or constrain technological innovation. It is the role of policymakers to exploit these interactions to develop ecologically sustainable economies.

Box 1.SF.1. The Demand and Supply of Renewable Energy

The rapid growth of renewable energy since the beginning of the 21st century (see Online Annex 1.SF.1) can be attributed to several demand- and supply-side factors. First, governments have implemented a variety of energy policies over the years that have helped countries lower their greenhouse gas emissions. Second, aided by regulatory pressure, technological innovation has reduced the cost of wind and solar energy substantially in recent years (Goldman Sachs 2015; IRENA 2017).[1]

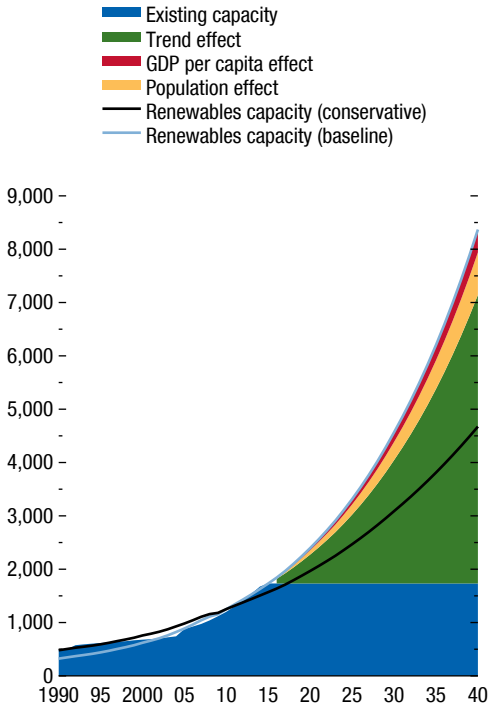
Using a model that relates renewable energy capacity to GDP per capita, population, a set of control variables, and a trend, this box analyzes the outlook for renewable energy capacity (see Online Annex 1.SF.1). Results depend on whether the relationship is estimated over the full sample (1990–2015) or only over the most recent sample (2000–15), as the trend coefficient increases from 1.7 percent a year to 3.9 percent in the most recent sample. The rising trend reflects performance improvements and price reductions in several major renewable energy technologies, most notably solar panels and wind turbines.

An out-of-sample prediction, focusing on 45 countries for which long-term forecasts for GDP per capita and population size are available (OECD 2014), shows that, under the conservative forecast, the world will have accumulated more than 4,600 gigawatt of renewable energy-generating assets by 2040. This number increases to more than 8,400 gigawatt in the baseline scenario—a fourfold increase from 2015.

The increase in renewable energy capacity under the conservative and baseline scenarios will, respectively, deliver 732 million tons and 1,733 million tons of oil equivalent of energy to the electricity grid, equal to 50 percent and 117 percent, respectively, of all electricity generated by fossil fuels in 2015. Indeed, if the new renewable energy capacity were to displace fossil-fuel-based electricity generation, it would constitute a sizable step in reducing global greenhouse gas emissions.

Figure 1.SF.1.1. decomposes future renewable energy growth under the baseline scenario into income, population, and the trend effect. This shows that renewable energy investment is driven mostly by supply (technology) rather than demand (income and population), which is in line with the popular rationale of an energy transition led by innovations in wind, solar, and other technologies. The same dependence on a persistence in the trend factor, however, makes the outlook for renewable energy uncertain.

Figure 1.SF.1.1. Renewables Capacity
(Gigawatts)



Sources: Organisation for Economic Co-operation and Development; US Energy Information Administration; World Bank, World Development Indicators database; and IMF staff calculations.

The authors of this box are Christian Bogmans and Lama Kiyasseh.

[1]Other factors of importance are the rate of interest; cross-country differences in endowments of human capital and raw potential for wind, solar, and hydro energy (Collier and Venables 2012); and government support for renewable industries (see Zhang and others 2013).

Annex Table 1.1.1. European Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Europe	**3.1**	**2.3**	**1.9**	**2.6**	**3.1**	**3.2**	**2.4**	**2.4**	**2.4**	. . .	. . .	. . .
Advanced Europe	**2.4**	**2.0**	**1.9**	**1.7**	**1.8**	**1.8**	**3.0**	**2.9**	**2.8**	**7.9**	**7.2**	**7.0**
Euro Area[4,5]	2.4	2.0	1.9	1.5	1.7	1.7	3.5	3.0	2.9	9.1	8.3	8.0
Germany	2.5	1.9	1.9	1.7	1.8	1.8	7.9	8.1	7.9	3.8	3.5	3.4
France	2.3	1.6	1.6	1.2	1.9	1.8	–0.6	–0.9	–0.7	9.4	8.8	8.5
Italy	1.5	1.2	1.0	1.3	1.3	1.4	2.8	2.0	1.6	11.3	10.8	10.5
Spain	3.0	2.7	2.2	2.0	1.8	1.8	1.9	1.2	1.2	17.2	15.6	14.7
Netherlands	2.9	2.8	2.6	1.3	1.4	1.6	10.5	9.9	9.7	4.9	3.9	3.8
Belgium	1.7	1.5	1.5	2.2	2.2	1.8	–0.2	0.1	–0.1	7.1	6.4	6.6
Austria	3.0	2.8	2.2	2.2	2.0	2.1	1.9	2.2	1.8	5.5	5.2	5.1
Greece	1.4	2.0	2.4	1.1	0.7	1.2	–0.8	–0.8	–0.4	21.5	19.9	18.1
Portugal	2.7	2.3	1.8	1.6	1.7	1.6	0.5	0.0	–0.3	8.9	7.0	6.7
Ireland	7.2	4.7	4.0	0.3	0.7	1.2	8.5	7.4	6.7	6.7	5.3	5.1
Finland	2.8	2.6	1.8	0.8	1.2	1.7	0.7	0.9	0.9	8.5	7.7	7.4
Slovak Republic	3.4	3.9	4.1	1.3	2.6	2.2	–2.1	–1.8	–0.9	8.1	7.5	6.9
Lithuania	3.9	3.5	2.9	3.7	2.5	2.2	0.8	0.3	0.0	7.1	6.5	6.3
Slovenia	5.0	4.5	3.4	1.4	2.1	2.0	7.1	6.3	5.5	6.6	5.8	5.4
Luxembourg	2.3	4.0	3.5	2.1	1.5	1.8	5.0	4.9	4.8	5.8	5.4	5.2
Latvia	4.5	3.7	3.3	2.9	2.7	2.4	–0.8	–2.0	–2.6	8.7	7.9	7.8
Estonia	4.9	3.7	3.2	3.7	3.0	2.5	3.1	2.2	1.1	5.8	6.7	6.9
Cyprus	3.9	4.0	4.2	0.7	0.8	1.8	–6.7	–3.1	–5.2	11.1	9.5	8.0
Malta	6.7	5.7	4.6	1.3	1.8	2.1	13.6	11.6	11.1	4.6	4.1	4.1
United Kingdom	1.7	1.4	1.5	2.7	2.5	2.2	–3.8	–3.5	–3.2	4.4	4.1	4.2
Switzerland	1.7	3.0	1.8	0.5	1.1	1.4	9.8	10.2	9.8	3.2	2.8	2.8
Sweden	2.1	2.4	2.2	1.9	1.9	1.7	3.3	2.6	2.8	6.7	6.2	6.2
Norway	1.9	2.1	2.1	1.9	1.9	2.0	5.5	7.8	7.8	4.2	3.8	3.7
Czech Republic	4.3	3.1	3.0	2.4	2.3	2.3	1.1	–0.4	–0.9	2.9	2.5	3.0
Denmark	2.3	2.0	1.9	1.1	1.4	1.7	7.6	7.7	7.5	5.7	5.4	5.3
Iceland	4.0	3.7	2.9	1.8	2.5	2.6	3.5	2.4	2.0	2.8	3.2	3.3
San Marino	1.9	1.4	1.0	1.0	1.5	1.6	. . .	. . .	. . .	8.1	8.2	8.3
Emerging and Developing Europe[6]	**6.0**	**3.8**	**2.0**	**6.2**	**8.3**	**9.0**	**–2.6**	**–2.8**	**–1.4**	. . .	. . .	. . .
Turkey	7.4	3.5	0.4	11.1	15.0	16.7	–5.6	–5.7	–1.4	10.9	11.0	12.3
Poland	4.6	4.4	3.5	2.0	2.0	2.8	0.3	–0.8	–1.3	4.9	4.1	4.0
Romania	6.9	4.0	3.4	1.3	4.7	2.7	–3.4	–3.5	–3.4	4.9	4.7	4.8
Hungary	4.0	4.0	3.3	2.4	2.8	3.3	3.2	2.3	2.1	4.2	3.9	3.5
Bulgaria[5]	3.6	3.6	3.1	1.2	2.6	2.3	4.5	2.4	1.6	6.2	5.6	5.5
Serbia	1.9	4.0	3.5	3.1	2.1	2.3	–5.7	–5.7	–5.6	14.1	13.8	13.5
Croatia	2.8	2.8	2.6	1.1	1.6	1.5	3.9	2.7	2.3	12.4	12.0	11.2

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.
[1]Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Tables A6 and A7 in the Statistical Appendix.
[2]Percent of GDP.
[3]Percent. National definitions of unemployment may differ.
[4]Current account position corrected for reporting discrepancies in intra-area transactions.
[5]Based on Eurostat's harmonized index of consumer prices except for Slovenia.
[6]Includes Albania, Bosnia and Herzegovina, Kosovo, FYR Macedonia, and Montenegro.

Annex Table 1.1.2. Asian and Pacific Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Asia	**5.7**	**5.6**	**5.4**	**2.1**	**2.7**	**2.9**	**2.1**	**1.5**	**1.4**	. . .	. . .	. . .
Advanced Asia	**2.4**	**2.1**	**1.8**	**1.0**	**1.4**	**1.6**	**4.4**	**4.1**	**4.1**	**3.4**	**3.4**	**3.3**
Japan	1.7	1.1	0.9	0.5	1.2	1.3	4.0	3.6	3.8	2.9	2.9	2.9
Korea	3.1	2.8	2.6	1.9	1.5	1.8	5.1	5.0	4.7	3.7	3.7	3.7
Australia	2.2	3.2	2.8	2.0	2.2	2.3	–2.6	–2.8	–3.1	5.6	5.3	5.0
Taiwan Province of China	2.9	2.7	2.4	1.1	1.5	1.3	14.5	13.8	13.6	3.8	3.8	3.7
Singapore	3.6	2.9	2.5	0.6	1.0	1.4	18.8	18.5	18.3	2.2	2.0	1.9
Hong Kong SAR	3.8	3.8	2.9	1.5	2.3	2.1	4.3	3.4	3.1	3.1	2.6	2.6
New Zealand	3.0	3.1	3.0	1.9	1.4	1.7	–2.7	–3.6	–3.8	4.7	4.5	4.4
Macao SAR	9.1	6.3	6.3	1.2	2.2	2.4	33.3	35.9	38.1	2.0	2.0	2.0
Emerging and Developing Asia	**6.5**	**6.5**	**6.3**	**2.4**	**3.0**	**3.2**	**0.9**	**0.1**	**0.2**	. . .	. . .	. . .
China	6.9	6.6	6.2	1.6	2.2	2.4	1.4	0.7	0.7	3.9	4.0	4.0
India[4]	6.7	7.3	7.4	3.6	4.7	4.9	–1.9	–3.0	–2.5	. . .	. . .	. . .
ASEAN-5	**5.3**	**5.3**	**5.2**	**3.1**	**2.9**	**3.2**	**2.0**	**1.3**	**1.0**	. . .	. . .	. . .
Indonesia	5.1	5.1	5.1	3.8	3.4	3.8	–1.7	–2.4	–2.4	5.4	5.2	5.0
Thailand	3.9	4.6	3.9	0.7	0.9	0.9	11.2	9.1	8.1	0.7	0.7	0.7
Malaysia	5.9	4.7	4.6	3.8	1.0	2.3	3.0	2.9	2.3	3.4	3.2	3.0
Philippines	6.7	6.5	6.6	2.9	4.9	4.0	–0.8	–1.5	–1.5	5.7	5.5	5.5
Vietnam	6.8	6.6	6.5	3.5	3.8	4.0	2.5	2.2	2.0	2.2	2.2	2.2
Other Emerging and Developing Asia[5]	**6.2**	**6.1**	**6.3**	**4.9**	**5.3**	**5.5**	**–2.0**	**–3.4**	**–2.8**	. . .	. . .	. . .
Memorandum												
Emerging Asia[6]	**6.5**	**6.5**	**6.3**	**2.3**	**2.9**	**3.1**	**1.0**	**0.3**	**0.3**	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.
[1]Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Tables A6 and A7 in the Statistical Appendix.
[2]Percent of GDP.
[3]Percent. National definitions of unemployment may differ.
[4]See country-specific note for India in the "Country Notes" section of the Statistical Appendix.
[5]Other Emerging and Developing Asia comprises Bangladesh, Bhutan, Brunei Darussalam, Cambodia, Fiji, Kiribati, Lao P.D.R., Maldives, Marshall Islands, Micronesia, Mongolia, Myanmar, Nauru, Nepal, Palau, Papua New Guinea, Samoa, Solomon Islands, Sri Lanka, Timor-Leste, Tonga, Tuvalu, and Vanuatu.
[6]Emerging Asia comprises the ASEAN-5 (Indonesia, Malaysia, Philippines, Thailand, Vietnam) economies, China, and India.

Annex Table 1.1.3. Western Hemisphere Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
North America	**2.2**	**2.7**	**2.5**	**2.5**	**2.7**	**2.3**	**–2.3**	**–2.5**	**–2.9**	. . .	. . .	. . .
United States	2.2	2.9	2.5	2.1	2.4	2.1	–2.3	–2.5	–3.0	4.4	3.8	3.5
Canada	3.0	2.1	2.0	1.6	2.6	2.2	–2.9	–3.0	–2.5	6.3	6.1	6.2
Mexico	2.0	2.2	2.5	6.0	4.8	3.6	–1.7	–1.3	–1.3	3.4	3.5	3.5
Puerto Rico[4]	–2.4	–2.3	–1.1	1.8	2.7	1.2	. . .	. . .	. . .	10.8	11.0	11.0
South America[5]	**0.7**	**0.6**	**1.9**	**6.4**	**6.9**	**7.1**	**–1.4**	**–1.6**	**–1.8**	. . .	. . .	. . .
Brazil	1.0	1.4	2.4	3.4	3.7	4.2	–0.5	–1.3	–1.6	12.8	11.8	10.7
Argentina	2.9	–2.6	–1.6	25.7	31.8	31.7	–4.9	–3.7	–3.2	8.4	8.9	9.4
Colombia	1.8	2.8	3.6	4.3	3.2	3.4	–3.3	–2.4	–2.4	9.3	9.2	9.1
Venezuela	–14.0	–18.0	–5.0	1,087.5	1,370,000.0	10,000,000.0	2.0	6.1	4.0	27.1	34.3	38.0
Chile	1.5	4.0	3.4	2.2	2.4	3.0	–1.5	–2.5	–2.7	6.7	6.9	6.5
Peru	2.5	4.1	4.1	2.8	1.4	2.0	–1.1	–1.8	–2.2	6.9	6.9	6.8
Ecuador	2.4	1.1	0.7	0.4	–0.2	0.5	–0.3	–0.5	0.7	4.6	4.8	5.2
Bolivia	4.2	4.3	4.2	2.8	3.2	4.2	–6.3	–5.2	–5.1	4.0	4.0	4.0
Uruguay	2.7	2.0	3.2	6.2	7.6	6.7	1.5	0.9	0.2	7.6	7.9	7.6
Paraguay	4.8	4.4	4.2	3.6	4.2	4.0	–0.8	–1.3	–0.9	5.7	5.7	5.7
Central America[6]	**3.7**	**2.8**	**3.8**	**2.6**	**3.0**	**3.4**	**–2.0**	**–3.2**	**–3.2**	. . .	. . .	. . .
Caribbean[7]	**2.6**	**4.4**	**3.7**	**3.7**	**4.3**	**4.3**	**–0.9**	**–1.6**	**–1.7**	. . .	. . .	. . .
Memorandum												
Latin America and the Caribbean[8]	1.3	1.2	2.2	6.0	6.1	5.9	–1.5	–1.6	–1.8	. . .	. . .	. . .
East Caribbean Currency Union[9]	1.8	2.0	3.8	1.1	1.7	1.8	–8.0	–11.6	–10.2	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.
[1]Movements in consumer prices are shown as annual averages. Aggregates exclude Venezuela, but include Argentina starting from 2017 onward. Year-end to year-end changes can be found in Tables A6 and A7 in the Statistical Appendix.
[2]Percent of GDP.
[3]Percent. National definitions of unemployment may differ.
[4]Puerto Rico is a territory of the United States but its statistical data are maintained on a separate and independent basis.
[5]Includes Guyana and Suriname. See country-specific notes for Argentina and Venezuela in the "Country Notes" section of the Statistical Appendix.
[6]Central America comprises Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.
[7]The Caribbean comprises Antigua and Barbuda, Aruba, The Bahamas, Barbados, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago.
[8]Latin America and the Caribbean comprises Mexico and economies from the Caribbean, Central America, and South America. See country-specific notes for Argentina and Venezuela in the "Country Notes" section of the Statistical Appendix.
[9]Eastern Caribbean Currency Union comprises Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines as well as Anguilla and Montserrat, which are not IMF members.

Annex Table 1.1.4. Commonwealth of Independent States Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Commonwealth of Independent States[4]	**2.1**	**2.3**	**2.4**	**5.5**	**4.5**	**5.7**	**1.1**	**4.1**	**3.3**	**. . .**	**. . .**	**. . .**
Net Energy Exporters	**2.0**	**2.1**	**2.2**	**4.8**	**4.0**	**5.6**	**1.6**	**5.1**	**4.3**	**. . .**	**. . .**	**. . .**
Russia	1.5	1.7	1.8	3.7	2.8	5.1	2.2	6.2	5.2	5.2	5.5	5.3
Kazakhstan	4.0	3.7	3.1	7.4	6.4	5.6	–3.4	–0.2	0.2	5.0	5.0	5.0
Uzbekistan	5.3	5.0	5.0	12.5	19.2	14.9	3.5	–0.5	–1.5	. . .	. . .	. . .
Azerbaijan	0.1	1.3	3.6	13.0	3.5	3.3	4.1	6.6	8.1	5.0	5.0	5.0
Turkmenistan	6.5	6.2	5.6	8.0	9.4	8.2	–11.5	–8.2	–6.4	. . .	. . .	. . .
Net Energy Importers	**3.2**	**3.9**	**3.2**	**10.2**	**7.9**	**6.2**	**–2.6**	**–4.1**	**–4.8**	**. . .**	**. . .**	**. . .**
Ukraine	2.5	3.5	2.7	14.4	10.9	7.3	–1.9	–3.1	–3.9	9.2	9.4	9.2
Belarus	2.4	4.0	3.1	6.0	5.5	5.5	–1.7	–2.5	–4.2	0.8	0.8	0.8
Georgia	5.0	5.5	4.8	6.0	2.8	2.7	–8.9	–10.5	–10.2	. . .	. . .	. . .
Armenia	7.5	6.0	4.8	0.9	3.0	4.4	–2.8	–3.8	–3.8	18.9	18.9	18.6
Tajikistan	7.1	5.0	5.0	7.3	5.8	5.5	–0.5	–4.7	–4.3	. . .	. . .	. . .
Kyrgyz Republic	4.6	2.8	4.5	3.2	2.9	4.6	–4.0	–12.3	–11.8	7.1	7.0	7.0
Moldova	4.5	3.8	3.8	6.6	3.6	4.9	–6.3	–7.4	–6.3	4.1	4.1	4.0
Memorandum												
Caucasus and Central Asia[5]	4.1	4.0	4.0	9.0	8.4	7.2	–2.5	–1.3	–0.8	. . .	. . .	. . .
Low-Income CIS Countries[6]	5.5	4.9	4.9	9.5	12.8	10.7	–0.9	–4.6	–4.7	. . .	. . .	. . .
Net Energy Exporters Excluding Russia	3.9	3.8	3.9	9.6	9.2	7.7	–2.2	–0.3	0.1	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.
[1]Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Table A7 in the Statistical Appendix.
[2]Percent of GDP.
[3]Percent. National definitions of unemployment may differ.
[4]Georgia, Turkmenistan, and Ukraine, which are not members of the Commonwealth of Independent States (CIS), are included in this group for reasons of geography and similarity in economic structure.
[5]Caucasus and Central Asia comprises Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan.
[6]Low-Income CIS countries comprise Armenia, Georgia, the Kyrgyz Republic, Moldova, Tajikistan, and Uzbekistan.

Annex Table 1.1.5. Middle East, North African Economies, Afghanistan, and Pakistan: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Middle East, North Africa, Afghanistan, and Pakistan	**2.2**	**2.4**	**2.7**	**6.4**	**10.8**	**10.2**	**–0.7**	**1.8**	**1.9**	**. . .**	**. . .**	**. . .**
Oil Exporters[4]	**1.2**	**1.4**	**2.0**	**3.6**	**9.8**	**9.9**	**1.6**	**4.7**	**4.8**	**. . .**	**. . .**	**. . .**
Saudi Arabia	–0.9	2.2	2.4	–0.9	2.6	2.0	2.2	8.4	8.8	6.0	. . .	. . .
Iran	3.7	–1.5	–3.6	9.6	29.6	34.1	2.2	1.3	0.3	11.8	12.8	14.3
United Arab Emirates	0.8	2.9	3.7	2.0	3.5	1.9	6.9	7.2	7.5	. . .	. . .	. . .
Algeria	1.4	2.5	2.7	5.6	6.5	6.7	–13.2	–9.0	–7.9	11.7	11.6	12.3
Iraq	–2.1	1.5	6.5	0.1	2.0	2.0	2.3	6.9	3.1	. . .	. . .	. . .
Qatar	1.6	2.7	2.8	0.4	3.7	3.5	3.8	4.8	6.6	. . .	. . .	. . .
Kuwait	–3.3	2.3	4.1	1.5	0.8	3.0	5.9	11.3	11.0	1.1	1.1	1.1
Oil Importers[5]	**4.1**	**4.5**	**4.0**	**12.4**	**12.9**	**10.8**	**–6.6**	**–6.5**	**–6.1**	**. . .**	**. . .**	**. . .**
Egypt	4.2	5.3	5.5	23.5	20.9	14.0	–6.3	–2.6	–2.4	12.2	10.9	9.9
Pakistan	5.4	5.8	4.0	4.1	3.9	7.5	–4.1	–5.9	–5.3	6.0	6.1	6.1
Morocco	4.1	3.2	3.2	0.8	2.4	1.4	–3.6	–4.3	–4.5	10.2	9.5	9.2
Sudan	1.4	–2.3	–1.9	32.4	61.8	49.2	–10.5	–14.2	–13.1	19.6	19.5	19.6
Tunisia	2.0	2.4	2.9	5.3	8.1	7.5	–10.5	–9.6	–8.5	15.5	15.2	15.0
Lebanon	1.5	1.0	1.4	4.5	6.5	3.5	–22.8	–25.6	–25.5	. . .	. . .	. . .
Jordan	2.0	2.3	2.5	3.3	4.5	2.3	–10.6	–9.6	–8.6	18.3	. . .	. . .
Memorandum												
Middle East and North Africa	1.8	2.0	2.5	6.7	11.8	10.6	–0.3	2.6	2.6	. . .	. . .	. . .
Israel[6]	3.3	3.6	3.5	0.2	0.9	1.3	2.9	2.3	2.3	4.2	3.9	3.9
Maghreb[7]	5.6	3.2	3.4	5.3	6.7	6.0	–8.0	–6.6	–5.8	. . .	. . .	. . .
Mashreq[8]	3.9	4.8	5.0	20.8	18.8	12.6	–9.5	–7.2	–6.6	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.
[1]Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Tables A6 and A7 in the Statistical Appendix.
[2]Percent of GDP.
[3]Percent. National definitions of unemployment may differ.
[4]Includes Bahrain, Libya, Oman, and Yemen.
[5]Includes Afghanistan, Djibouti, Mauritania, and Somalia. Excludes Syria because of the uncertain political situation.
[6]Israel, which is not a member of the economic region, is included for reasons of geography but is not included in the regional aggregates.
[7]The Maghreb comprises Algeria, Libya, Mauritania, Morocco, and Tunisia.
[8]The Mashreq comprises Egypt, Jordan, and Lebanon. Syria is excluded because of the uncertain political situation.

Annex Table 1.1.6. Sub-Saharan African Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Sub-Saharan Africa	**2.7**	**3.1**	**3.8**	**11.0**	**8.6**	**8.5**	**–2.3**	**–2.8**	**–3.4**	**. . .**	**. . .**	**. . .**
Oil Exporters[4]	**0.0**	**1.4**	**2.3**	**18.2**	**13.4**	**13.5**	**1.1**	**0.9**	**0.5**	**. . .**	**. . .**	**. . .**
Nigeria	0.8	1.9	2.3	16.5	12.4	13.5	2.8	2.0	1.0	16.5	. . .	. . .
Angola	–2.5	–0.1	3.1	29.8	20.5	15.8	–1.0	–2.1	–1.9	. . .	. . .	. . .
Gabon	0.5	2.0	3.4	2.7	2.8	2.5	–4.9	–1.6	–0.5	. . .	. . .	. . .
Chad	–3.1	3.5	3.6	–0.9	2.1	2.6	–5.7	–4.2	–5.5	. . .	. . .	. . .
Republic of Congo	–3.1	2.0	3.7	0.5	1.2	2.0	–12.9	9.1	12.4	. . .	. . .	. . .
Middle-Income Countries[5]	**3.1**	**2.7**	**3.3**	**5.1**	**4.7**	**4.9**	**–2.6**	**–3.4**	**–3.6**	**. . .**	**. . .**	**. . .**
South Africa	1.3	0.8	1.4	5.3	4.8	5.3	–2.5	–3.2	–3.5	27.5	27.9	28.3
Ghana	8.4	6.3	7.6	12.4	9.5	8.0	–4.5	–4.1	–4.0	. . .	. . .	. . .
Côte d'Ivoire	7.8	7.4	7.0	0.8	1.7	2.0	–4.6	–4.6	–4.2	. . .	. . .	. . .
Cameroon	3.5	3.8	4.4	0.6	1.0	1.1	–2.7	–3.2	–3.0	. . .	. . .	. . .
Zambia	3.4	3.8	4.5	6.6	8.5	8.2	–3.9	–4.0	–3.4	. . .	. . .	. . .
Senegal	7.2	7.0	6.7	1.3	0.4	0.9	–7.3	–7.7	–7.1	. . .	. . .	. . .
Low-Income Countries[6]	**6.1**	**5.7**	**6.2**	**8.9**	**7.3**	**6.6**	**–6.3**	**–6.7**	**–7.8**	**. . .**	**. . .**	**. . .**
Ethiopia	10.9	7.5	8.5	9.9	12.7	9.5	–8.1	–6.2	–6.2	. . .	. . .	. . .
Kenya	4.9	6.0	6.1	8.0	5.0	5.6	–6.3	–5.6	–5.3	. . .	. . .	. . .
Tanzania	6.0	5.8	6.6	5.3	3.8	4.7	–2.8	–4.3	–5.5	. . .	. . .	. . .
Uganda	4.8	5.9	6.1	5.6	3.8	4.2	–4.6	–6.9	–8.9	. . .	. . .	. . .
Madagascar	4.2	5.0	5.4	8.3	7.8	7.2	–0.3	–2.2	–3.4	. . .	. . .	. . .
Democratic Republic of the Congo	3.4	3.8	4.1	41.5	23.0	13.5	–0.5	0.0	–1.8	. . .	. . .	. . .
Memorandum												
Sub-Saharan Africa Excluding												
South Sudan	2.8	3.1	3.8	10.4	8.3	8.2	–2.3	–2.8	–3.4	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.
[1]Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Table A7 in the Statistical Appendix.
[2]Percent of GDP.
[3]Percent. National definitions of unemployment may differ.
[4]Includes Equatorial Guinea and South Sudan.
[5]Includes Botswana, Cabo Verde, Eswatini, Lesotho, Mauritius, Namibia, and Seychelles.
[6]Includes Benin, Burkina Faso, Burundi, the Central African Republic, Comoros, Eritrea, The Gambia, Guinea, Guinea-Bissau, Liberia, Malawi, Mali, Mozambique, Niger, Rwanda, São Tomé and Príncipe, Sierra Leone, Togo, and Zimbabwe.

Annex Table 1.1.7. Summary of World Real per Capita Output

(Annual percent change; in international currency at purchasing power parity)

	Average									Projections		
	2000–09	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2023
World	**2.4**	**4.0**	**3.0**	**2.0**	**2.2**	**2.3**	**2.1**	**2.0**	**2.4**	**2.5**	**2.5**	**2.4**
Advanced Economies	**1.1**	**2.5**	**1.1**	**0.7**	**0.9**	**1.6**	**1.7**	**1.2**	**1.9**	**1.9**	**1.7**	**1.1**
United States	0.9	1.8	0.8	1.5	1.1	1.7	2.1	0.8	1.5	2.2	1.9	0.7
Euro Area[1]	1.0	1.8	1.3	–1.1	–0.5	1.2	1.7	1.6	2.3	1.8	1.8	1.3
Germany	0.9	4.2	3.7	0.5	0.3	1.8	0.6	1.3	2.1	1.8	1.8	1.2
France	0.8	1.5	1.7	–0.2	0.1	0.5	0.6	0.7	2.0	1.1	1.2	1.2
Italy	0.1	1.2	0.2	–3.2	–2.3	–0.3	0.9	1.1	1.6	0.9	1.1	0.7
Spain	1.3	–0.4	–1.4	–3.0	–1.3	1.7	3.7	3.2	3.1	2.8	2.3	1.8
Japan	0.4	4.2	–0.3	1.7	2.2	0.5	1.5	1.0	1.9	1.4	1.3	0.9
United Kingdom	1.2	0.9	0.8	0.8	1.4	2.2	1.5	1.0	1.1	0.7	0.9	1.2
Canada	1.0	1.9	2.1	0.6	1.3	1.7	0.1	0.3	1.8	0.9	1.1	0.7
Other Advanced Economies[2]	2.6	5.0	2.5	1.3	1.6	2.1	1.3	1.5	2.1	2.0	1.7	1.6
Emerging Market and Developing Economies	**4.4**	**5.9**	**4.9**	**3.6**	**3.6**	**3.2**	**2.8**	**2.9**	**3.2**	**3.3**	**3.3**	**3.6**
Commonwealth of Independent States	5.9	4.3	4.7	3.2	2.0	1.4	–2.5	0.0	1.7	1.8	2.1	1.9
Russia	5.7	4.5	5.0	3.6	1.7	0.6	–2.6	–0.3	1.5	1.7	1.8	1.4
CIS Excluding Russia	7.0	4.3	4.7	2.7	3.4	2.6	–1.7	1.0	2.7	2.7	3.1	3.5
Emerging and Developing Asia	6.9	8.5	6.7	5.9	5.9	5.8	5.8	5.4	5.5	5.5	5.3	5.2
China	9.6	10.1	9.0	7.4	7.3	6.7	6.4	6.1	6.3	6.1	5.7	5.5
India[3]	5.2	8.7	5.2	4.1	5.0	6.0	6.8	5.7	5.3	5.9	6.0	6.3
ASEAN-5[4]	3.6	5.5	3.2	4.7	3.7	3.3	3.6	3.7	4.1	4.0	3.9	4.1
Emerging and Developing Europe	3.5	3.7	6.2	2.0	4.3	3.5	4.3	2.8	5.5	3.2	1.5	2.3
Latin America and the Caribbean	1.6	4.8	3.4	1.7	1.7	0.2	–0.9	–1.8	0.2	0.3	1.4	2.0
Brazil	2.1	6.5	3.0	1.0	2.1	–0.4	–4.3	–4.2	0.2	0.7	1.7	1.6
Mexico	0.2	3.8	2.4	2.4	0.2	1.7	2.2	1.8	1.0	1.2	1.6	2.1
Middle East, North Africa, Afghanistan, and Pakistan	1.9	2.3	3.9	0.6	0.0	–0.1	0.3	2.9	–0.5	0.4	0.7	1.1
Saudi Arabia	0.5	1.6	6.8	2.5	–0.1	1.1	3.3	–0.7	–3.3	0.2	0.4	0.3
Sub-Saharan Africa	2.7	4.3	2.4	1.5	2.5	2.5	0.6	–1.3	0.0	0.5	1.1	1.5
Nigeria	5.4	8.3	2.1	1.5	2.6	3.5	–0.1	–4.2	–1.9	–0.8	–0.5	–0.3
South Africa	2.3	1.6	1.8	0.7	1.0	0.3	–0.3	–1.0	–0.3	–0.8	–0.2	0.2
Memorandum												
European Union	1.4	1.8	1.5	–0.6	0.1	1.6	2.0	1.7	2.4	1.9	1.9	1.5
Low-Income Developing Countries	3.7	5.0	3.5	1.6	3.7	3.8	2.3	1.2	2.4	2.4	3.0	3.2

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.
[1]Data calculated as the sum of individual euro area countries.
[2]Excludes the G7 (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and euro area countries.
[3]See country-specific note for India in the "Country Notes" section of the Statistical Appendix.
[4]Indonesia, Malaysia, Philippines, Thailand, Vietnam.

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