GROUP OF TWENTY

G-20 REPORT ON STRONG, SUSTAINABLE, BALANCED, AND INCLUSIVE GROWTH

2018

Prepared by Staff of the

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with inputs from the OECD*

*Does not necessarily reflect the views of the IMF Executive Board.

EXECUTIVE SUMMARY

The G-20 economies continue to grow strongly for now, but risks are increasing and progress toward more balanced, sustainable, and inclusive growth is slow.

- *The global expansion continues, with growth for 2018-19 projected to remain steady at a high level*. However, there are signs of moderation, growth is more uneven, and risks have risen. Growth remains robust in the *United States* amid procyclical fiscal policy, but it has slowed in *Europe* and *Japan,* and some emerging economies are facing headwinds. Financial vulnerabilities and escalating trade tensions are beginning to leave a mark and can weigh on growth going forward.
- *Prospects for medium-term growth are dim*. Productivity growth remains sluggish in many countries, partly reflecting the period of weak investment after the crisis but also decreased labor supply and productivity due to aging—especially in advanced countries but also in emerging ones (e.g., *China*).
- *Global imbalances persist, and financial vulnerabilities have increased*. External imbalances are broadly unchanged, but they are increasingly concentrated in advanced economies and could be exacerbated by the policy mix in some countries. Debt levels are high and financial vulnerabilities have accumulated.
- *Inclusive growth remains a challenge*. Inequality—which has been high or rising in many countries—reflects inadequate access to economic opportunities through better education, healthcare and financial services, especially for poor women. The changing future of work could add further to the challenge of achieving inclusive growth.

Policies should focus on building buffers and enacting reforms for lasting and more widely shared growth. While policymakers have made some use of this period of stronger growth to "fix the roof," current IMF recommendations (with OECD input on structural reforms) suggest that more needs to be done:

- *Continue building buffers*. Fiscal consolidation should be accelerated in some economies to ensure public debt sustainability (e.g., *Italy*, *China*, *Brazil*, *South Africa*), while procyclical fiscal policies should be avoided or rolled back (*United States*, *Turkey*). Advanced economies monetary normalization should proceed gradually in line with economic developments. Exchange rate flexibility should continue to play a critical role in emerging economies as advanced economies normalize.
- *Address imbalances and reduce financial vulnerabilities*. Imbalances would be reduced by fiscal consolidation in excess deficit countries (*United Kingdom*, *United States*), productive use of fiscal space in excess surplus countries (*Germany*, *Korea*), and the reduction of structural distortions (*China*). Lower debt levels would reduce domestic imbalances, amid prospects for increasing debt servicing burdens.
- *Advance reforms*. Advanced economies should prioritize reforms to raise productivity and boost labor supply (e.g., *Germany*, *Japan*, *United States*). For emerging economies, productivity-enhancing reforms are likewise key (e.g., *Indonesia, South Africa, Turkey*).

This approach would offer significant benefits over the medium term.

- *Higher GDP*. Simulations suggest that, while building buffers reduces growth over the short term, structural reforms will increase productivity and help lift the level of GDP by about 4 percent relative to the baseline over the longer term.
- *Better balanced, lower vulnerabilities*. Over the medium term, current account balances would fall in excess surplus advanced economies and rise in excess deficit advanced economies. Concurrently, debt ratios would drop in countries with limited fiscal space, bringing lower interest rates and higher investment. Amid the deterioration in underwriting standards and high corporate and bank leverage, monitoring these risks and those from cybersecurity and fintech will improve financial resilience.
- *More inclusiveness*. Depending on country circumstances, investment in human capital—for example, through education—and healthcare, coupled with appropriate redistributive fiscal measures can help ensure that these gains are widely shared.

Acting together remains critical. The global economy relies on an open and rules-based international trading system, whose modernization should continue. Collective efforts are required in other areas, including completion of financial regulatory reforms. Structural reforms offer significant positive spillovers over the longer term.

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GROWTH IS STRONGER—BUT NOT YET MORE SUSTAINABLE, BALANCED, AND INCLUSIVE

The global expansion continues, with growth for 2018-19 projected to remain steady at a high level. However, there are signs of moderation, growth has become more uneven, and financial vulnerabilities and escalating trade tensions are weighing on prospects. Global imbalances persist. Against this backdrop and still sluggish productivity growth in many countries, currently high rates of growth will be difficult to sustain going forward. At the same time, progress toward more inclusive growth remains incomplete.

1. **Compared to the 2017 report, growth is stronger across most of the G-20, but progress toward more balanced, sustainable and inclusive growth remains elusive.** As discussed below, in many countries growth is expected to continue at high levels, even though downside risks have increased. At the same time, little progress has been made toward more sustainable and balanced growth, as external imbalances persist, debt levels remain high, and productivity growth remains low. Inclusiveness—which was not part of last year's report—remains a challenge.

G-20 SSBIG: Progress since 2017 Report	
Strong Growth	**Stronger growth and closing output gaps, but higher risk.**
Balanced Growth	**Global imbalances persist, and financial vulnerabilities have increased.**
Sustainable Growth	**Medium-term prospects remains dim.**
Inclusive Growth	(Not evaluated in 2017)

A. GROWTH STILL HIGH, BUT RISKS ARE BUILDING

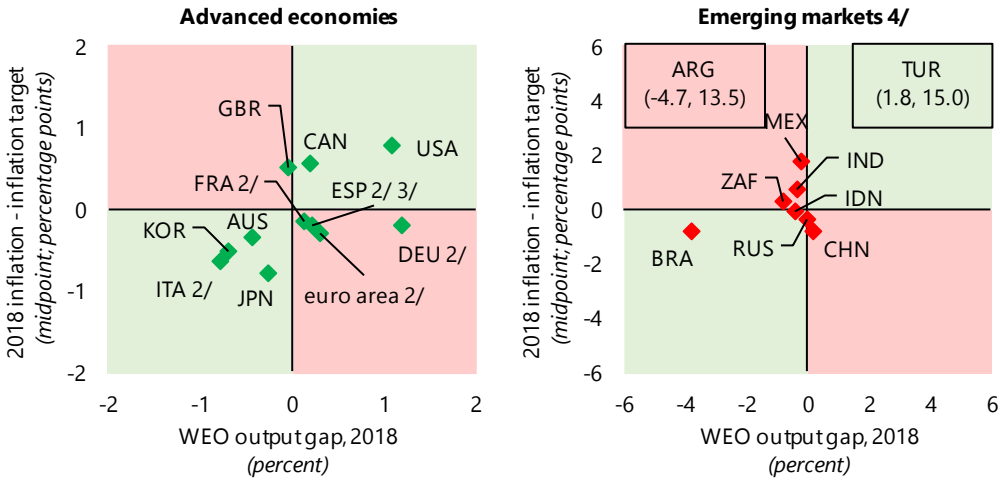
2. **Higher growth has continued to reduce slack in G-20 economies, and inflation pressures remain contained.** While the cyclical upswing seems to have peaked in the second half of 2017, growth in 2018-19 is still projected to remain steady at the highest level since the 2010-11 rebound from the global financial crisis, with raising incomes, high profits, and stronger banks' balance sheets and public-sector revenues. While lower economic slack and higher energy prices contributed to a rise in headline inflation in several G-20 economies, inflation pressures remain low.[1]

- *Growth has been strong in most advanced economies*. Output gaps are closing—half of advanced economies already show positive gaps in 2018, and some are operating at or above capacity (*United States, Germany*)—and unemployment has continued to decline (Figures 1, 2 and Figures A1.2-A1.6). However, the cyclical momentum is moderating and becoming more uneven; it

[1] Annex 1 lists the indicators used to assess progress toward SSBIG, and Annex 4 provides a comprehensive set of diagnostic charts. For all charts, "other EU Adv." and "other EU Emg" refer to member countries of the European Union excluding France, Italy, Germany, the United Kingdom as well as Spain, which is a permanent invitee of the G-20. Advanced and emerging country groups follow classifications by IMF, *World Economic Outlook*. Aggregates include "other EU Adv." and "other EU Emg." where data are available. Where shown, "euro area" includes all euro area member countries. Country labels in the charts use International Organization for Standardization (ISO) country codes.

remains robust in the *United States*—in part owing to procyclical fiscal expansion—but it shows signs of moderation in *Europe* and *Japan*. Inflation has risen above target in some countries (*Canada, United Kingdom, United States*), but it remains below target in *Japan* and the *euro area* (see Figure 1 and Figures A1.8-A1.11).

Figure 1. WEO output gap and deviation from inflation target, 2018 1/

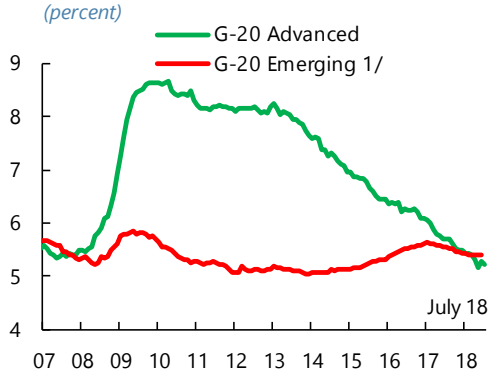


Sources: IMF, *World Economic Outlook* October 2018; National Central Banks; and IMF staff calculations.
1/ PCE inflation projections have been used for USA; end-of-period CPI inflation for ARG, TUR, RUS; period-average CPI for all other countries.
2/ The European Central Bank (ECB) targets the Harmonized Index of Consumer Prices as a medium-term objective for the euro area as a whole. For presentational purposes, the ECB objective is also used for individual euro area members.
3/ ESP is a permanent invitee.
4/ SAU does not have an inflation target.

- *Some emerging economies are facing headwinds.* While growth has brought GDP closer to potential in several emerging economies, rising yields in the *United States* and U.S. dollar appreciation have created headwinds for countries with weaker fundamentals. This pressure comes as some are recovering from significant recessions (*Brazil*) and oil exporters benefit from the partial recovery in oil prices over the last year (*Saudi Arabia*). Activity slowed more markedly in *Argentina* and *Turkey*, reflecting country-specific factors amid souring investor sentiment. Inflation is above target in several emerging economies, including *Turkey*, and to a lesser extent *India, and Mexico* (Figures A1.8-A1.11).

Figure 2. Unemployment rate

(percent)

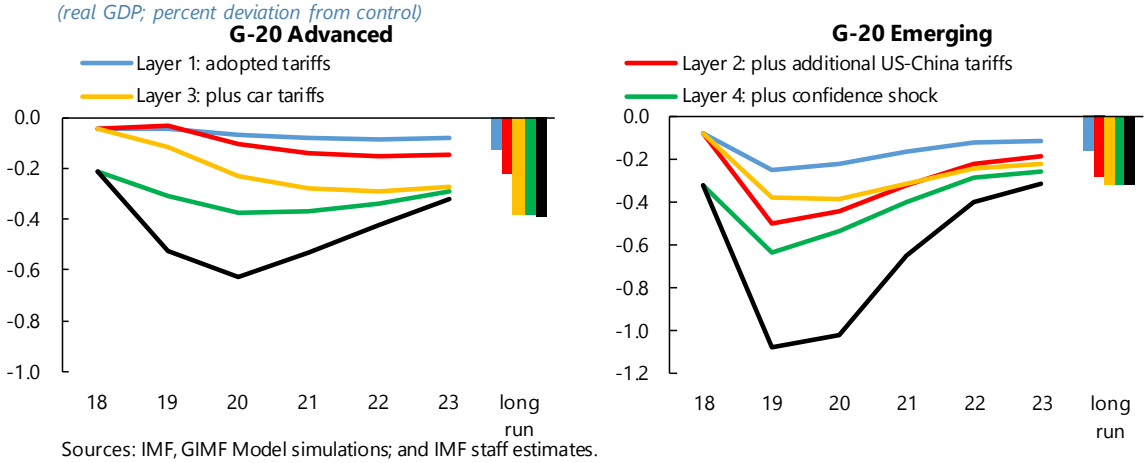


Source: IMF, Global Data Source; and IMF staff calculations.
1/ IND & SAU are excluded due to data limitations.

3. **The global expansion continues, but there are signs of moderation, and financial vulnerabilities and trade tensions are weighing on prospects.** The October World Economic Outlook (WEO) foresees growth of 3.7 percent in 2018 and 2019, slightly lower than the July Update, reflecting a weaker outlook for some advanced economies (*euro area*, *Japan*, *United Kingdom*) and emerging economies (*Argentina, Brazil, India*). At the same time, concerns around the forecast are building:

- *Financial risks*: While financial conditions are still largely supportive for advanced economies, some of them have begun to normalize monetary policy. A surprise tightening of financial conditions—triggered, for example, by a spike in risk sentiment or by a faster than expected rise in policy rates in the *United States*—can create significant pressures amid generally greater indebtedness and higher debt service burdens. Emerging economies, already facing tighter financial conditions, are especially exposed.
- *Trade tensions*: Trade tensions are beginning to leave a mark.[2] An illustrative simulation shows the announced and potential new import tariffs by the *United States* and retaliation by trading partners would reduce G-20 growth, especially if compounded by a temporary confidence effect that deters investment and a temporary tightening of financial conditions (Figure 3). In the short term, the level of GDP could drop by as much as 0.6 and 1.1 percent compared to the baseline in G-20 advanced and emerging economies, respectively. Over the long term, the initial impact on activity falls as substitution of imported intermediate inputs increases, but aggregate G-20 output could still be lower by about 0.4 percent.

Figure 3. Simulations: GDP impact of trade tensions
(real GDP; percent deviation from control)



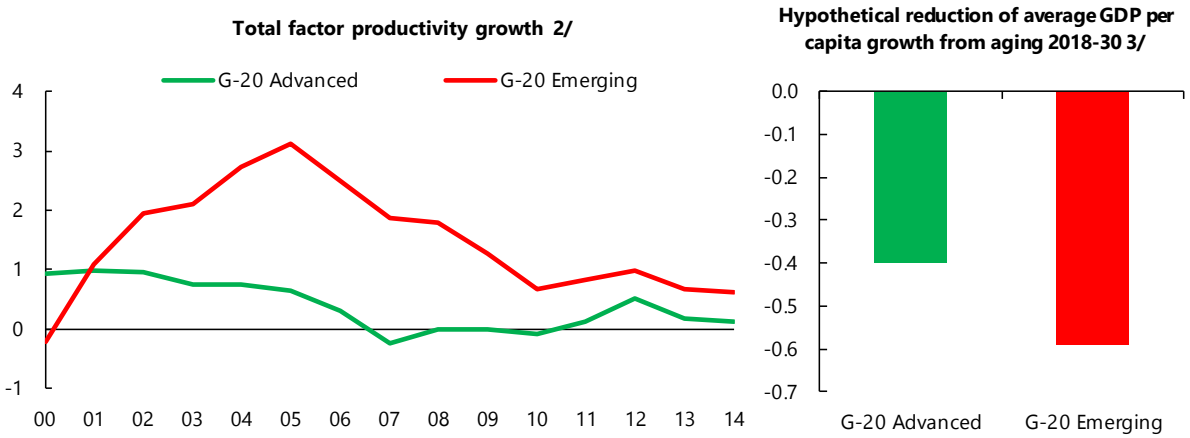
Sources: IMF, GIMF Model simulations; and IMF staff estimates.
Note: The Global Integrated Monetary and Fiscal Model scenario incorporates: (i) the already implemented US 10 percent tariffs on steel, 25 percent tariff on aluminum and on US$50 billion imports from China, and the additional 10 percent import tariffs on US$200 billion of US imports from China that subsequently increases to 25 percent—all 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; (ii) a 25 percent tariff on a further $267 billion of imports from China and a response by China such that all imports from the U.S. also face a 25 percent tariff; (iii) a 25 percent increase in tariffs on US imports of cars and car parts from all countries except Canada and Mexico, and retaliation by the affected countries on the same amount of US exports; (iv) an impact of trade tensions on confidence and firms' investment plans; and (v) a tightening of financial conditions associated with trade tensions. The positive effect of higher car tariffs in layer 3 for emerging markets reflects substitution effects towards non-tariff countries and could be overestimated given the aggregate nature of the model. For details, see IMF, October 2018, *World Economic Outlook*, Chapter 1 Scenario Box.

[2] See IMF, October 2018, *World Economic Outlook*, Chapter 1.

B. SUSTAINABLE GROWTH REMAINS A CHALLENGE

4. **For many G-20 economies, the medium-term growth forecast remains weaker than in the past.** Emerging markets can generally expect relatively higher rates of growth, and in some that do not (*China*) the expected slowing comes in the form of a welcome rebalancing toward consumption-led growth and the service sector. For others, however, and for most advanced economies, growth of productivity and potential output will remain disappointingly low compared with the decade before the crisis (Figures A2.6 and A2.7). For example, potential GDP growth in G-20 advanced economies is estimated to average 1¾ percent in 2018-19, down about ¾ percentage point from the average in 1990-07, just prior to the global crisis (Figures A2.1-A2.5). These developments reflect a number of factors:

Figure 4. Total factor productivity and impact of aging 1/



Sources: Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer (2015), "The Next Generation of the Penn World Table" American Economic Review, 105(10), 3150-3182, available for download at www.ggdc.net/pwt; World Bank, *World Development Indicators;* United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2017 Revision, DVD Edition;* IMF, *World Economic Outlook* October 2018; and IMF staff calculations.

1/ Includes ESP, but not other EU Adv. and other EU Emg. due to data limitations.

2/ PPP-weighted and calculated as 5-year moving average. Excludes RUS and SAU due to data limitations.

3/ Hypothetical change in the PPP-weighted average annual growth rate of GDP per capita 2018-30 relative to 1990-2017, assuming that working age and total population evolve as projected by the United Nations and productivity growth remains constant.

- *Headwinds from demographic changes*: While many emerging economies are still benefiting from the demographic dividend, aging populations tied to declining fertility are becoming a drag on growth elsewhere.[3] An illustrative scenario, in which the share of the working age population in the overall population evolves as currently projected, points to the importance of demographics for growth (Figure 4, right panel).[4] The results suggest that, over the period 2018-2030, demographic change could reduce average GDP per capita growth by 0.4 and 0.6 percentage points compared to the historical average (1990-2017) for G-20 advanced and emerging economies, respectively. For most G-20 advanced economies, this reflects an even steeper decline in the labor force relative to the total population, while for most G-20 emerging markets it reflects the expected slowdown in the relative expansion of the labor force. In some emerging markets (e.g., *China*), the share of the working age population is expected to decline.

[3] IMF, April 2017, *Asia-Pacific Regional Economic Outlook*, Chapter 2: Asia: At Risk of Growing Old before Becoming Rich? and IMF, October 2018, *World Economic Outlook*, Chapter 1.

[4] Population forecasts based on United Nations, 2017, World Population Prospects: The 2017 Revision.

- *Slowing innovation*: There are some indications that the rate of innovation (as measured, for example, by patent growth) has slowed, likely due to the fading effects of the boom in information and communication technologies and the waning pace of global trade integration that had been supporting innovative activity and cross-border technology diffusion in the past.[5] Ongoing IMF work also suggests that the rise in corporate market power in advanced G-20 economies—when reaching too high levels—can be associated with lower investment and lower innovation. New technological advances in digitalization, artificial intelligence, and automation hold the promise of raising productivity growth going forward, but their adoption may involve the costs of labor displacement and adjustment during the transition, along with rising inequality (see below).[6]
- *Need for more reforms:* The benefits from past structural transformations in emerging markets, which raised output levels by allocating factors of production to higher-productivity sectors, may be fading. While there is ample scope for additional reforms in most emerging and advanced G-20 economies (see below), they will have to be energetically and consistently implemented to make a difference. For example, in countries such as *India* and *Indonesia*, attaining relatively high expected potential growth rates is contingent, in part, on further productivity-enhancing reforms, and commodity exporters (such as *Saudi Arabia*) will have to follow through with ongoing production diversification efforts (Figures A2.3-A2.5).

C. GLOBAL IMBALANCES AND FINANCIAL VULNERABILITIES PERSIST

5. **Reducing external and financial vulnerabilities remains a priority.** The update of the G-20 Indicative Guidelines points to concerning macroeconomic imbalances in the same nine countries identified last year (Annex V). The persistence of external imbalances continues to add to diverging net foreign asset positions and risks the need for larger adjustments of these positions in the future. At the same time, the build-up of domestic private and public leverage is leaving economies vulnerable to sudden shifts in global financial conditions.[7]

6. **Excess current account imbalances remain large and seem poised to increase, given the macroeconomic policy mix in some large economies.**[8] Overall excess imbalances in 2017 were broadly unchanged from 2016, with growing concentration in advanced economies. Excess surpluses

[5] IMF, April 2018, *World Economic Outlook*, Chapter 4: Is Productivity Shared in a Globalized Economy?; IMF, October 2016, *World Economic Outlook*, Chapter 2: Global Trade: What's Behind the Slowdown?; Adler, G., R. Duval, D. Furceri, S. Çelik, K. Koloskova, M. Poplawski-Ribeiro, 2017, Gone with the Headwinds: Global Productivity, IMF Staff Discussion Note 17/04.

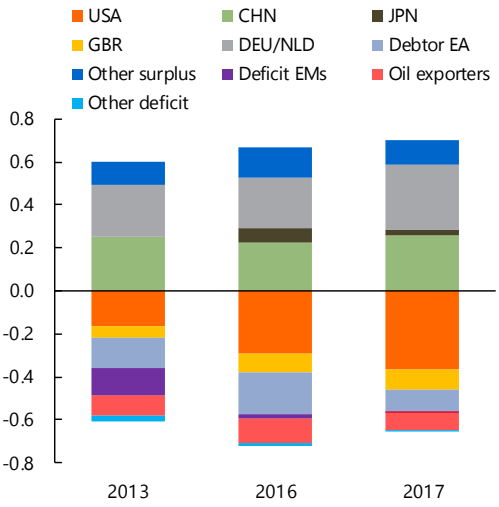
[6] IMF, 2018, G-20 Note: Technology and the Future of Work.

[7] IMF, October 2018, *Global Financial Stability Report* and IMF, October 2018, *Fiscal Monitor*.

[8] IMF, 2018, External Sector Report. The groups reflect the assessment of current account balances in excess of what is warranted by fundamentals and desired medium-term policies in 2017. "Excess surplus" refers to countries where the current account balance is stronger than the estimated norm, while "excess deficit" refers to countries where it is weaker than the norm. Advanced excess surplus countries include Germany and Korea; advanced excess deficit countries include Canada, France, Spain, the United Kingdom, and the United States; and advanced balanced countries include Australia, Italy, and Japan. Emerging excess surplus countries consist of China; emerging excess deficit countries include Argentina, Russia, Saudi Arabia, South Africa, and Turkey; and emerging balanced countries include Brazil, India, Indonesia, and Mexico. For brevity, labels omit the term "excess."

were observed in *China*, *Germany*, and *Korea*. Excess deficits are concentrated in the *United Kingdom*, the *United States*—where the gap has widened in the past year—and a few emerging economies, such as *Argentina* and *Turkey* (Figure 5 and Figures A3.2, A3.3). The fiscal easing currently underway in the *United States* is projected to lead to larger current account deficits, with matching increasing surpluses in other countries. At the same time, tighter than desirable fiscal stances in some excess surplus countries may be slowing the reduction of their imbalances. There are also asymmetries in competitiveness among *euro area* countries that pose risks to the currency bloc and the global economy. Lack of progress in addressing structural issues—such as high savings in surplus economies and low productivity growth in deficit economies—is also curbing progress to reduce imbalances.

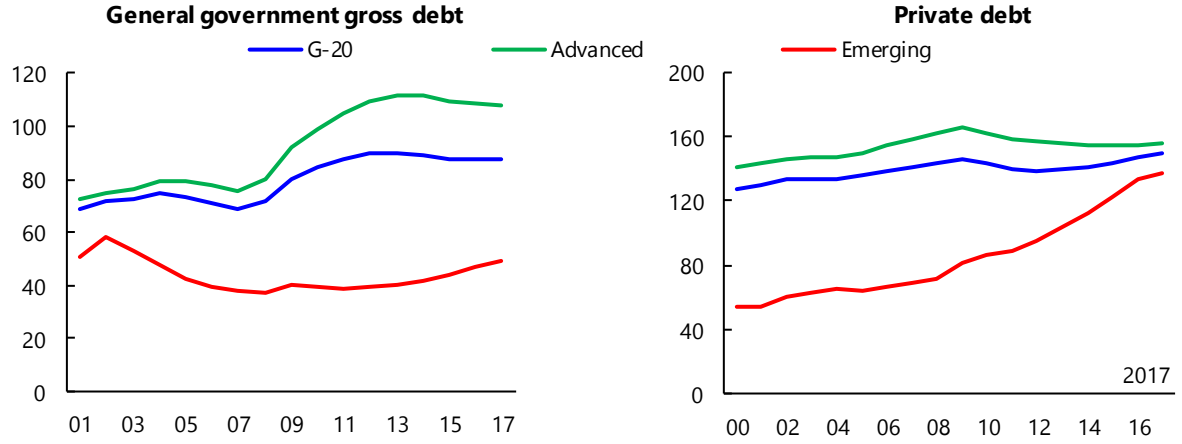
Figure 5. Global current account gaps
(percent of world GDP)



Sources: IMF, *External Sector Report,* 2018; and IMF staff calculations.
Note: Other surplus: CHE, HKG, KOR, MYS, SGP, SWE, THA. Debtor EA: BEL, ESP, FRA, ITA. Deficit EMs: BRA, IDN, IND, MEX, TUR, ZAF. Oil exporters: CAN, RUS, SAU. Other deficit: AUS, POL.

7. **Financial vulnerabilities have increased along with rising sovereign and private sector debt.** Public debt is particularly high in G-20 advanced economies, while private debt increased sharply in emerging economies, facilitated by an environment of low interest rates, record-low volatility, high asset prices, and relatively compressed emerging market spreads:

Figure 6. General government gross debt and private debt
(percent of GDP)



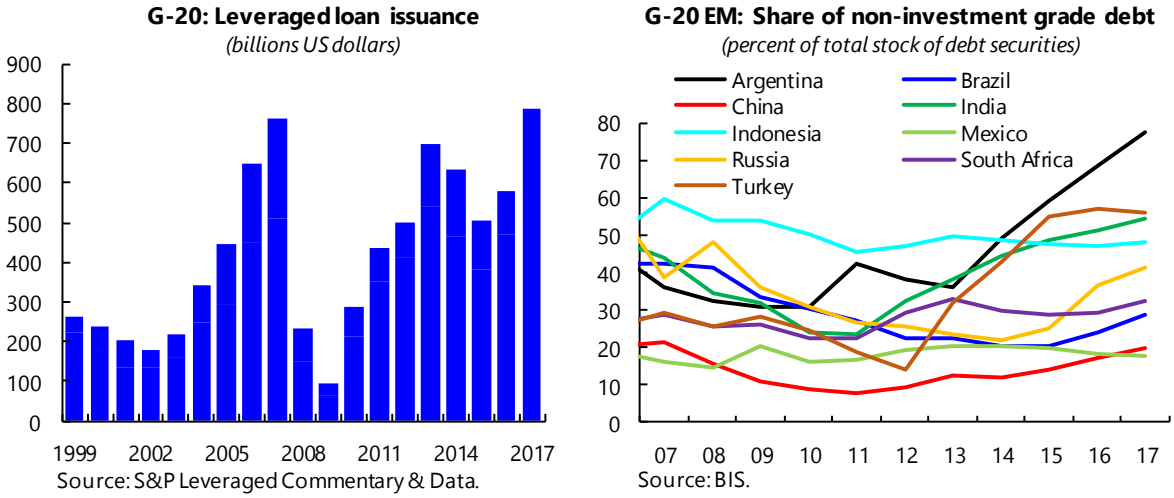
Sources: BIS; Haver Analytics; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
Note: Private debt refers to credit to the private non-financial sector, which includes borrowing by non-financial corporations and households and reflects lending by domestic and foreign banks, as well as holdings of debt securities. For SAU, data on private debt is expressed in percent of non-oil GDP. For CHN, private debt includes LGFV (local government financing vehicles) debt.

- *High levels of debt:* Following the increase during the global financial crisis, little progress has been made in reducing public debt in G-20 advanced economies—in many countries, the debt-to-GDP ratio is just notches below the post-crisis peaks (Figures 6 and A3.11). Private sector deleveraging has taken place, but debt levels remain elevated, in part due to low interest rates that make debt

servicing more affordable (Figure 6 and Figures A3.7-A3.9). In G-20 emerging economies, debt levels are generally lower. Their sovereign debts, however, remain higher than before the global financial crisis in several countries (*Brazil, Mexico, South Africa*), private debt has increased sharply, and debt-service ratios remain close to their 10-year peak in some countries (*China, Turkey*; see Figures A3.7-A3.9 and A3.11).

- *Deteriorating credit quality:* Low interest rates incentivize investors to search for higher yields, reducing overall credit quality and raising default risks. In many countries, high-risk investments are increasingly financing operations for borrowers rated as non-investment grade. In G-20 advanced economies, such investments are channeled through the market for leveraged loans, which are typically arranged by a group of banks and then sold to investors.[9] The global issuance volume in this market has grown strongly over the past few years, and now exceeds the level reached before the global financial crisis. Similarly, among several G-20 emerging economies—*Argentina, India, Russia, Turkey*—the amount of non-investment grade debt as the share of total debt instruments has been increasing rapidly (Figure 7).

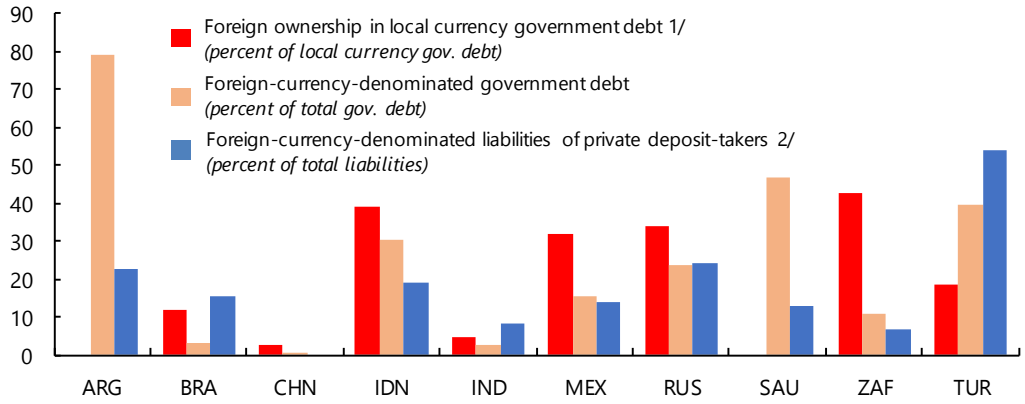
Figure 7. Leveraged loan issuance and share of non-investment grade debt



- *Portfolio flows and currency mismatches:* Low interest rates in advanced economies contributed to strong capital flows to emerging markets in recent years. Portfolio investments contributed significantly to these flows, with the stock of these liabilities doubling from about 3.5 percent to 7 percent of GDP over the past decade (Figure 8 and A3.13). Capital-flow reversals could create roll-over risks for domestic firms and increase pressure on exchange rates. In addition, foreign exposure in government bond markets—either in the form of foreign-currency sovereign debt or foreign ownership of domestic-currency sovereign debt—is significant for some G-20 emerging economies (including *Indonesia, Mexico, Russia* and *Turkey,* see Figure 8). This exposure leaves these economies vulnerable to external shocks, such as a sudden setback in foreign investors' sentiment that push up interest rates, weaken currencies, and increase debt servicing costs.

[9] The market is dominated by the United States, where more than 70 percent of the global volume was issued, another 25 percent was issued in European Union countries, and 2.5 percent in Canada.

Figure 8. G-20 Emerging markets: Foreign exposure



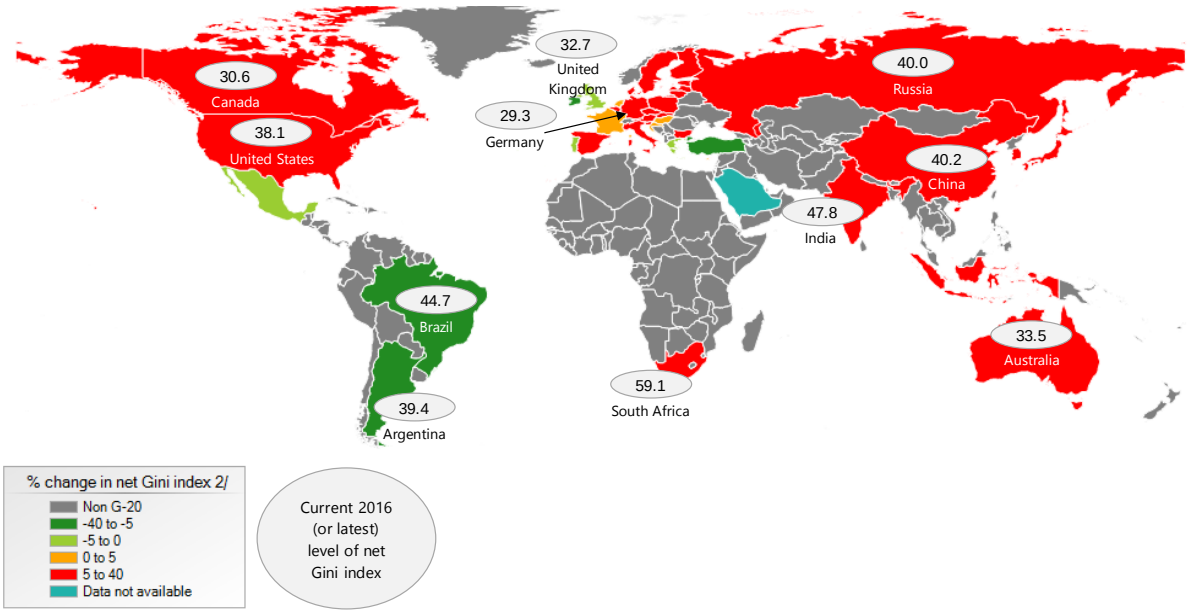
Sources: Haver Analytics; IIF database; IMF, Financial Soundness Indicators; and IMF staff calculations.
1/ Data not available for ARG & SAU.
2/ Data for CHN is not available. ZAF data is as of 2017Q4.

D. INCLUSIVE GROWTH STILL SEEMS ELUSIVE

8. **The G-20 goals of achieving sustainable and inclusive growth are tightly intertwined.** Growth that is widely shared and delivers equal opportunities in access to markets and resources is also critical for the sustainability of growth and social cohesion, as excessive inequality can trigger economic instability and it has been associated with a lack of support for growth-enhancing reforms and the emergence of populism and inward-looking policies.[10]

Figure 9. G-20: Change in net Gini index, 1990-2016 1/

(percent)



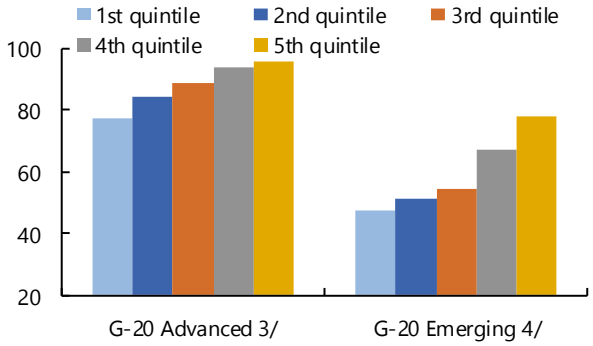
Source: Solt, F., 2016, The Standardized World Income Inequality Database, Social Science Quarterly 97, SWIID Version 7.1, August 2018.
1/ Net Gini index is defined as Gini index of inequality in equivalized (square root scale) household disposable (post-tax, post-transfer) income.
2/ Change in net Gini from 1990 to 2016 is expressed as a percentage. For missing values, data for the most recent year were used.

[10] IMF, 2017, G-20 Note: Fostering Inclusive Growth; Berg, A. and J. Ostry, 2011, Inequality and Unsustainable Growth: Two Sides of the Same Coin?, IMF Staff Discussion Note 11/08.

9. **Inequality is on the rise in most advanced economies, and remains high in many emerging economies.** Inequality as measured by the Gini coefficient has risen in almost all G-20 advanced economies and in many emerging economies since 1990, and it remains high in those emerging economies where it has fallen (Figure 9 and Figures A4.1, A4.2). In most countries, the increase in the Gini coefficient slowed or came to a halt with the financial crisis—on average the coefficient is only negligibly higher in 2015 compared to 2008 (Figures A4.1 and A4.2).[11] Income gains between the richest and poorest deciles of the population have been diverging across all G-20 countries, also pointing to higher inequality—the lowest 10 percent of income earners in both advanced and emerging economies got no more than 15 percent of the income of the top 10 percent, and in some countries this ratio has fallen over time (Figures A4.3 and A4.4).

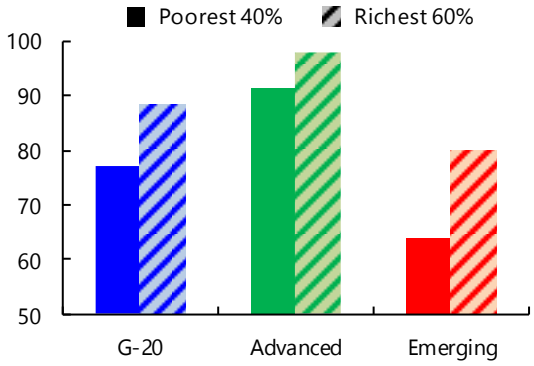
10. **Across the G-20, access to education, financial services, and healthcare leaves room for improvement.** Education is a key determinant of labor market outcomes, creating a mutually reinforcing relationship between education, income, and wealth. Yet, educational attainment is increasing in wealth in much of the G-20 (Figure 10), implying that economic mobility across generations may be limited. In addition, there are indications of gender gaps in access to education in many countries.[12] A lack of access to financial services should also be addressed, as without access to savings and credit facilities, individuals have limited ability to invest in their skills and assets. Disparities in access to financial services persist across many G-20 countries, notably in emerging economies (Figure 11). Finally, limited access to healthcare remains a significant challenge—especially in emerging economies—and it is likely related to income and education levels. Across the G-20, adults with tertiary education live, on average, two years longer than those with lesser education.

Figure 10: Upper secondary completion rate by wealth (2014) 1/ 2/
(percent)



Sources: World Inequality Database on Education; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ People aged 20-29 who have completed upper secondary school, by share of each group respectively.
2/ Data for RUS and USA is from 2013; ARG, IDN, MEX from 2012.
3/ DEU, ESP, FRA, GBR, ITA, USA, and other EU Adv. ESP is a permanent invitee.
4/ ARG, BRA, CHN, IDN, MEX, RUS, and other EU Emg.

Figure 11. Adults with financial institution account, by income level (2017)
(percent of respondents)



Sources: World Bank, FINDEX; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.

[11] This also reflects the role played by policies—see the discussion below.

[12] IMF, 2017, G-20 Note: Fostering Inclusive Growth.

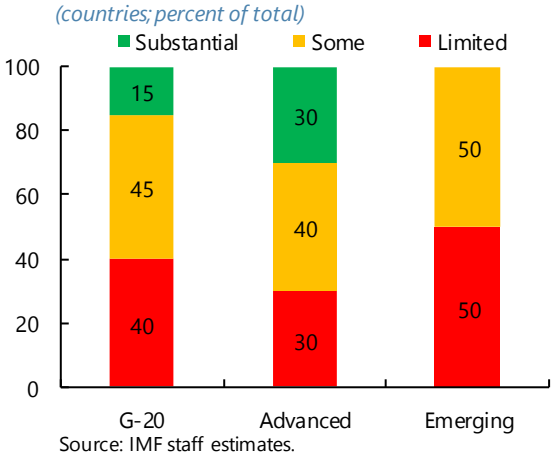
11. **The emergence of new technologies could be raising inequality further.** New technologies are changing the landscape of occupations; they are driving down demand for routine-task-based occupations and creating additional demand for low-skill service sector jobs that cannot be automated. At the same time, they are creating new complementary occupations that are often high-skill and high-wage. This is likely raising income inequality, as jobs and incomes become more polarized and as new jobs in the gig economy—physical and digital services primarily provided by independent workers in an on-demand or short-term basis—may not provide the same access to opportunities as traditional occupations (e.g., health, security, and pension benefits). [13]

POLICIES TO REBUILD BUFFERS AND ENSURE LASTING AND WIDELY SHARED GROWTH

Policymakers should step up their efforts to rebuild fiscal buffers. While this will have an impact on short-term growth, it can help sustain growth over the medium term. Procyclical policies should be avoided or rolled back, while prudent use of fiscal space can raise potential growth, advance external rebalancing, and enhance inclusiveness. Monetary policy in advanced economies should normalize gradually in line with economic developments, while emerging economies should aim to anchor expectations effectively. Financial vulnerabilities require attention, and the time is ripe for all G-20 members to push ahead with policies and structural reforms to boost productivity and ensure that growth is shared more widely.

12. **The right policies can ensure the G-20 goal of strong, sustainable, balanced, and inclusive growth.** To that end, this section presents the IMF's assessment of current macroeconomic policy stances and staff recommendations for G-20 economies. Members' current macroeconomic policy stances and structural reform strategies are compared with policy recommendations based on the IMF's Article IV surveillance, with input from the OECD on structural reforms. The recommendations are summarized in Tables 1 to 3—Annex 2 provides policy definitions and metrics.

Figure 12. Fiscal space
(countries; percent of total)



Source: IMF staff estimates.
Note: Countries with "substantial" fiscal space include AUS, DEU, KOR; "some" include CAN, CHN, GBR, IDN, JPN, MEX, RUS, SAU, USA; "limited" include ARG, BRA, ESP, FRA, IND, ITA, TUR, ZAF. ESP is a permanent invitee.

A. BUILD BUFFERS AND GRADUALLY NORMALIZE MONETARY POLICY

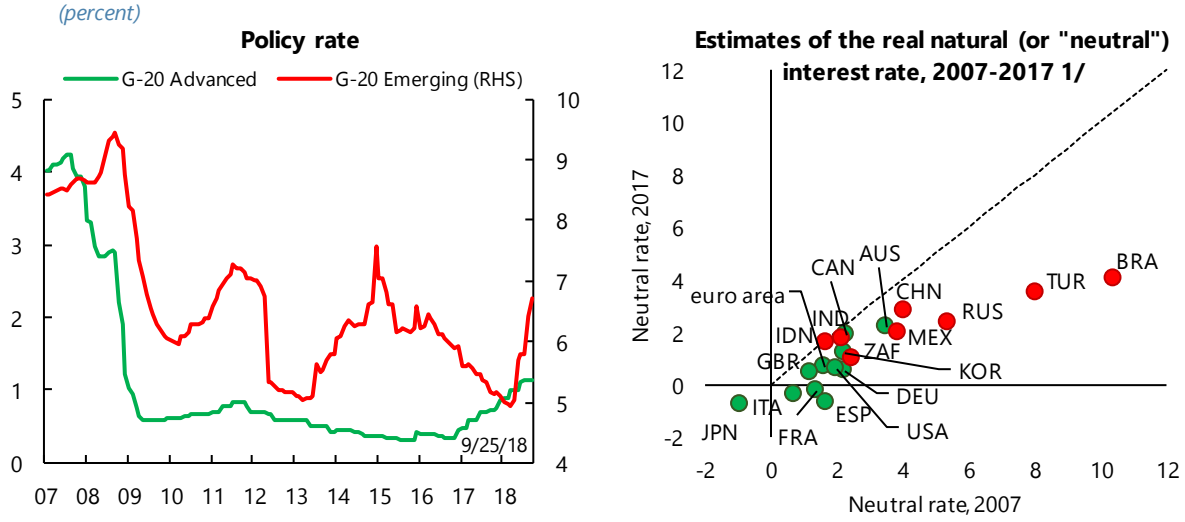
13. **Across the G-20 economies, policy space is more limited now than it was before the global financial crisis.** Constraints on fiscal policy have increased due to the rapid accumulation of public debt since 2007, with the most recent IMF assessments indicating substantial fiscal space for only three G-20 countries (Figure 12).[14] With the recovery maturing,

[13] IMF, 2018, G-20 Note: Future of Work, Measurement, and Policy Challenges.

[14] IMF, 2018, Assessing Fiscal Space: An Update and Stocktaking.

rebuilding policy space for the next downturn has become more urgent. As for monetary policy, short-term interest rates are lower across the board compared with 2007, and many advanced economies are still operating at the effective lower bound, leaving less room for conventional policy easing (Figure 13). At the same time, many estimates of the natural (or "neutral") real interest rate—which come with considerable measurement uncertainty—have also declined in many advanced and emerging economies, implying that even lower policy rates would be required to provide monetary support in the face of adverse shocks (see Figures 13 and A5.1 for alternative measures of the gap between the natural and the actual real rate).

Figure 13. Policy rate and real natural rate
(percent)



Sources: Consensus Economics; Bloomberg, L.P.; Haver Analytics; IMF, Global Data Source; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Real natural rate estimates are model based and subject to measurement uncertainty. ESP is a permanent invitee.

14. **Current fiscal policies in some G-20 countries focus on building buffers, but consolidation should accelerate in many of them—and any procyclical fiscal stimulus reversed—while others can use fiscal space to raise potential.**

- About half of the G-20 countries are turning to fiscal consolidation in 2018 and 2019 under the WEO baseline (Table 2), but the overall amount of consolidation is very modest.[15] IMF policy advice suggests that several advanced and emerging economies need to raise their pace of consolidation moderately to substantially to put public debt on a sustained declining path (*Canada*, *France*, *Spain*, *Brazil*, *China*, *India*, *South Africa*). This need is particularly pressing in emerging economies, given tightening global financial conditions. In some economies, procyclical fiscal stimulus should be avoided or rolled back—for example, in the *United States*, where the economy is already at or above full employment, current expansionary spending and tax plans worsen the prospects for debt sustainability and external imbalances. Consolidation is also critically important in economies where the fiscal position is vulnerable to a loss of market confidence (*Italy*, *Turkey*).

[15] Excluding the U.S., fiscal consolidation in G-20 countries over 2017-19 amounts to about 0.1 percent of G-20 GDP.

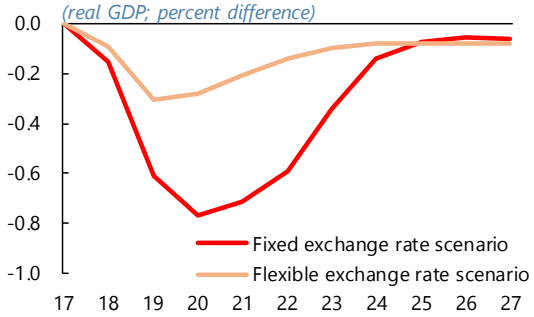
- In all countries, fiscal adjustment should be as growth-friendly as possible, with measures that help reduce inequality and protect the most vulnerable. In economies where growth momentum remains more fragile (*Japan*), fiscal policy should avoid tightening in the near-term while anchoring the debt trajectory with a credible fiscal framework. There is scope for more fiscal spending in *Germany* and *Korea* to enhance potential growth and contribute to reducing excess external imbalances.

15. **Monetary policy is broadly in line with IMF recommendations** (Table 1). In the *United States*, the current stage of the business cycle suggests that monetary policy normalization should continue in a gradual, data-dependent, and well-communicated manner. Monetary policy is expected to remain appropriately accommodative in other advanced economies, consistent with generally below-target inflation levels. Monetary policy stances in most emerging economies are guided by inflation objectives; however, a tighter stance than envisaged would be appropriate in some to contain inflation and anchor expectations more effectively (*Turkey, South Africa*).

16. **Exchange rate flexibility remains an essential shock absorber in most emerging economies.** Central banks operating within inflation targeting regimes should allow exchange rates to absorb potential capital flow reversals unless high pass-through risks disrupting inflation expectations, in which case policy tightening might be called for. Maintaining adequate levels of international reserves will help managing disorderly market conditions, thereby limiting risks related to foreign exposures in balance sheets of corporations or in the financial system. An illustrative simulation compares the impact on emerging economies growth of a surprise tightening in financial conditions triggered by an inflation surprise in the *United States* that leads to a decompression of global term premia and sovereign and corporate risk premia.[16] The simulations consider two scenarios: one in which procyclical monetary policies in emerging economies keep exchange rates fixed vis-à-vis the U.S. dollar, and another one in which exchange rate flexibility plays a buffering role (Figure 14). It suggests that output losses in emerging economies could be as much as four times larger under a fixed exchange rate scenario.

Figure 14. Simulations: GDP impact of a financial shock on G-20 emerging markets

(real GDP; percent difference)



Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff estimates.
Note: The G-20 model scenario shows the effect of an inflation surprise in the *United States* that leads to an increase in the policy rate and a decompression of the U.S. term premium of 50 basis points—which affects global term premia—and an increase in sovereign and corporate risk premia.

[16] IMF, April 2018, *World Economic Outlook*, Chapter 1.

Table 1. Monetary policy stance and recommendations

Advanced Economies	Projected monetary stance		Difference between recommended and projected monetary stance	
	2018	2019	2018	2019
euro area 1/				
AUS				
CAN				
JPN				
KOR				
GBR				
USA	Neutral			

Sources: Based on IMF staff estimates and Article IV recommendations.
Note: ESP is a permanent invitee. For JPN, while no changes to the quantitative or interest rate targets are recommended at this point, improvements in the monetary policy communication framework could help lift inflation expectations, and thus widen the gap between the natural and actual real interest rate.
1/ The European Central Bank conducts monetary policy for the euro area as a whole, including for DEU, ESP, FRA, and ITA.

Emerging markets	Projected monetary stance, projected		Difference between recommended and projected monetary stance	
	2018	2019	2018	2019
TUR			↓	↓
BRA				
CHN				↓
ZAF			↓	↓
IDN	Neutral			
ARG				
IND				
RUS		Neutral	↑	
MEX				↑
SAU				

Sources: Based on IMF staff estimates and Article IV recommendations.
Note: SAU has a fixed exchange rate.

Key (stance)	
Neutral	
Moderately expansionary	
Substantially expansionary	
Moderately contractionary	
Substantially contractionary	

Key (difference)	
Unchanged: Δ ir ≈ 0 (approximately)	
Moderately more expansionary: -100 basis points ≤ Δ ir < 0	↑
Substantially more expansionary: Δ ir < -100 basis points	↑
Moderately more contractionary: 0 < Δ ir ≤ 100 basis points	↓
Substantially more contractionary: Δ ir > 100 basis points	↓

Table 2. Fiscal policy stance and recommendations

	Advanced economies					
	Projected change in CAPB			Difference between recommended and projected change in CAPB		
	2018	2019	2020-23 avg.	2018	2019	2020-23 avg.
USA				↓	↓	↓
CAN				↓	↓	
DEU				↑	↑	
ESP				↓	↓	↓
GBR						
EU 1/				↓		↓
ITA				↓	↓	↓
KOR				↑		↑
AUS						
FRA				↓	↑	↓
JPN				↑		↓

Sources: Based on IMF staff estimates and Article IV recommendations.
Note: CAPB = cyclically adjusted primary balance. Recommendations as of August 2018. ESP is a permanent invitee. For FRA, structural adjustment in 2019-20 is net of the effect of conversion of the CICE into a tax break. For ESP, primary structural balance (CAPB net of one-off spending) is used.
1/ Shown is the GDP-weighted average of the projected change and the difference between recommended and projected change in CAPB for AUT, BEL, DEU, ESP, FRA, GBR, ITA, NLD, POL, and SWE. The IMF does not form recommendations for these countries as a group.

	Emerging markets					
	Projected change in CAPB			Difference between recommended and projected change in CAPB		
	2018	2019	2020-23 avg.	2018	2019	2020-23 avg.
BRA				↓		↑
SAU						
MEX						
TUR				↓	↓	
CHN					↑	↓
IDN						
ZAF					↓	↓
ARG						
IND					↓	↓
RUS						

Sources: Based on IMF staff estimates and Article IV recommendations.
Note: CAPB = cyclically adjusted primary balance. Recommendations as of August 2018. For RUS, non-oil cyclically adjusted structural primary balance in percent of potential GDP is used. For SAU, non-oil primary balance in percent of non-oil GDP is used (not cyclically adjusted).

Key (stance)	
Neutral	
Moderately expansionary	
Substantially expansionary	
Moderately contractionary	
Substantially contractionary	

Key (difference)	
Unchanged: -0.1 ≤ Δ d(CAPB) ≤ 0.1 ppt. of potential GDP	
Moderately more expansionary: -0.5 ≤ Δ d(CAPB) < -0.1 ppt. of potential GDP	↑
Substantially more expansionary: Δ d(CAPB) < -0.5 ppt. of potential GDP	↑
Moderately more contractionary: 0.1 < Δ d(CAPB) ≤ 0.5 ppt. of potential GDP	↓
Substantially more contractionary: Δ d(CAPB) > 0.5 ppt. of potential GDP	↓

Table 3.1 Structural reform recommendations: Advanced economies

(Degree of priority according to consensus rating)

	AUS	CAN	FRA	DEU	ITA	JPN	KOR	ESP 1/	GBR	USA	EU 2/
Easing product market regulations											
Trade liberalization/facilitation											
Easing employment protection legislation											
Tax structure reform (increase share of consumption and property taxes in total tax revenues)											
Research and Development											
Reducing labor tax wedge											
Childcare spending or other reforms to increase female labor force participation											
Active labor market policies											
Reducing unemployment benefit replacement rate											

Sources: Based on a consensus assessment by IMF and OECD. Priorities are country specific and should not be compared across countries.
1/ ESP is a permanent invitee.

2/ Shown is the degree of priority based on the simple average of priorities for AUT, BEL, DEU, ESP, FRA, GBR, ITA, NLD, POL, and SWE. (The priorities for AUT, BEL, NLD, POL, and SWE are based on IMF ratings alone.) The IMF does not form recommendations for these countries as a group.

Key	
	High
	Medium
	Low

Table 3.2 Structural reform recommendations: Emerging markets

(Degree of priority according to consensus rating)

	ARG	BRA	CHN	IND	IDN	MEX	RUS	SAU	ZAF	TUR
Easing product market regulations										
Trade liberalization/facilitation										
Easing employment protection legislation										
Tax structure reform (increase share of consumption and property taxes in total tax revenues)										
Research and Development										
Reducing labor tax wedge										
Childcare spending or other reforms to increase female labor force participation										
Active labor market policies										
Reducing unemployment benefit replacement rate										

Sources: Based on a consensus assessment by IMF and OECD. Priorities are country specific and should not be compared across countries.
Note: For SAU, IMF rating is taken as the consensus rating. For CHN, corporate restructuring is also added as part of structural reforms.

Key	
	High
	Medium
	Low

B. ENSURE MORE BALANCED AND SUSTAINABLE GROWTH

17. **The recommended policy actions would not only lift the level of medium-term growth, but also make it more balanced.**

- *Fiscal policy*. Excess current account imbalances would be reduced with fiscal consolidation and gradual monetary policy normalization in excess deficit countries (*United Kingdom, United States*). Even in cases in which output gaps are closed, excess surplus countries could reduce their own imbalances by using fiscal space to lift medium-term growth—for example, by supporting investment in physical and digital infrastructure and by enhancing workforce skills (*Germany*) or by implementing active labor market policies to boost labor supply where adverse demographics threaten growth potential (*Korea*).
- *Structural measures*. In some countries, reforms should play a greater role in tackling excess external imbalances—for example, in *China*, where recommended fiscal consolidation will have the side-effect of slowing the desirable further reduction of external imbalances. In general, reforms that encourage investment and discourage excessive saving—for example, through product market reforms that removes entry barriers and stronger social safety nets—could help external rebalancing in excess surplus countries, while reforms that improve productivity and workers' skill base are appropriate in countries with excess external deficits (see below).[17]

18. **Lowering public debt burdens will reduce risks to the sovereign**. Accelerating the pace of fiscal consolidation while growth is still strong would help stabilize public debt more decisively in G-20 advanced economies with high debt levels (including *United States, France, Italy, Spain*), as well as in some emerging markets (*Brazil, South Africa*). Sound fiscal positions would also reduce the risk of a spike in debt servicing costs when financial conditions tighten.

19. **Additional work is required to strengthen financial resilience further**. The share of non-performing loans has fallen in most G-20 economies, banks have strengthened their capital and liquidity buffers, some forms of shadow banking that sprang up after the global crisis have been curtailed, and most emerging economies are maintaining adequate levels of international reserves (Figure A3.10). Financial vulnerabilities are elevated, however, while banks continue to be exposed to highly indebted non-financial and sovereign sectors. In the context of a continued deterioration in underwriting standards, addressing the build-up in corporate and bank leverage and improving credit quality are policy priorities in most countries. Success requires better corporate debt restructuring mechanisms, a faster recognition of non-performing assets, and stronger buffers in banks and non-bank financial intermediaries—for example, in the form of countercyclical capital requirements, liquidity requirements, and collateral requirements for lending. Vigilant monitoring of liquidity conditions is critical—their deterioration could contribute to sharp asset prices swings. New threats to financial stability from cybersecurity, fintech, and institutions outside the perimeter of prudential regulation require careful attention and analysis.[18]

[17] IMF, 2018, External Sector Report.

[18] IMF, October 2018, *Global Financial Stability Report*, Chapter 1.

C. POLICIES FOR HIGHER LONG-TERM AND INCLUSIVE GROWTH

20. **Structural reforms can foster sustained higher growth in the future, and the scope for more ambitious action is ample.** As of mid-2018, the implemented structural reform and infrastructure spending commitments made at the Brisbane, Antalya, Hangzhou, and Hamburg summits have fallen short of the original ambition to raise the level of G-20 GDP by an additional 2 percent between 2013 and the end of this year. Additional structural reforms are needed especially in advanced economies—as difficult as this can be politically—and the rollback of past measures should be avoided. At the same time, careful assessment of their distributional effects can help ensure that the benefits of reforms are widely shared. Specifically, the joint IMF-OECD assessment of structural reform needs (Tables 3.1 and 3.2) suggests that:

- *Advanced economies should prioritize measures to raise productivity and labor supply*. Most advanced G-20 economies would benefit from easing product market regulations, which could spur innovation and productivity and lower prices through stronger competition. Within this broader area, the case for easing access to professional services is key, especially in *France*, *Germany*, *Italy*, and *Japan*. Greater support for research and development is also instrumental for improving competitiveness, including for countries at the innovation frontier (e.g., *Canada*, *Germany*, *United Kingdom*). Adverse demographic trends continue to call for policies to boost labor supply in many advanced economies—for example, by raising female participation (*Germany, Japan, Korea, United States*) and more active and well-targeted use of active labor market policies (*euro area* countries, *Japan, Korea, United Kingdom*).
- *For emerging economies, productivity-enhancing reforms are key*. These include the easing of product market regulations (e.g. *Indonesia, Mexico, Russia, South Africa, Turkey*), labor market reforms (e.g. *Indonesia, South Africa, Turkey*), further trade integration (e.g. *Brazil, Indonesia*), and, in most countries, reforms to the tax structure. Among the larger G-20 emerging economies, *India* would benefit from further reforms facilitating trade and investment, modernizing labor regulations to increase formal employment and employment of women, and addressing infrastructure bottlenecks. *China* should accelerate its rebalancing efforts, allow market forces to play a more decisive role, and accelerate the opening up of its trade and foreign investment regime. For *commodity exporters*, the priority is to continue diversifying their economies to adapt to lower prices.

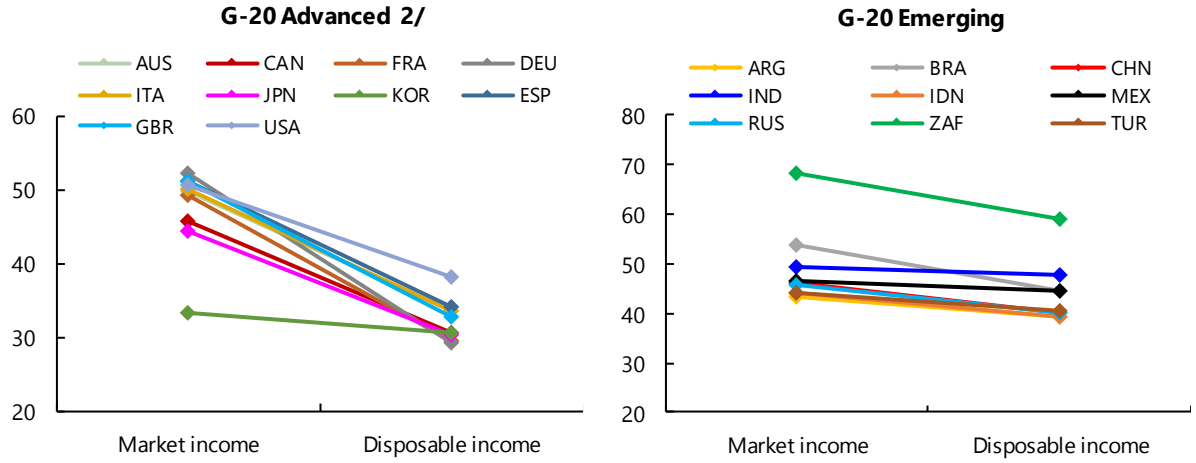
21. **Ensuring that higher growth is more widely shared will require further efforts.** A variety of policy tools can be deployed, with the scope of their use differing across countries—depending on existing institutional frameworks, fiscal space, and social preferences. In general, while there may be tradeoffs between growth and redistribution, these can be mitigated—for example, by designing the tax-benefit systems to minimize labor supply distortions and focusing on policies that both support higher growth and reduce inequality, such as public investments in infrastructure, spending on education and health, and social insurance provision.[19] In addition, social safety nets and pension

[19] IMF, Fiscal Monitor 2017; and Ostry, J., A. Berg, and C. Tsangarides, 2014, Redistribution, Inequality, and Growth, IMF Staff Discussion Note 14/02.

insurance system should adjust to increasing cross-country mobility and more fragmented work careers in order to both ensure the gains from new technologies are equally shared and to respond to pre-existing trends such as aging and lengthening working lives.

22. **Redistributive fiscal policies are a key instrument**. Tax and benefit systems are already widely used to mitigate unwanted inequality of market outcomes (Figure 15), and their effectiveness can be further improved, for example, through designing more progressive tax systems and lower tax expenditures. In emerging economies, revenue mobilization and refined targeted cash transfer systems for the poor can be an effective means of reducing inequality.

Figure 15. Inequality reduction through tax and transfer systems (2016) 1/
(Gini coefficient)



Source: Solt, F., 2016, The Standardized World Income Inequality Database, Social Science Quarterly 97, SWIID Version 7.1, August 2018.
1/ Data for ARG, BRA, CHN, DEU, FRA, ITA, and ZAF is from 2015; AUS and JPN from 2014; IND from 2012.
2/ ESP is a permanent invitee.

23. **In addition, targeted policies to improve access to economic opportunities can increase inclusiveness and boost long-term productivity and growth.** This is particularly relevant in the context of the advance of new technologies, which hold the promise of accelerating productivity and GDP growth at the aggregate level but also threaten to increase skill-mismatches and add to inequality by benefiting those with higher skills more than others.[20] In particular:

- *Education*. Ensuring access to and improving the quality of primary and secondary education, expanding tertiary education, use of selected active labor market policies, and lifelong learning are among the particularly powerful tools to reduce skill-mismatches and improve individual job outcomes, especially in the context of ongoing skill-based technological change. To accommodate higher spending needs, potential efficiency gains in education should be realized, and where taxes need to rise to finance higher spending, their impact on growth and the income distribution should be assessed.

[20] IMF, 2018, G-20 Note: Future of Work: Measurement and Policy Challenges; IMF, 2017, G-20 Note: Fostering Inclusive Growth. For a broader discussion of policy options in the context of the future of work see: G20 Framework Working Group, 2018, G-20 Menu of Policy Options for the Future of Work.

- *Health*. Improved access to health services for disadvantaged individuals increases their productivity and ultimately contributes to stronger growth. Reforms to health insurance systems to improve flexibility and coverage of workers can promote labor mobility and improve productivity.
- *Financial inclusion*. Financial inclusion can be fostered by ensuring adequate legal and regulatory frameworks, supporting information sharing, and educating and protecting consumers while strengthening risk-based supervision. Governments can also create incentives for low-income households to save through the tax system, for example through tax-exempt (or deferred) education and retirement savings accounts, which can reduce wealth inequality in the long term.
- *Removing gender barriers*. Inequality of opportunities can be alleviated by promoting women's participation in the workforce—for example, through flexible work arrangements and affordable childcare provision—and equal rights for women in property ownership and inheritance.

D. THERE IS ROOM TO INCREASE MULTILATERAL COOPERATION

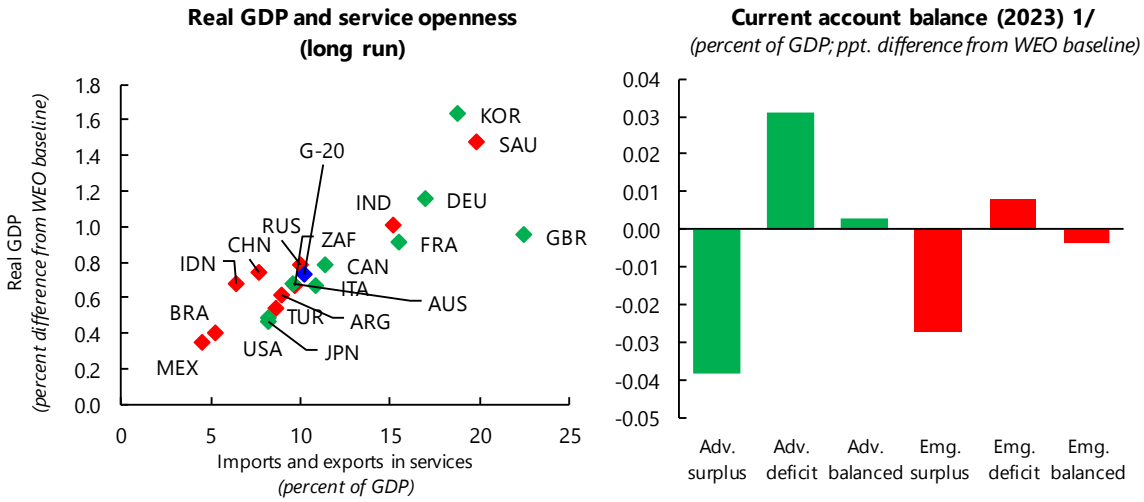
24. **Efforts to increase multilateral cooperation are critical, especially on trade issues.** The global economy relies on an open, fair, and rules-based international trading system, whose modernization should continue.[21] The *United States* should work constructively with its global trading partners to end ongoing tensions and to resolve trade and investment disagreements, while its trading partners should avoid further escalation. The unilateral imposition of tariff and non-tariff barriers would ultimately lower global output. Where global trade rules have not kept pace with the evolution of the global economy, a modernization of the rules-based multilateral system can promote competition and trade.

25. **An example of an area where further progress is possible is services trade**. Progress in reducing barriers to trade in services has been slow relative to trade in goods. For example, there are estimates that between 1995 and 2007, average global trade costs for goods fell by about 15 percent while average trade cost for services slightly increased.[22] While reducing barriers to services trade will be a complex endeavor—for example, because it involves both direct obstacles and behind-the-border distortions—a simple illustration of its possible macroeconomic effects can be instructive. Based on a simulation using the IMF's Global Integrated Monetary and Fiscal Model (GIMF) suggests that reducing trading costs for services by 15 percent would increase G-20 GDP by about ½ percent over the longer term, with those countries with high shares of services in their trade benefitting the most. For example, in the United States—where imports and exports of services represent about 8 percent of GDP—the level of GDP would increase by roughly ½ percent, whereas in Germany—were the same share is roughly 16 percent—the long-run increase in GDP is over 1 percent (Figure 16). The simulation also suggests that cutting the barriers to service trade could also make a—albeit quantitatively very small—contribution to reducing global external imbalances in the medium term.

[21] IMF, 2016, G-20 Note: Reinvigorating Trade to Support Growth: A Path Forward; IMF, World Bank Group, and WTO, [2018], Reinvigorating Trade and Inclusive Growth.

[22] Miroudot, S., J. Sauvage, and B. Sheperd, 2013, Measuring the Cost of International Trade in Services, *World Trade Review*, 14(4), 719-735.

Figure 16. Simluations: Impact of reduction in tariffs on services



Sources: IMF, GIMF Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Country groups are based on 2018 ESR's excess imbalances definition. Note that emerging surplus group consists only of China. See footnote 1 in the main text.

26. **Joint efforts are also required to complete financial regulatory reforms and strengthen the financial safety net.**

- *Any indiscriminate rollback of financial regulation should be avoided*. More progress is needed on insurance regulation, cross-border bank resolution, and central counterparties clearing for derivatives. Information sharing across border will aid efforts against international money laundering and the threat of cyber-attacks to the global financial system.
- *Strengthening the global financial safety net will help build buffers for the future.* In the face of greater financial vulnerabilities, coordination across different aspects of the safety net should be improved to ensure timely provision of resources. Swap lines between central banks should be maintained to make available foreign exchange liquidity during times of systemic financial stress. Regional financing agreements and IMF support can complement central banks' efforts to secure external buffers.

BETTER NOW THAN LATER

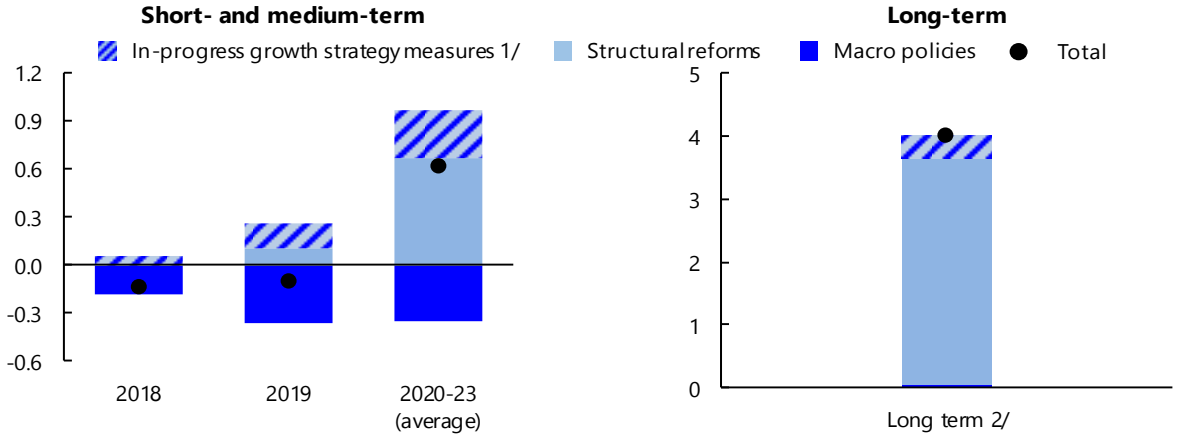
Model simulations show that joint G-20 policy action based on Article IV recommendations would deliver gains along most dimensions of the strong, sustainable, balanced, and inclusive growth (SSBIG) goals. While efforts to rebuild policy buffers would carry output costs in the short term, this price is worth paying—especially in the current environment of generally satisfactory growth—to prevent current procyclical policies or delayed adjustment from derailing growth later on, when doubts about sustainability mount and push up sovereign premia. Over the medium and longer-term, structural reforms can significantly raise the level of global GDP. More balanced growth would also result as excess external imbalances moderate, especially in advanced economies, and as public debt burdens decline in G-20 members with limited fiscal space.

27. **Simulations using the IMF's G-20 model show that implementation of the main macroeconomic and structural policy recommendations would aid progress achieving many of the G-20's SSBIG objectives.** To that end, the recommendations laid out in Tables 1-3 are translated into changes in countries' monetary and fiscal stances and structural policy reforms relative to the baseline forecast of the October 2018 WEO. The approach is based on broad categories of action. For example, a recommendation anchored in the IMF's Article IV advice to steer fiscal or monetary policy in a moderately/substantially more expansionary/contractionary direction is modeled as a change in the cyclically adjusted primary balance or the nominal policy rate, respectively. The analysis assumes these changes to be of the same magnitude for any country in this category. Similarly, the structural reform priorities agreed by the IMF and OECD are modeled as improvements in quantifiable indicators of structural reform, based on historical magnitudes of actions.[23]

28. **The results indicate that global output will be lower in the short run, as G-20 economies build policy buffers in a period of relatively strong growth.** During 2018-19, as countries gradually withdraw demand support and embark on fiscal consolidation to rebuild policy space, output is lower relative to the WEO baseline (Figure 17). Most of the impact comes from recommended tighter macroeconomic policies, with structural reform measures mitigating some of the compression in output starting in 2019. In advanced economies, the recommended fiscal consolidation is particularly large for the *United States* (Figure 18). Indeed, the reversal of the procyclical fiscal stance in the *United States* explains a large part of the impact on global output in the near term. Fiscal and monetary tightening in emerging economies—in the context of recent financial market volatility—would also contribute to lower output in the short-term. Consistent with slower growth, core inflation would be lower in emerging economies, helping to bring inflation toward targets in several cases (*India, Turkey*).

[23] Annex 3 provides further details, and detailed simulation results by country groups are available in Annex 4 (Figures A6.1-A6.9). Results for China are shown separately to facilitate the exposition. China's ongoing rebalancing implies a different trajectory from other G-20 emerging markets, and the IMF 2018 External Sector Report classifies China as the only emerging market surplus economy.

Figure 17. Real GDP: Aggregate
(percent difference from WEO baseline)



Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Supply effects only. Demand effects of growth strategies' infrastructure investment commitments are included in the fiscal part of the macro policy layer.
2/ Measured as of 2029.

29. **Over the medium and long term, the recommended policies could increase the level G-20 GDP by close to 4 percent** (see Figure 17). This is mainly the result of higher productivity due to structural reforms—especially, changes in product and labor market regulations, improvements in competition, and better tax structures—and the continued implementation of the G-20 members' growth strategies. However, fiscal policy also plays a role. Gradual improvements in cyclically adjusted primary balances in 2018-23 lead to a lasting reduction of sovereign debt levels relative to the WEO baseline (Figures A6.7 and A6.8), with the associated reduction in global long-term real interest rates. This lifts private investment and consumption, reversing the initial impact of macroeconomic policies on output. In addition, it will help prevent current procyclical policies or delayed adjustment from increasing sovereign premia or triggering more abrupt adjustments later on. In the case of the *United States*, the expected reduction in GDP relative to the baseline reflects the recommended sustained fiscal restraint relative to the baseline, which offsets the positive effect on output of structural reforms implemented at the same time.[24]

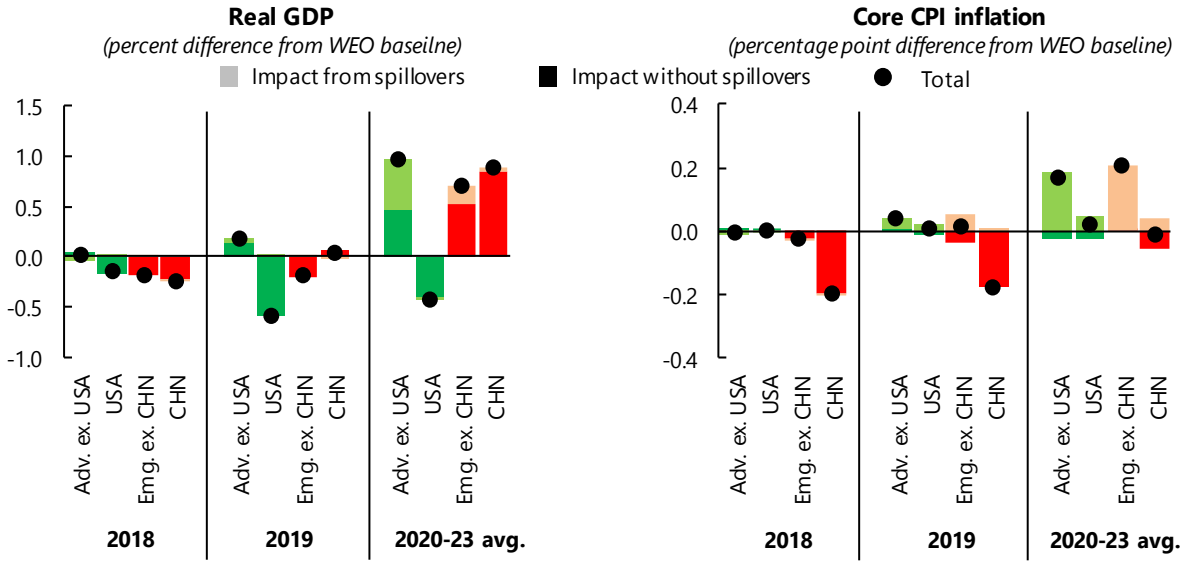
30. **The benefits of joint action are most apparent in the medium term** (see Figure 18). The reduction in global long-term interest rates stimulates domestic demand, largely offsetting the negative impact from the fall in external demand triggered by fiscal tightening, limiting the amount of negative spillovers in the short term, and even creating small positive spillovers as the consolidation efforts are phased out and debt levels stabilize at their lower levels in the medium term.[25] At longer time horizons, the joint implementation of recommended structural reforms across most G-20

[24] In the long term, the GDP impact of the recommended fiscal consolidation depends on the use of the resulting debt-service savings. Deploying these savings to gradually unwind the fiscal tightening required to reduce debt levels rather than simply returning the savings to households via transfers lifts GDP—by about 1.2 percentage points in the case of the United States, and by about 0.4 percentage for the G-20 average.

[25] In general, fiscal spillovers tend to be lower when they originate in economies with closed output gaps and monetary policy in recipient economies is not bound by the effective lower bound—see IMF, October 2017, *World Economic Outlook*, Chapter 4: Cross-Border Impacts of Fiscal Policy: Still Relevant?

economies is also a source of positive spillovers, especially on countries that are more open to trade and away from the technology frontier.[26] This effect reflects direct positive productivity spillovers—through trade, foreign investment, and the knowledge sharing through patents[27]—as well as indirect channels as the increase in income leads to higher consumption and imports. For emerging economies, positive spillover effects take longer to materialize, due to the negative impact of global fiscal consolidation on commodity prices and relatively lower spillovers from structural reforms, which depend on trade linkages.

Figure 18. Real GDP and core CPI inflation



Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.

31. **Recommended policies not only result in stronger medium-term growth, but also in more balanced growth.** In particular:

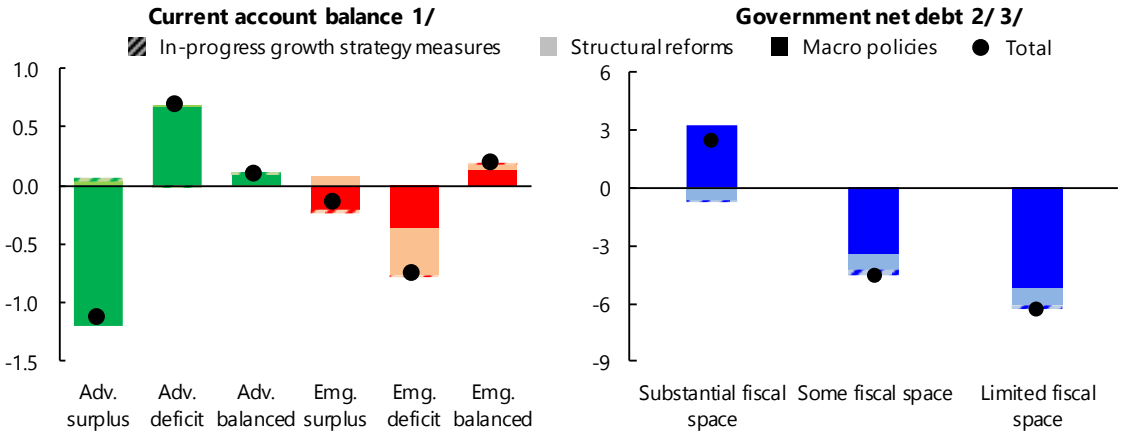
- *Excess external imbalances moderate, especially in advanced economies.* Compared to the baseline, the medium-term current account balances would fall in excess surplus advanced economies and rise in excess deficit advanced economies (Figure 19). The effects of policies on excess external imbalances in emerging economies are more complex. Among the excess deficit emerging economies, the current account balance improves in *Turkey* as the recommended policy tightening compresses output relative to the baseline, but it deteriorates further in commodity exporters (e.g., *Russia*, *South Africa),* as a result of lower prices and a somewhat milder fiscal consolidation.

[26] Spillovers are defined as the difference between the sum of individual countries' outcomes when each country acts alone and the sum of the individual country outcomes when all countries act together.

[27] IMF, April 2018, *World Economic Outlook*, Chapter 4: Is Productivity Growth Shared in a Globalized Economy?

- *Public debt burdens decline in countries with limited fiscal space.* Medium-term public debt is lower relative to the baseline in these economies, reflecting the recommendation for faster fiscal consolidation and higher GDP levels in the medium term. Public debt is moderately higher than in the baseline in economies with substantial fiscal space, reflecting the use of this space to enhance potential growth (see Figure 19).

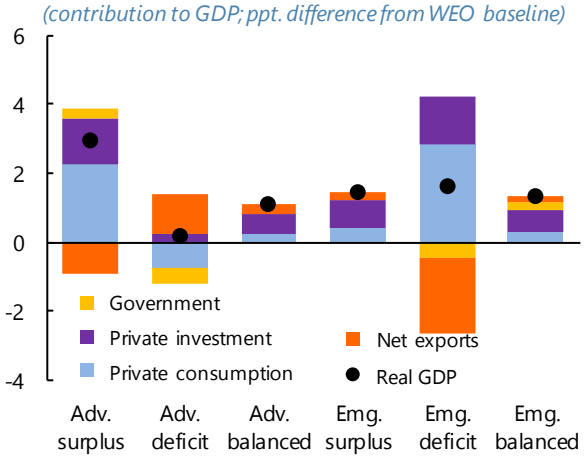
Figure 19. Current account balance and government net debt (2023)
(percent of GDP; percentage point difference from WEO baseline)



Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Country groups are based on 2018 ESR's excess imbalances definition. Note that emerging surplus group consists only of China. See footnote 1 in the main text.
2/ For most countries, a decrease in government net debt corresponds to a reduction in gross debt; for some, it corresponds to an increase in government assets.
3/ The simulations assume that the impact from structural reforms works mostly through the denominator of the government debt-to-GDP ratio by increasing the GDP level.

- *The composition of demand becomes more balanced.* Most of the rise in output in advanced and emerging countries stems from private consumption and investment, as fiscal policy generally contracts and government debt burdens fall (Figure 20). In advanced deficit countries, net exports rise relative to the baseline to help rebalancing, while in advanced surplus countries net exports fall as expansionary fiscal policy boosts domestic demand. Emerging deficit countries, however, see a fall in net exports driven by weaker terms of trade.

Figure 20. Demand side decomposition (2023)
(contribution to GDP; ppt. difference from WEO baseline)



Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
Note: Country groups are based on 2018 ESR's excess imbalances definition. Note that emerging surplus group consists only of China. See footnote 1 in the main text.

Annex I. Strong, Sustainable, Balanced, and Inclusive Growth: Concepts and Measurement

The elements of SSBG are broadly operationalized as described below. There are, however, important areas of overlap between the individual aspects of growth. For example, the sustainability of growth will ultimately require that growth is also balanced, and vice versa. The main text provides some discussion how the different aspects of SSBG interact.

- *Strong growth*. The term refers to short-term, cyclical growth. It is measured by the GDP growth rate and the output gap. Inflation (in level and in deviation from the inflation target, if applicable) is another relevant indicator.

- *Sustainable growth*. This term refers to long-term growth, measured by the rate of potential growth, total factor productivity growth, and labor productivity growth. Another dimension of sustainability is balanced growth (see below). The report does not cover other aspects of sustainability, such as the repercussions of climate change.

- *Balanced growth*. This term refers to the composition of growth (domestic demand vs. external demand) and avoidance of build-up of external and domestic imbalances. *External excess imbalances* are derived from the IMF's annual External Sector Report, which provide estimates of the extent to which current accounts and real exchange rates differ from those warranted by fundamentals and desired policies, while taking into account reserve coverage and international investment position indicators. Indicators of *domestic private imbalances* include (non-financial) private sector debt, the debt service ratio for the private non-financial sector, and asset quality ratios; while *domestic public imbalances* can be measured by general government gross debt.[1]

- *Inclusive growth*. Inclusive growth is achieved by reducing inequalities in *outcomes* and in *opportunities*. To measure inequality in outcomes, the Gini coefficient and the ratio of the bottom to top income deciles (that is, the average income of the lowest 10 percent of earners and the top 10 percent of earners) are used. The Gini coefficient captures inequality of outcomes in the broadest sense but is highly sensitive to changes in the middle of the income distribution, and less to changes in the tails. Hence, the second measure can capture changes in the extreme ends of the income distribution. Inequality in opportunities is illustrated using indicators of access to education and health, e.g. public expenditure on education and health as a percent of GDP. These factors can improve equality of opportunity and public expenditure on them can be an indicative measure of quality and access.

[1] Additional information is provided by the G-20's "Indicative Guidelines," a specific methodology assessing a set of indicators mechanically, without normative implications, against reference values to identify members with large imbalances that would have called for additional analysis under the sustainability updates. (See Annex V).

Annex II. Policies: Definitions and Measurement

Depending on the policy area, different indicators are used to approximate the current stance and measure recommended policy efforts.

- *Fiscal policy*. Fiscal policy is described as the change in the cyclically adjusted primary balance (CAPB) as a percent of potential GDP (Figures A4.2-A4.4). Policy recommendations are expressed as deviations from the expected path of the change in the CAPB in the WEO baseline.

- *Monetary policy*. Monetary policy is described as the difference between the real policy interest rate and approximations/estimates of the (unobservable) real natural interest rate. (See Figure A4.1 and Annex III, which discusses various approaches to estimate this interest rate gap, along with a discussion of their caveats.) Given the uncertainty surrounding these measures, the expected baseline path is based on IMF desks' assessments and policy recommendations are expressed as deviations from this path.

- *Structural reforms*. The policy areas considered are those for which there are quantifiable indicators of structural reform, namely product market regulation, trade liberalization, employment protection legislation, tax structure reform (direct vs. indirect taxes), R&D spending, labor tax wedge, childcare spending (or other reforms to increase female labor force participation), active labor market policies, and unemployment benefit replacement rates. While this set of indicators captures key structural reform needs, it does not necessarily provide a complete description of the structural reform agenda for every country. Policy recommendations are expressed in terms of reform priorities.

Annex III. Simulations of Policy Advice

The impact of policy action along the recommendations summarized in the previous section (see Tables 1–3) on the G-20 SSBG goal is illustrated using the IMF's G-20 model.[1] The model evaluates the economic impact of a change in policies relative to those projected under the current WEO baseline forecast in a dynamic general equilibrium setting. The specific policies are quantified as follows:

- *Fiscal policy*. A moderately more contractionary (expansionary) fiscal policy corresponds to a positive (negative) difference between the recommended and baseline changes (not levels) in the CAPB of about ¼ percentage point of GDP; a substantially more contractionary (expansionary) fiscal policy is modelled as a positive (negative) difference of about ¾ percentage point of GDP.

- *Monetary policy*. A moderately more contractionary (expansionary) monetary stance is assumed to correspond to a 75-basis point increase (decline) in the policy rate relative to the baseline; substantially more contractionary (expansionary) is assumed to correspond to a 150-basis point increase (decline).

- *Structural reforms*. While reforms already undertaken as part of growth strategy commitments are reflected in the baseline scenario, the recommendations for additional structural reforms considered here include still in-progress growth strategy measures (assumed to be implemented over the next 5 years) and additional recommendations (beyond authorities' reform plans) reflecting the consensus assessment of the IMF and the OECD ("structural reforms," gradually implemented over 10 years starting in 2019).[2] For the latter, the magnitude of changes in the structural reform indicators is based on historical episodes of major reforms, with the speed of implementation more closely aligned with behavior exhibited by G-20 countries in the implementation of their growth strategies so far. Specifically, "high" priority reforms are implemented as ¾ of the historical magnitude of major reforms, "medium" priority reforms as ½ of the historical magnitude, and "low" priority reforms as ⅓ of the historical magnitude. The quantitative evaluation of the impact of structural reforms on productivity and labor markets is based on a series of OECD analytical papers.[3]

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[1] Andrle, M., P. Blagrave, P. Espaillat, K. Honjo, B. Hunt, M. Kortelainen, R. Lalonde, D. Laxton, E. Mavroeidi, D. Muir, S. Mursula, and S. Snudden, 2015, The Flexible System of Global Models – FSGM, IMF Working Paper 15/64.

[2] The in-progress growth strategy measures include both structural reforms and supply-side effects of infrastructure investments included in the growth strategies, while additional structural reform recommendations of the IMF and OECD only encompass structural reforms. IMF and OECD recommendations are based on priority levels for additional reforms (relative to reforms already incorporated in the baseline), aggregated based on a simple rule—for example, a "high" priority rating required that both IMF and OECD desks found reforms in a certain area to be very urgent. In a few cases, desks engaged in a direct exchange to ensure both institutions were in agreement with the final priority rating.

[3] For example: Egert, B. and P. Gal, 2017, The Quantification of Structural Reforms in OECD Countries: A New Framework, OECD Economics Department Working Paper No. 1354; Bouis, R. and R. Duval, 2011, Raising Potential Growth After the Crisis: A Quantitative Assessment of the Potential Gains from Various Structural Reforms in the OECD Area and Beyond, OECD Economics Department Working Papers No. 835.

Annex IV. Diagnostic Charts

The Annex presents comprehensive statistics on (*i*) the strength of growth (GDP growth; output gap; inflation), (*ii*) the sustainability of growth (potential output growth; productivity growth), (*iii*) balanced growth (external balance; private and public debt), and (*iv*) inclusive growth (indicators of inequality in outcomes and opportunities—see below). In addition, it provides information on (*iv*) macroeconomic policy stances. The main data source is the WEO database, complemented with other sources where needed, as specified in footnotes to the charts. Aggregates include European Union unless otherwise specified.

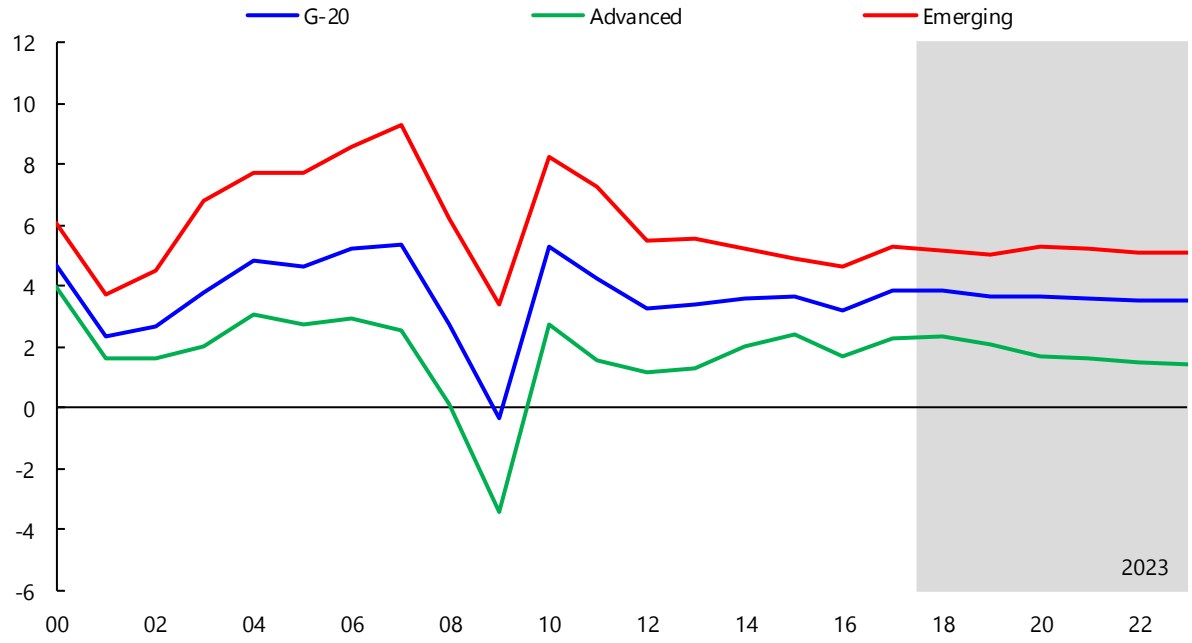
Qualification of size of gaps and stances. The charts provide some sense of the size of the output/inflation gaps and fiscal policy stance by showing the standard deviation of historical realizations across G-20 member countries, differentiated by advanced economies/ emerging economies where helpful. Shadings in the charts indicate the following ranges: within ½ standard deviation from 0; within ½ and 1 standard deviation from 0; and outside the 1 standard deviation interval.

Illustration of measurement uncertainty. For potential output, the output gap and change in CAPB, the main WEO measure is complemented with two alternative estimates to illustrate measurement uncertainty: one measure where potential output is derived from a simple HP filter; and another measure based on consensus forecasts estimates of 1-, 2- and 5-year ahead growth rates. In turn, the alternative potential output and output gaps imply a different estimate of the change in the CAPB. For the monetary policy stance, given that the natural rate is not observable, it is approximated by two alternative measures, namely the potential growth rate from WEO and estimates from a semi-structural model.

1. STRONG GROWTH

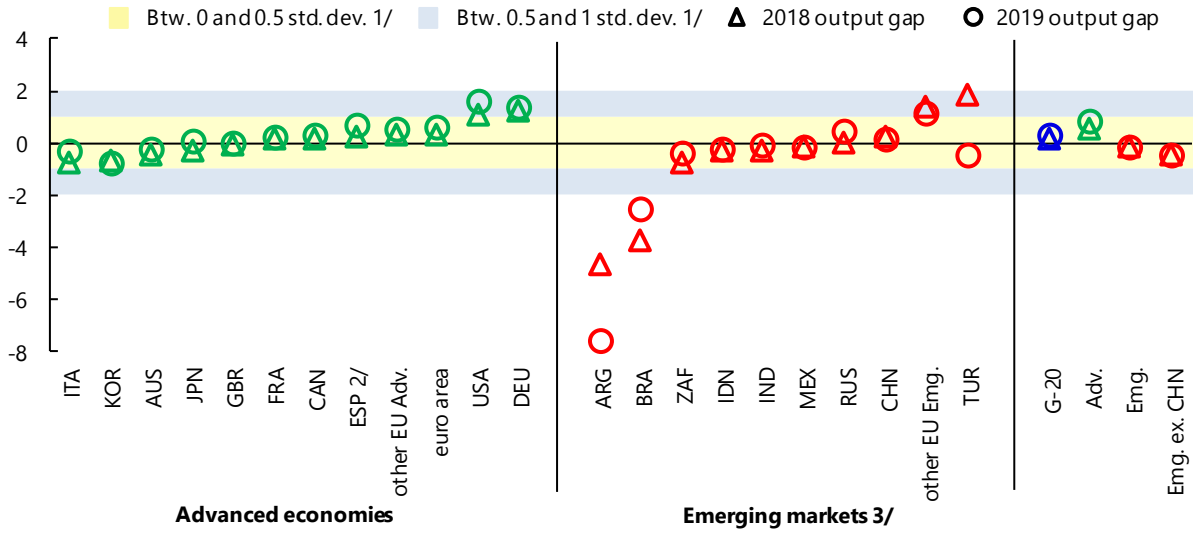
Growth and Output Gap

Figure A1.1 Real GDP growth
(percent; ppp-weighted)



Sources: IMF, *World Economic Outlook* October 2018; and IMF staff calculations.

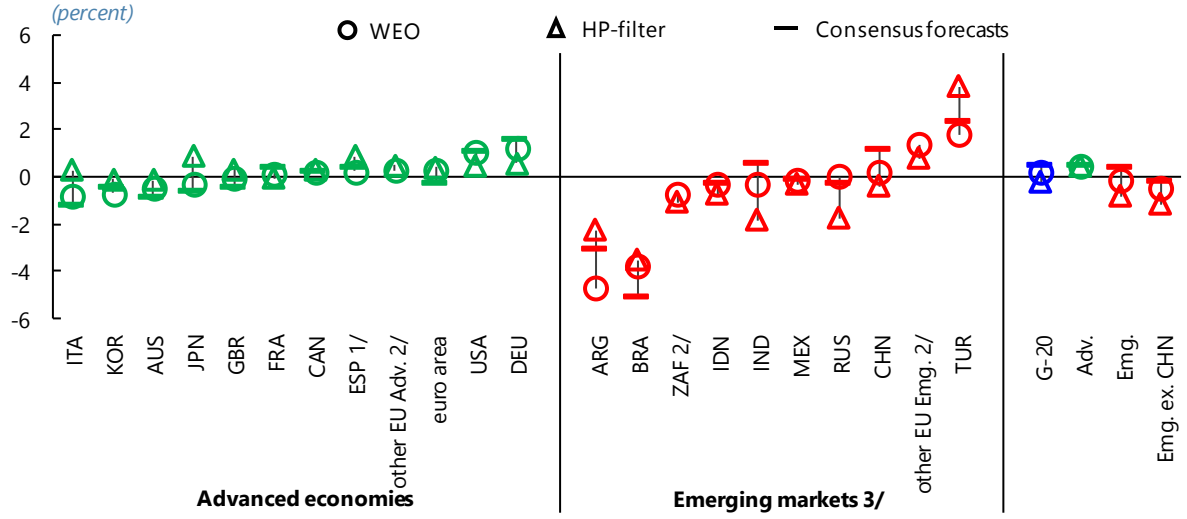
Figure A1.2 WEO output gap estimate, 2018 & 2019
(percent of potential GDP)



Sources: IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Standard deviations are calculated from 1990 to 2016, excluding outliers above 99% and below 1% for each income group.
2/ ESP is a permanent invitee.
3/ For SAU, output gap estimates for 2018 and 2019 are not available.

Figure A1.3 Different measures of output gap, 2018

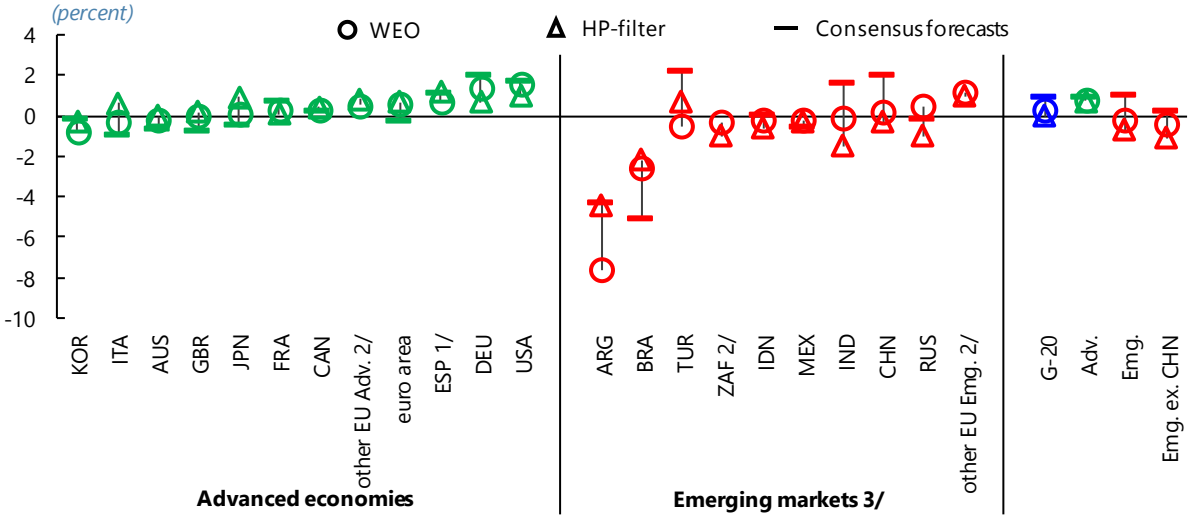
(percent)



Sources: IMF, *World Economic Outlook* October 2018; Consensus Forecasts; and IMF staff calculations.
Note: Output gap estimate based on Consensus forecasts uses real GDP and potential GDP levels, projected based on 1, 2 and 5-year ahead growth rates from Consensus Economics.
1/ ESP is a permanent invitee.
2/ 5-year ahead Consensus data are unavailable to calculate output gap estimates based on Consensus forecasts. For other EU Adv. and Emg., data are unavailable for about 40 percent of the countries.
3/ For SAU, output gap, HP-filter estimate, and 5-year ahead Consensus Forecast data are not available.

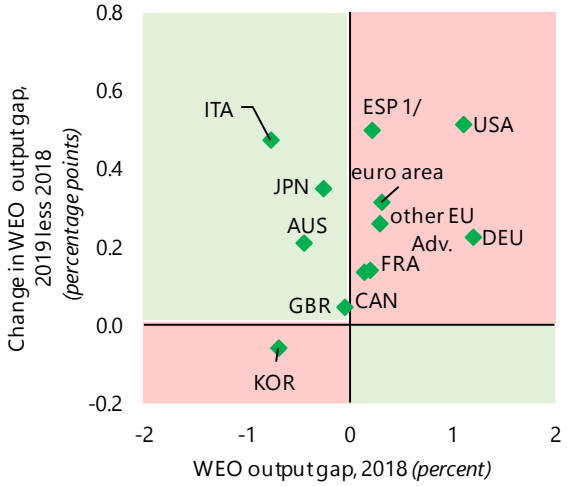
Figure A1.4 Different measures of output gap, 2019

(percent)



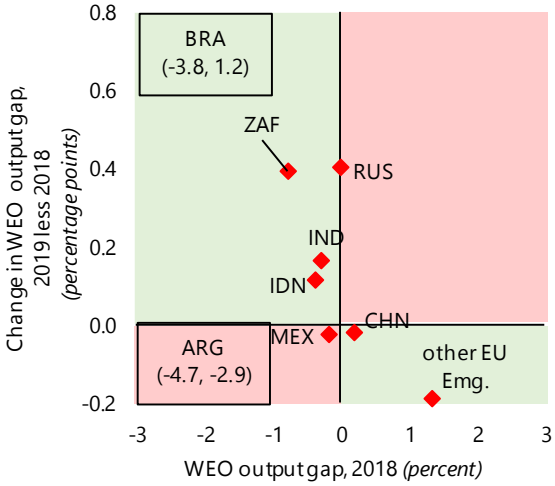
Sources: IMF, *World Economic Outlook* October 2018; Consensus Forecasts; and IMF staff calculations.
Note: Output gap estimate based on Consensus forecasts uses real GDP and potential GDP levels, projected based on 1, 2 and 5-year ahead growth rates from Consensus Economics.
1/ ESP is a permanent invitee.
2/ 5-year ahead Consensus data are unavailable to calculate output gap estimates based on Consensus forecasts. For other EU Adv. and Emg., data are unavailable for about 40 percent of the countries.
3/ For SAU, output gap, HP-filter estimate, and 5-year ahead Consensus Forecast data are not available.

Figure A1.5 Output gap and change in output gap: Advanced economies



Sources: IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ ESP is a permanent invitee.

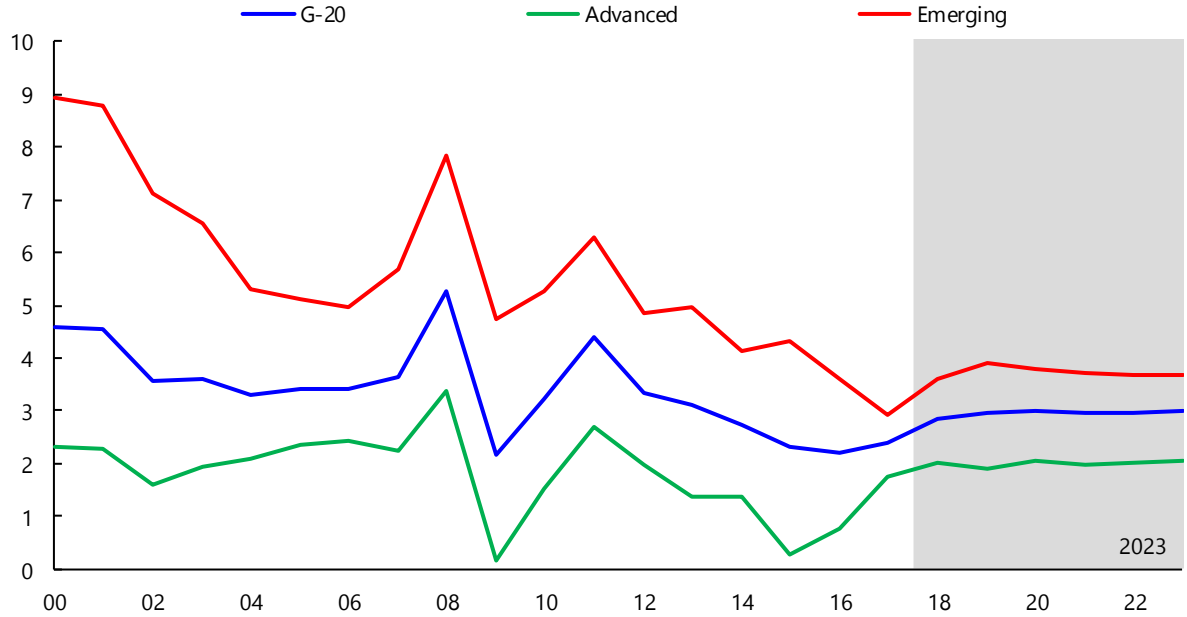
Figure A1.6 Output gap and change in output gap: Emerging markets 1/



Sources: IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ SAU's output gap estimates for 2018 and 2019 are not available.

Inflation

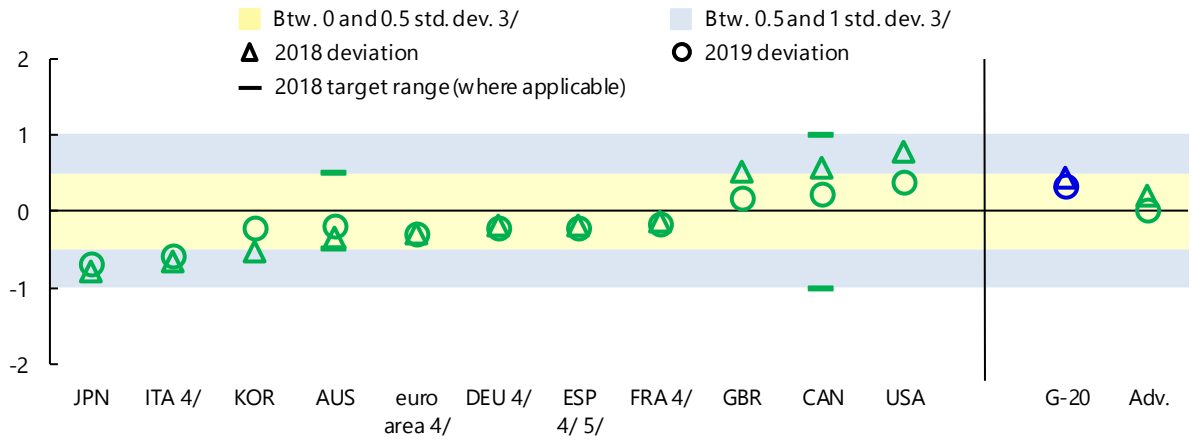
Figure A1.7 CPI inflation 1/
(percent; ppp-weighted)



Sources: IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ ARG is not included due to data limitations.

Figure A1.8 Deviation from inflation target: Advanced economies 1/ 2/

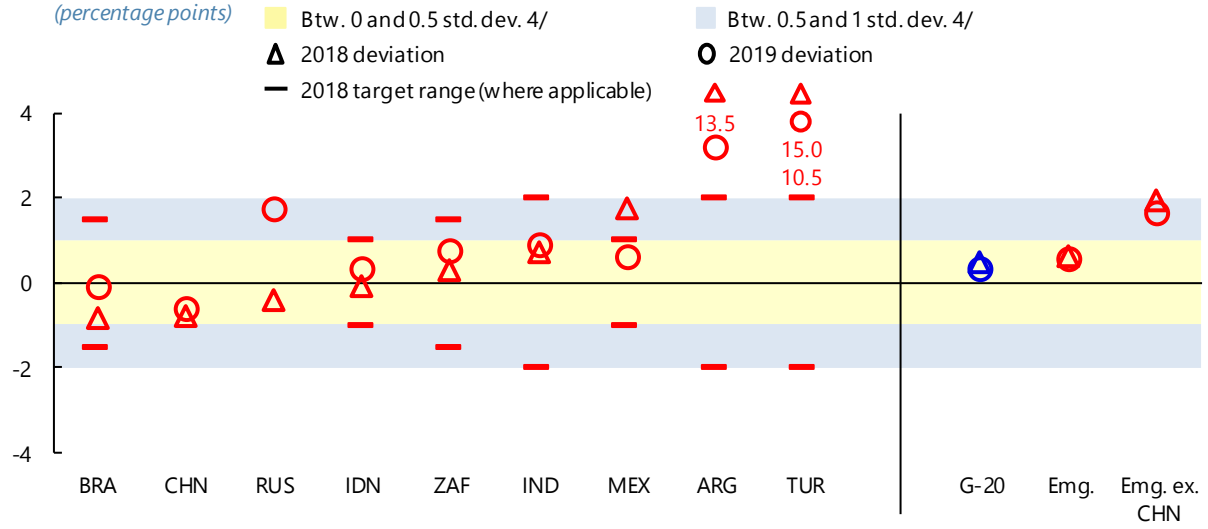
(percentage points)



Sources: IMF, *World Economic Outlook* October 2018; National Central Banks; and IMF staff calculations.
1/ Inflation and target range are in deviations from the mid-point for countries that have a target range.
2/ For calculating deviations, PCE inflation projections have been used for USA and period-average CPI inflation for all other countries.
3/ Standard deviations are calculated from 2007 to 2016, excluding outliers above 95% and below 5% for each income group.
4/ The European Central Bank (ECB) targets the Harmonized Index of Consumer Prices as a medium-term objective for the euro area as a whole. For presentational purposes, the ECB objective is also used for individual euro area members.
5/ ESP is a permanent invitee.

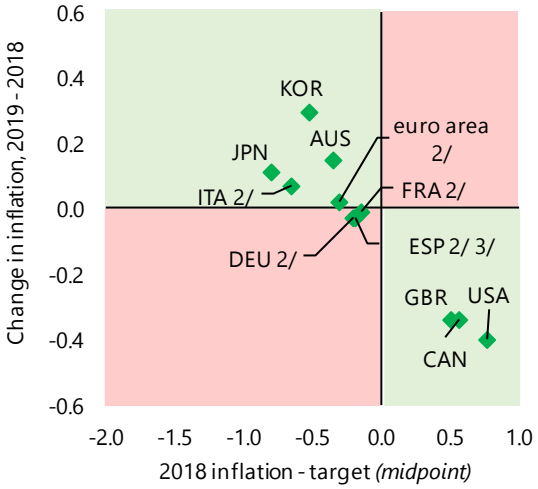
Figure A1.9 Deviation from inflation target: Emerging markets 1/ 2/ 3/

(percentage points)



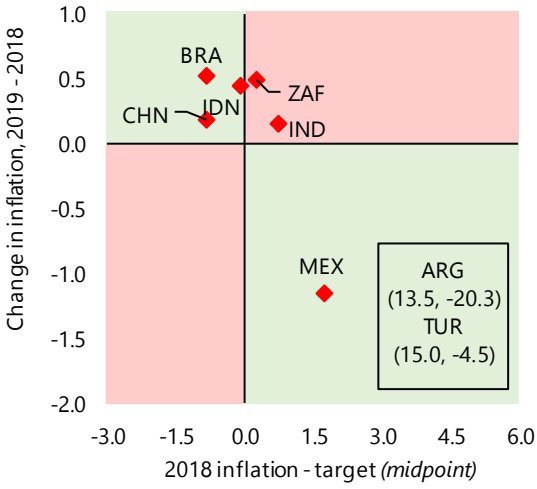
Sources: IMF, *World Economic Outlook* October 2018; National Central Banks; and IMF staff calculations.
1/ Inflation and target range are in deviations from the mid-point for countries that have a target range.
2/ For calculating deviations, end-of-period CPI inflation has been used for ARG, TUR, RUS, and period-average CPI inflation for all other countries.
3/ SAU does not have an inflation target. SAU's CPI inflation is projected to be 2.6 percent in 2018 and 2 percent in 2019.
4/ Standard deviations are calculated from 2007 to 2016, excluding outliers above 95% and below 5% for each income group.

Figure A1.10 Change in annual inflation and deviation from inflation target: Advanced 1/
(percentage points)



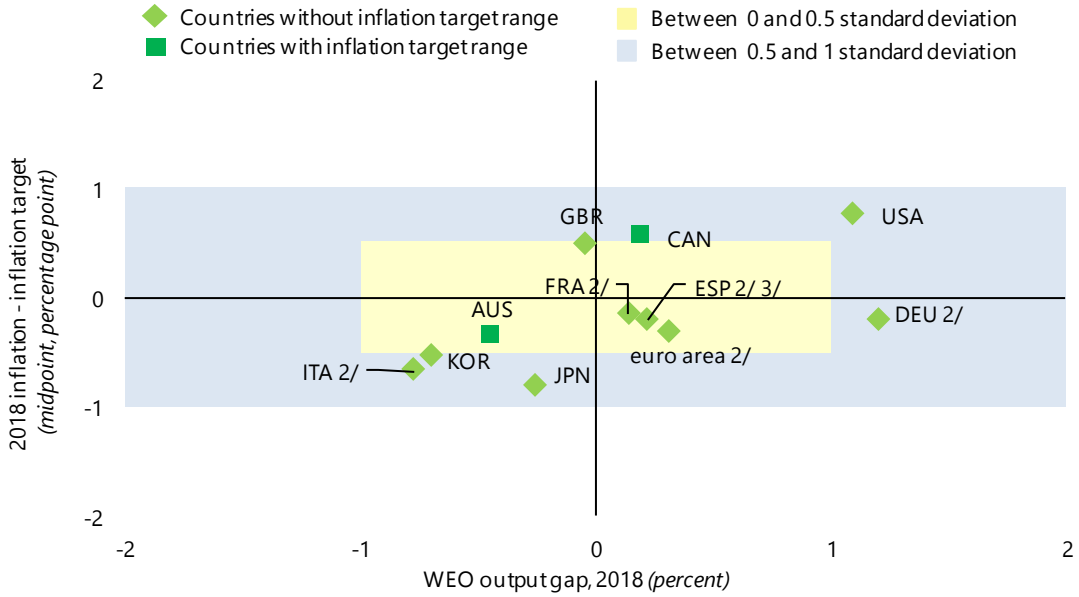
Sources: IMF, *World Economic Outlook* October 2018; National Central Banks; and IMF staff calculations.
1/ PCE inflation projections have been used for USA and period-average CPI for all other countries.
2/ The European Central Bank (ECB) targets the Harmonized Index of Consumer Prices as a medium-term objective for the euro area as a whole. For presentational purposes, the ECB objective is also used for individual euro area members.
3/ ESP is a permanent invitee.

Figure A1.11 Change in annual inflation and deviation from inflation target: Emerging 1/ 2/
(percentage points)



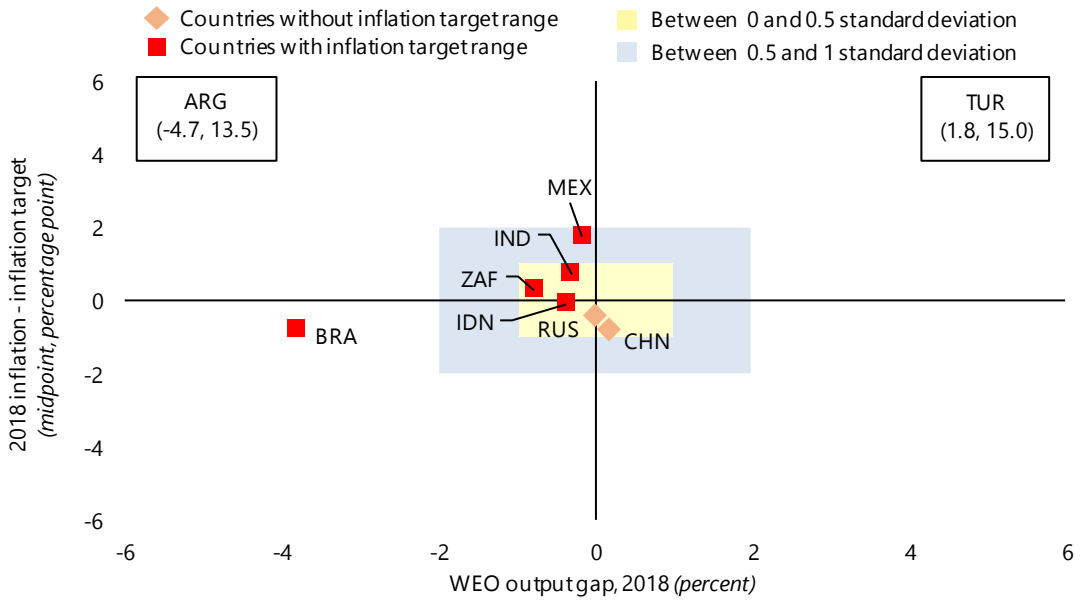
Sources: IMF, *World Economic Outlook* October 2018; National Central Banks; and IMF staff calculations.
1/ End-of-period CPI inflation has been used for ARG, TUR, RUS, and period-average CPI for all other countries.
2/ SAU does not have an inflation target. SAU's CPI inflation is projected to be 2.6 percent in 2018 and 2 percent in 2019.

Figure A1.12 WEO output gap and deviation from inflation target: Advanced economies 1/



Sources: IMF, *World Economic Outlook* October 2018; National Central Banks; and IMF staff calculations.
1/ PCE inflation projection has been used for USA and period-average CPI for all other countries.
2/ The European Central Bank (ECB) targets the Harmonized Index of Consumer Prices as a medium-term objective for the euro area as a whole. For presentational purposes, the ECB objective is also used for individual euro area members.
3/ ESP is a permanent invitee.

Figure A1.13 WEO output gap and deviation from inflation target: Emerging markets 1/ 2/

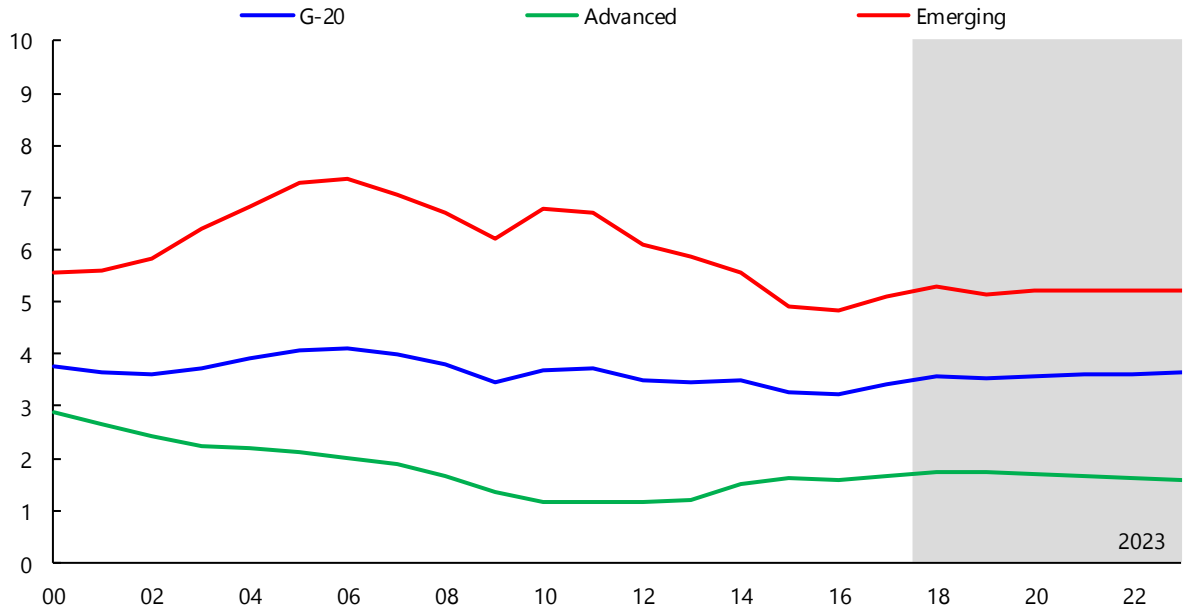


Sources: IMF, *World Economic Outlook* October 2018; National Central Banks; and IMF staff calculations.
1/ End-of-period CPI inflation has been used for ARG, TUR, RUS, and period-average CPI for all other countries.
2/ SAU does not have an inflation target.

2. SUSTAINABLE GROWTH

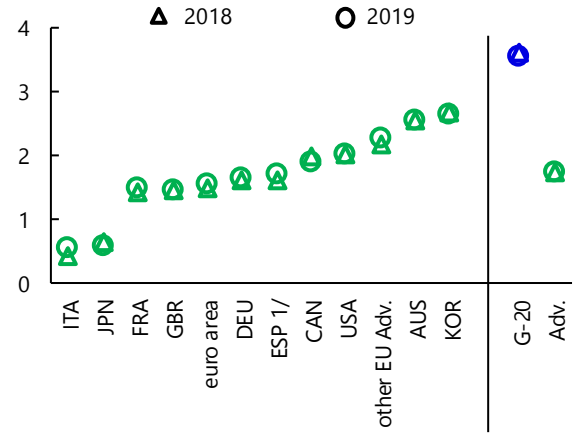
Potential Growth

Figure A2.1 Potential output growth 1/
(percent; ppp-weighted)



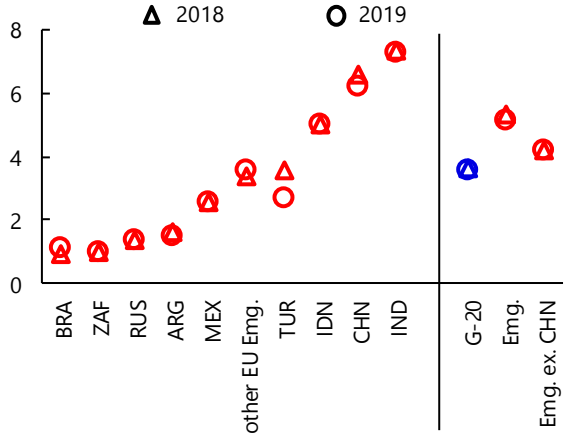
Sources: IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ SAU is not included due to data limitations.

Figure A2.2 Potential output growth: Advanced economies
(percent)



Sources: IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ ESP is a permanent invitee.

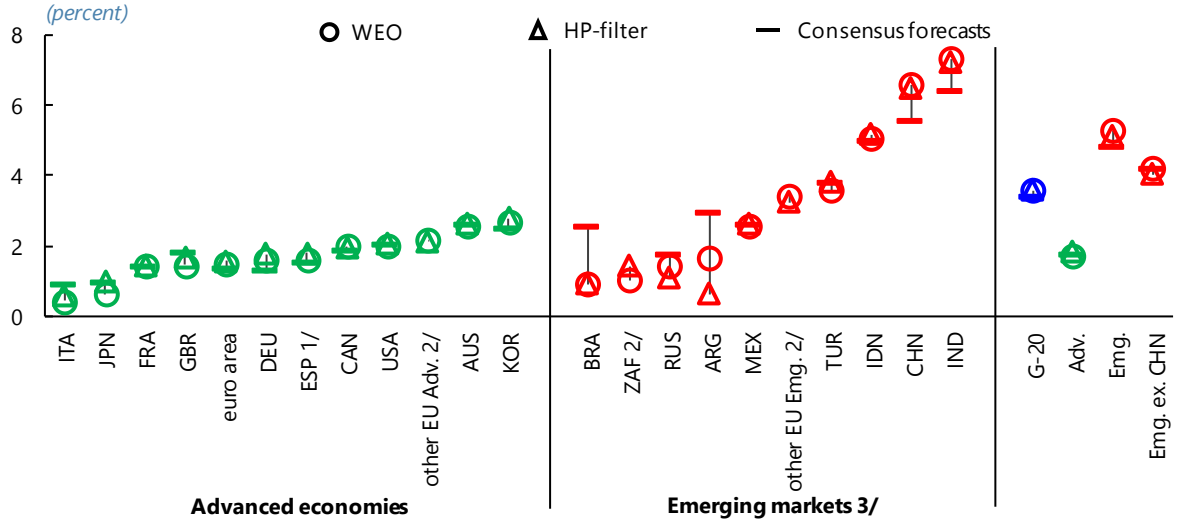
Figure A2.3 Potential output growth: Emerging markets 1/
(percent)



Sources: IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ SAU's potential GDP estimates for 2018 and 2019 are not available.

Figure A2.4 Different measures of potential output growth, 2018

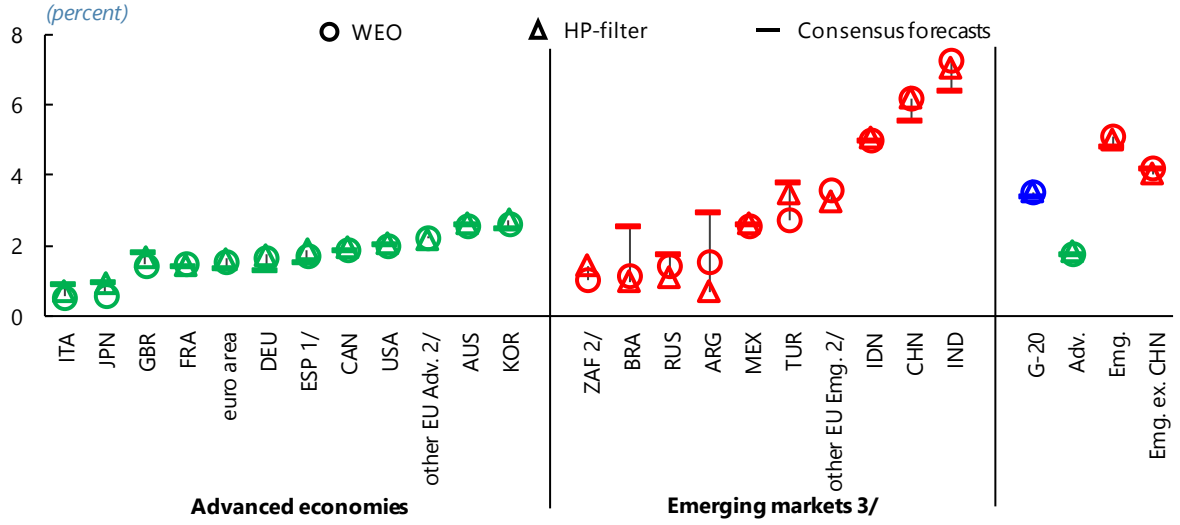
(percent)



Sources: IMF, *World Economic Outlook* October 2018; Consensus Forecasts; and IMF staff calculations.
Note: Output gap estimate based on Consensus forecasts uses real GDP and potential GDP levels, projected based on 1, 2 and 5-year ahead growth rates from Consensus Economics.
1/ ESP is a permanent invitee.
2/ 5-year ahead Consensus data are unavailable to calculate potential output estimates based on Consensus forecasts. For other EU Adv. and Emg., data are unavailable for about 40 percent of the countries.
3/ For SAU, potential output growth, HP-filter estimate, and 5-year ahead Consensus Forecast data are not available.

Figure A2.5 Different measures of potential output growth, 2019

(percent)

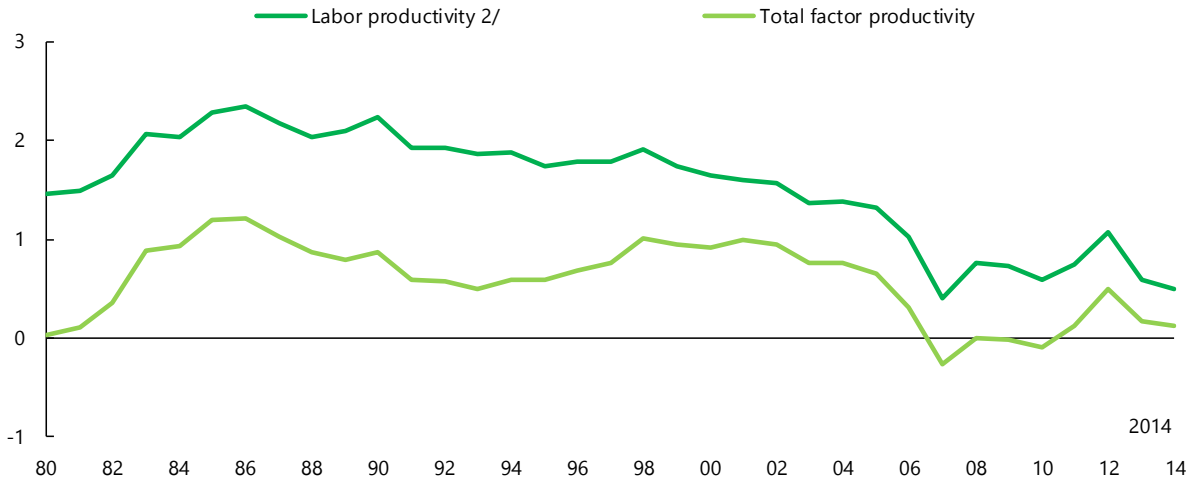


Sources: IMF, *World Economic Outlook* October 2018; Consensus Forecasts; and IMF staff calculations.
Note: Output gap estimate based on Consensus forecasts uses real GDP and potential GDP levels, projected based on 1, 2 and 5-year ahead growth rates from Consensus Economics.
1/ ESP is a permanent invitee.
2/ 5-year ahead Consensus data are unavailable to calculate potential output estimates based on Consensus forecasts. For other EU Adv. and Emg., data are unavailable for about 40 percent of the countries.
3/ For SAU, potential output growth, HP-filter estimate, and 5-year ahead Consensus Forecast data are not available.

Productivity Growth

Figure A2.6 Productivity growth: Advanced economies 1/

(ppp-weighted; 5-yr moving average)



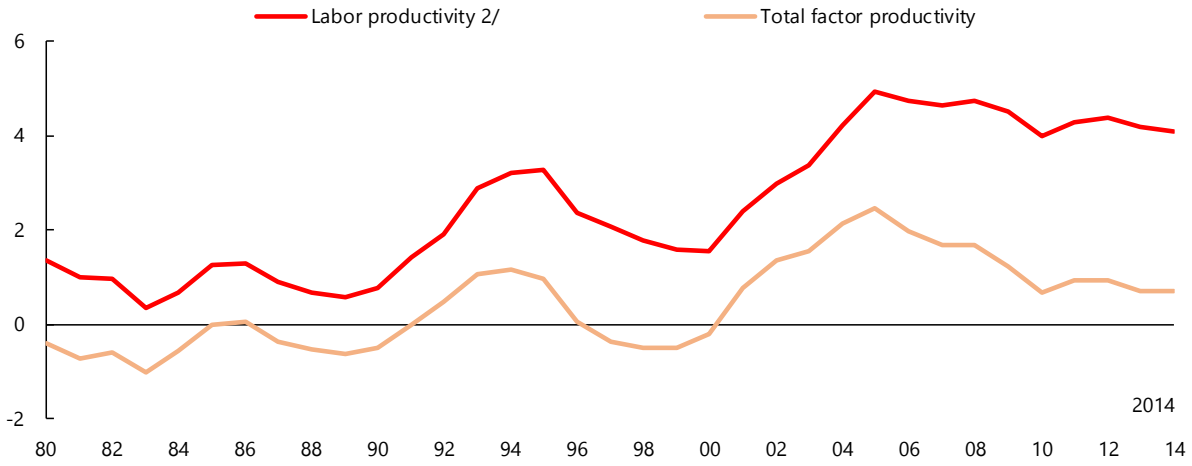
Sources: Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer (2015), "The Next Generation of the Penn World Table" American Economic Review, 105(10), 3150-3182, available for download at www.ggdc.net/pwt; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.

1/ Includes ESP, but not other EU Adv. due to data limitations.

2/ Labor productivity is calculated as real GDP per person employed.

Figure A2.7 Productivity growth: Emerging markets 1/

(ppp-weighted; 5-yr moving average)

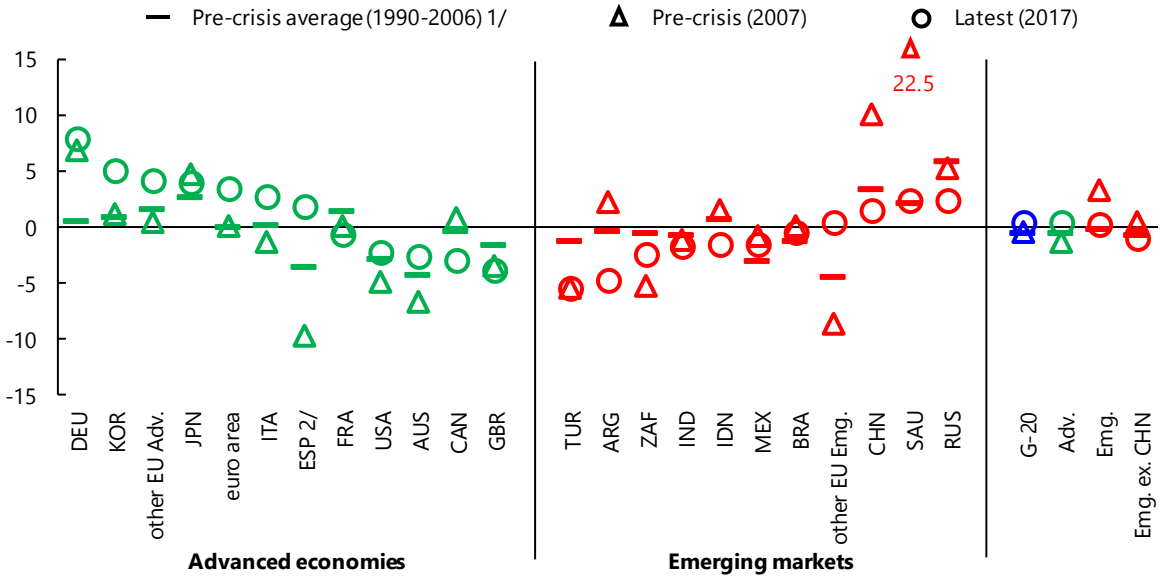


Sources: Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer (2015), "The Next Generation of the Penn World Table" American Economic Review, 105(10), 3150-3182, available for download at www.ggdc.net/pwt; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.

1/ Excludes RUS, SAU, and other EU Emg. due to data limitations.

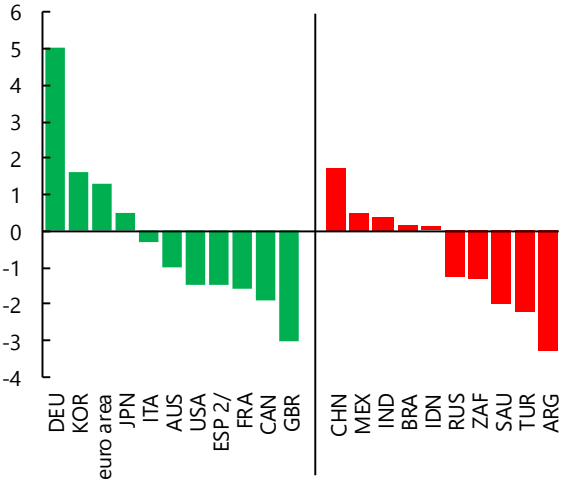
2/ Labor productivity is calculated as real GDP per person employed.

Figure A3.1 Current account balance
(percent of GDP)



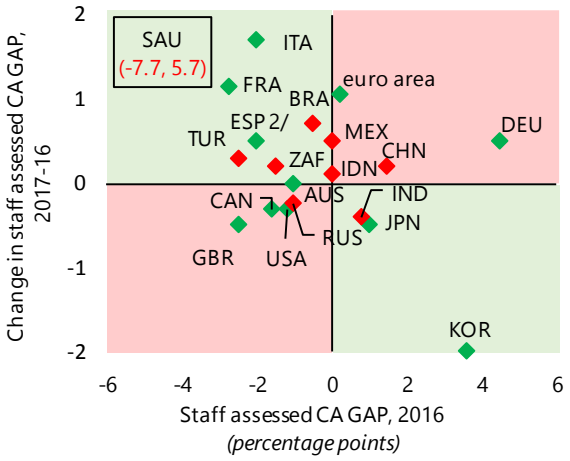
Sources: IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Earliest data for RUS is from 1992; other EU Adv. and Emg. from 1995; and CHN and euro area from 1997.
2/ ESP is a permanent invitee.

Figure A3.2 Current account gap 1/
(2017, based on ESR)



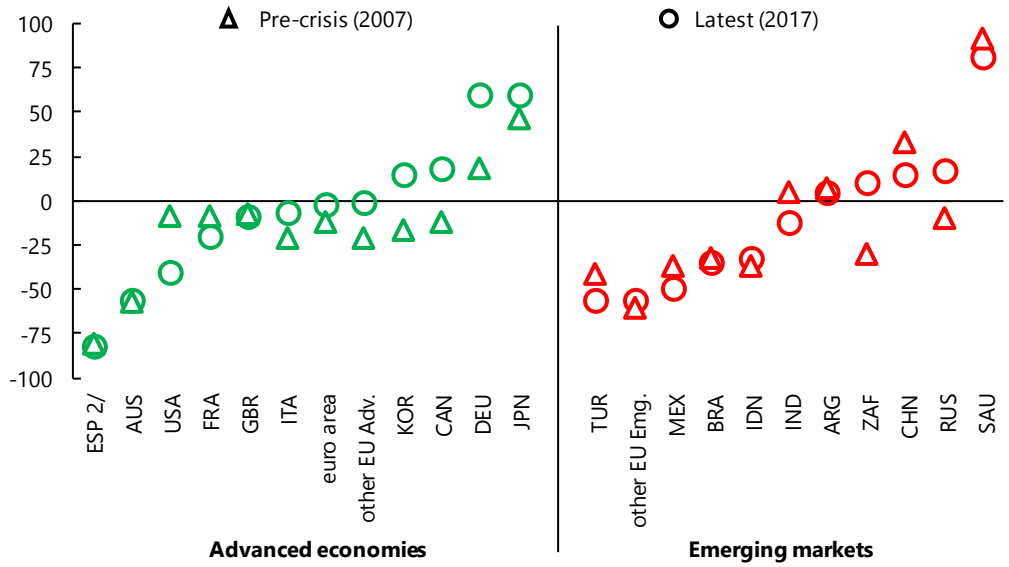
Source: IMF, *External Sector Report*, 2018.
1/ Gaps relative to staff assessed current account norms.
2/ ESP is a permanent invitee.

Figure A3.3 Current account gap assessment 1/
(2017, 2016, based on ESR)



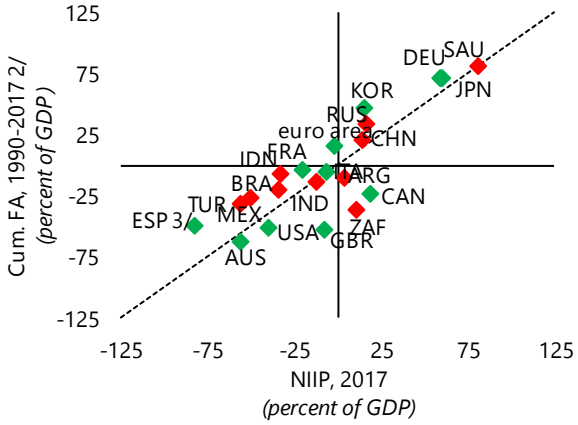
Source: IMF, *External Sector Report*, 2018.
1/ Gaps relative to staff assessed current account norms.
ARG is not shown due to data limitations.
2/ ESP is a permanent invitee.

Figure A3.4 Net international investment position (NIIP) 1/
(percent of GDP)



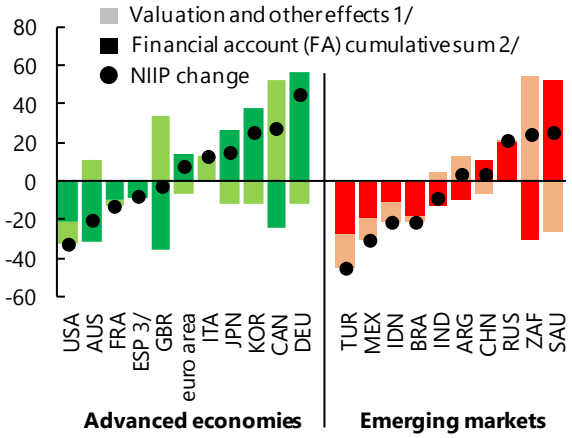
Sources: IMF, *Balance of Payments Statistics*; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ NIIP has been shown as a share of each country's GDP for the corresponding year, both in local currency.
2/ ESP is a permanent invitee.

Figure A3.5 Net international investment position (NIIP) and cumulative financial account (FA), historical 1/



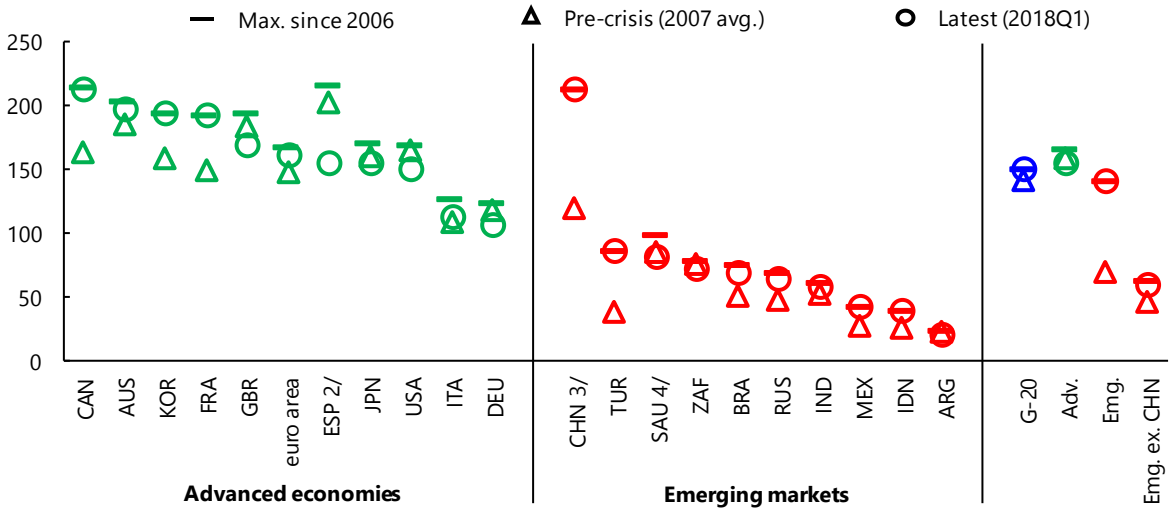
Sources: IMF, *Balance of Payments Statistics*; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ FA is sum of current account balance, capital account balance and net errors and omissions. For more information, please refer to IMF, October 2014, *World Economic Outlook*, Chapter 4. Cumulative FA and NIIP are shown as share of each country's GDP in 2017; all in local currency.
2/ Earliest data for RUS is from 1992 and for CHN and euro area from 1997.
3/ ESP is a permanent invitee.

Figure A3.6 2007-17 Net internatioonal investment position (NIIP) changes
(percent of 2017 GDP)



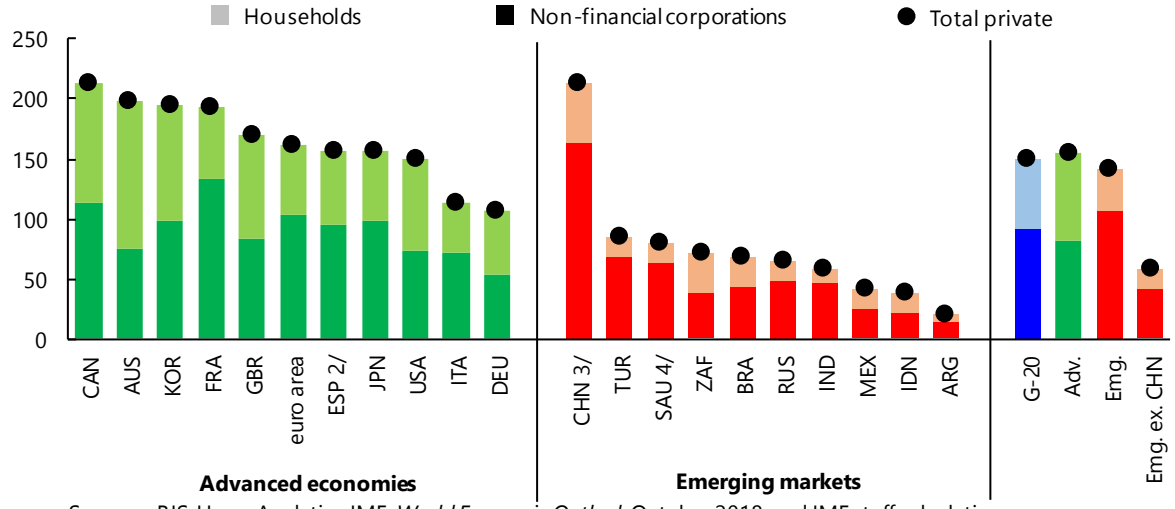
Sources: IMF, *Balance of Payments Statistics*; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Valuation effects from currency and asset price shifts and other effects.
2/ FA is sum of current account balance, capital account balance and net errors and omissions. For more information, please refer to IMF, October 2014, *World Economic Outlook*; Chapter 4. Cumulative FA and NIIP are shown as share of each country's GDP in 2016; all in local currency.
3/ ESP is a permanent invitee.

Figure A3.7 Private debt 1/
(percent of GDP)



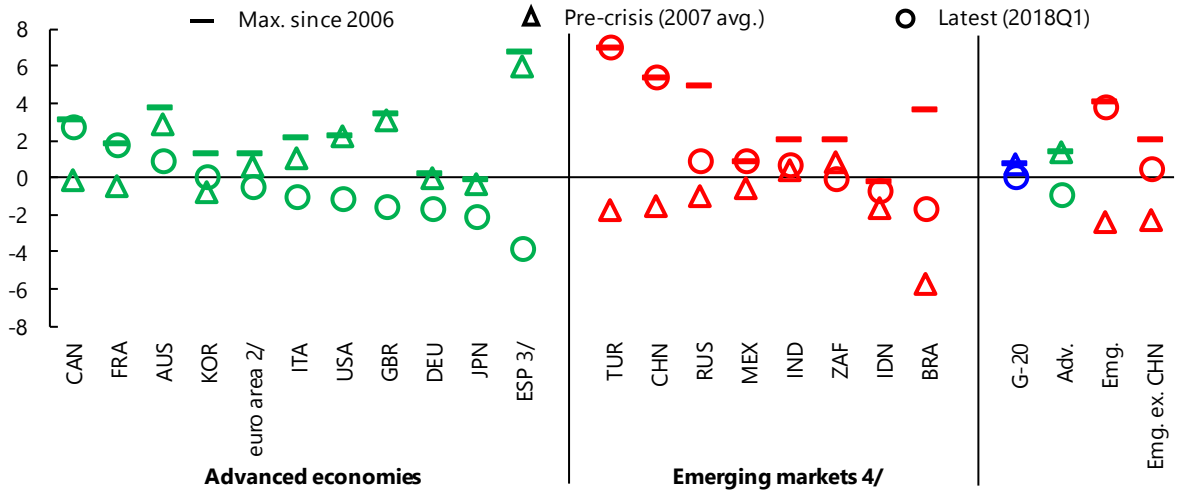
Sources: BIS; Haver Analytics; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Credit to private non-financial sector, which includes borrowing by non-financial corporations and households and reflects lending by domestic and foreign banks, as well as holdings of debt securities.
2/ ESP is a permanent invitee.
3/ For CHN, private debt includes LGFV (local government financing vehicles) debt.
4/ SAU data is expressed in percent of non-oil GDP.

Figure A3.8 Private debt by sector 1/
(2018Q1; percent of GDP)



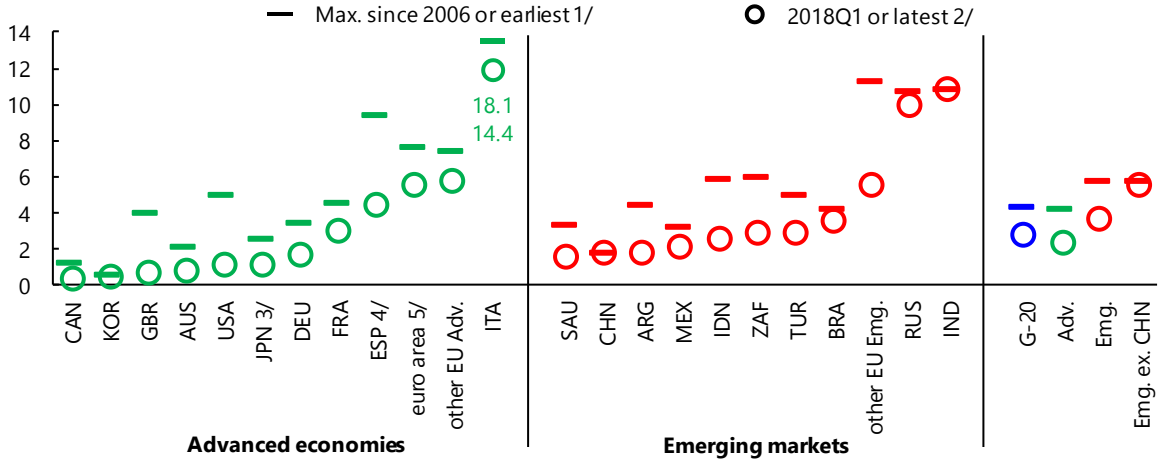
Sources: BIS; Haver Analytics; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Credit to private non-financial sector, which includes borrowing by non-financial corporations and households and reflects lending by domestic and foreign banks, as well as holdings of debt securities.
2/ ESP is a permanent invitee.
3/ For CHN, private debt includes LGFV (local government financing vehicles) debt.
4/ SAU data is expressed in percent of non-oil GDP.

Figure A3.9 Debt service ratio for private non-financial sector, difference from 1999-2016 average 1/
(percentage point deviation)



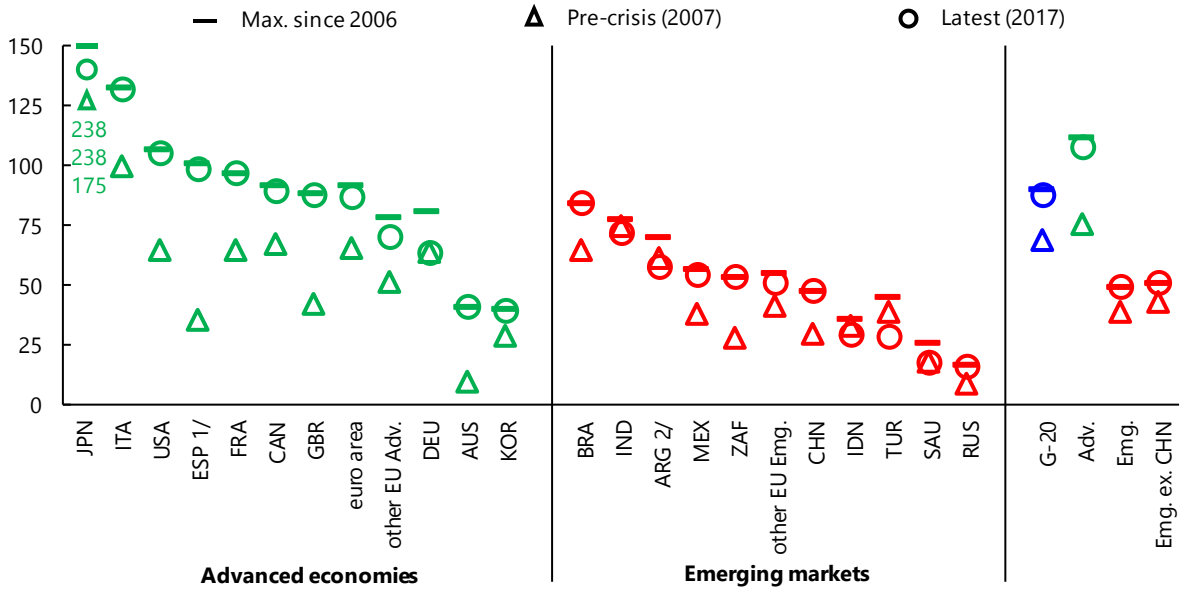
Sources: BIS; Haver Analytics; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ The ratio is interest payments plus amortizations to income. 1999-2016 average calculated for each country separately; for Turkey, the sample period is 2002-2016.
2/ Debt service data is available for 40 percent of euro area countries, covering about 90 percent of euro area GDP.
3/ ESP is a permanent invitee.
4/ ARG & SAU are excluded due to data limitations.

Figure A3.10 Non-performing loans
(percent of total gross loans)



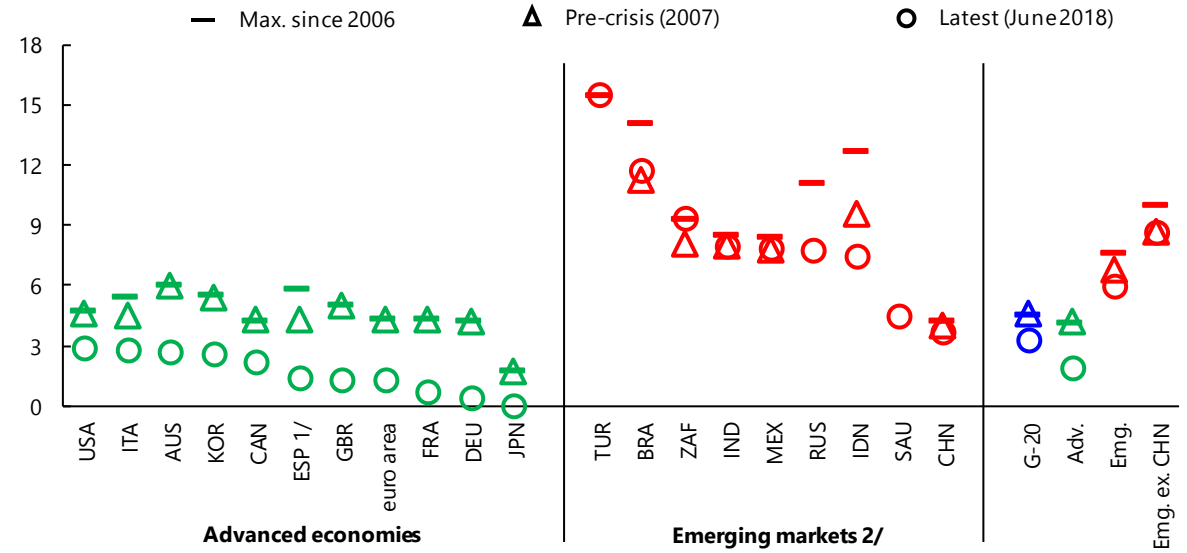
Sources: IMF, *Financial Soundness Indicators*; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Data for FRA, GBR, IND, KOR, RUS, ZAF is available from 2008; JPN, SAU, USA from 2009; and CHN from 2010. For aggregates of other EU Adv., other EU Emg., and euro area, maximum is calculated since 2008 due to data limitations.
2/ Latest data for DEU and Korea is 2016.
3/ JPN numbers correspond to Q3 data for every year as annual data is not available.
4/ ESP is a permanent invitee.
5/ Represents the average of NPLs of 17 countries that constitute euro area, weighted by nominal GDP. FIN and LUX are excluded due to data limitations.

Figure A3.11 General government gross debt
(percent of GDP)



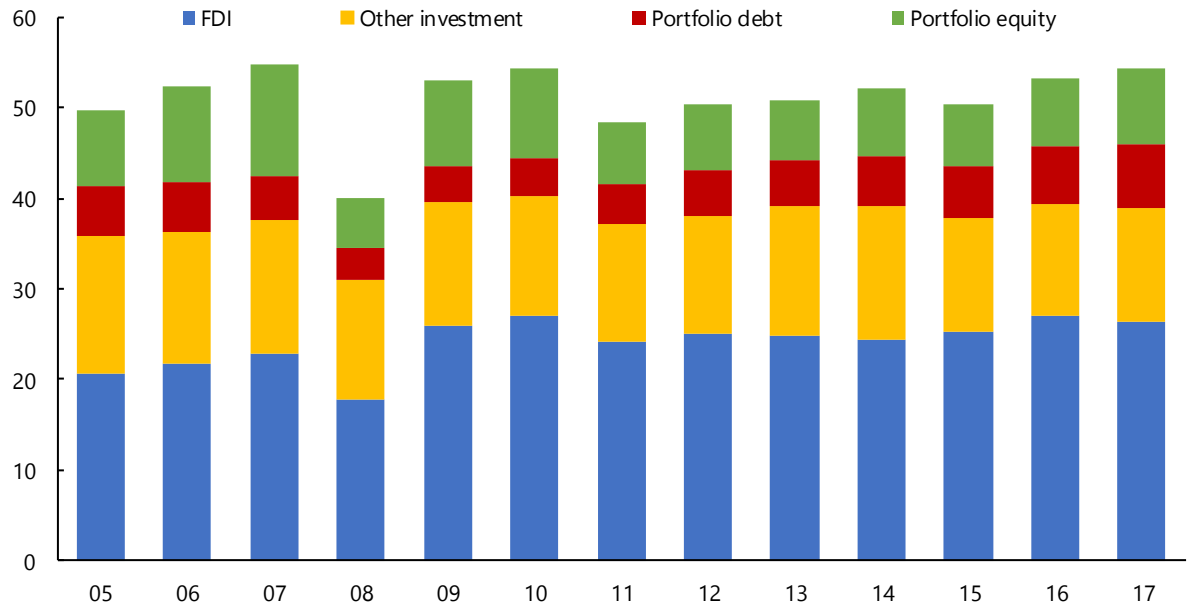
Sources: IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ ESP is a permanent invitee.
2/ For ARG, data reflects federal government gross debt in percent of GDP.

Figure A3.12 10Y sovereign bond yield
(percent)



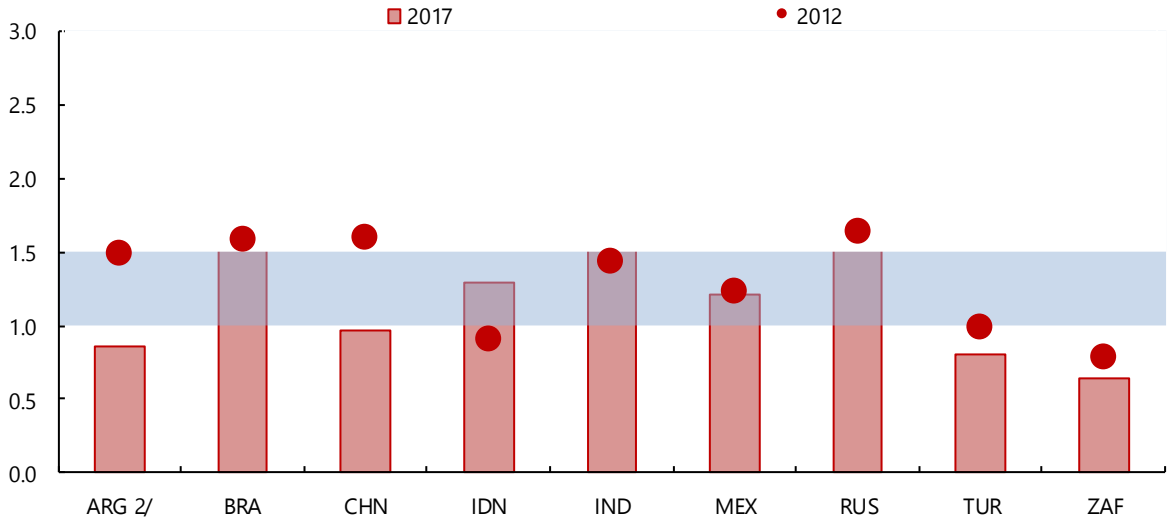
Sources: Bloomberg L.P.; Haver Analytics; European Central Bank; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ ESP is a permanent invitee.
2/ ARG is excluded due to data limitations. For RUS and TUR, data starts from 2010. For SAU, data starts from Oct. 2016.

Figure A3.13 G-20 Emerging markets: Investment liabilities stock
(percent of GDP)



Sources: IMF, *Balance of Payments*; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.

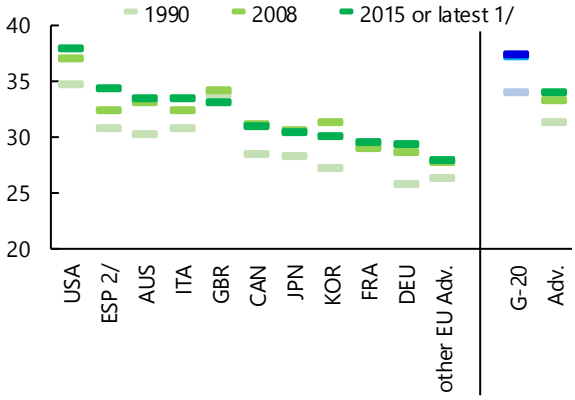
Figure A3.14 G-20 Emerging markets: Reserve adequacy, 2017-2012
(share of metric) 1/



Source: IMF, *Assessing Reserve Adequacy.*
Note: Shaded area indicates broadly adequate range for precautionary purposes, based on the IMF composite metric (IMF Policy Paper, *Assessing Reserve Adequacy - Specific Proposals (2015)*).
1/ Reserves as a share of Risk Weighted Reserve Adequacy Unadjusted Metric.
2/ For ARG, dot represents 2009 data.

Figure A4.1 Income inequality: Advanced economies

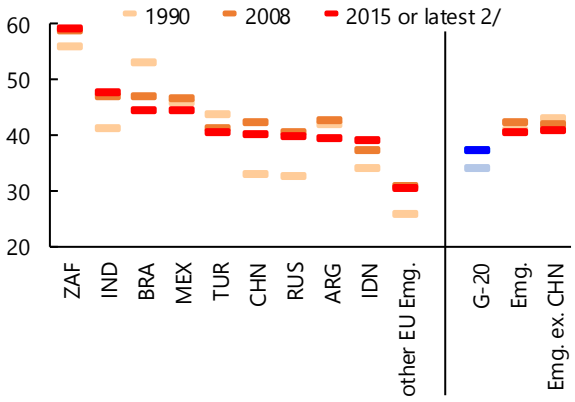
(Gini coefficient, net)



Sources: Solt, F., 2016, The Standardized World Income Inequality Database, Social Science Quarterly 97, SWIID Version 7.1, August 2018. IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
Note: Countries with both 1990 and 2015 numbers are included in the aggregations.
1/ Latest data for AUS and JPN is 2014.
2/ ESP is a permanent invitee.

Figure A4.2 Income inequality: Emerging markets 1/

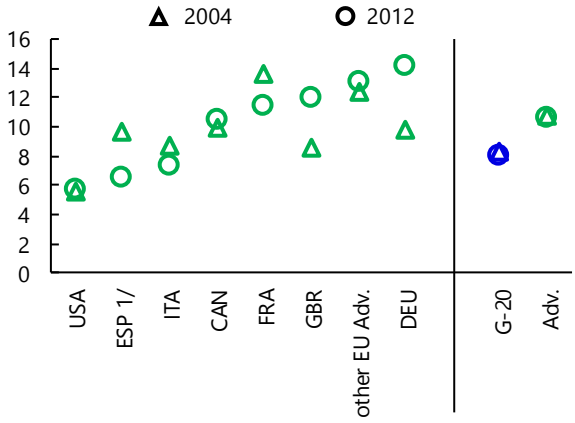
(Gini coefficient, net)



Sources: Solt, F., 2016, The Standardized World Income Inequality Database, Social Science Quarterly 97, SWIID Version 7.1, August 2018. IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
Note: Countries with both 1990 and 2015 numbers are included in the aggregations.
1/ SAU is excluded due to data limitations.
2/ Latest data for IND is 2012.

Figure A4.3 Income inequality: Advanced economies

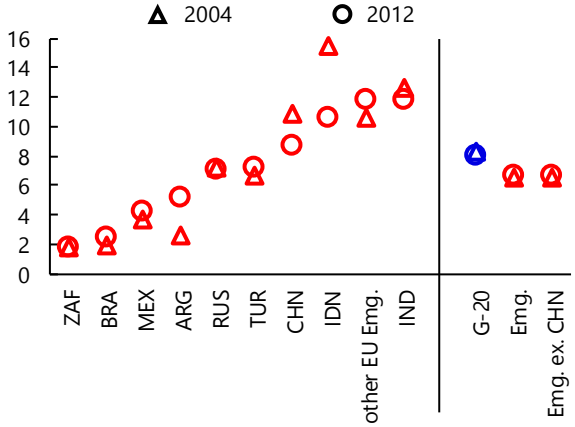
(ratio between bottom and top income decile in percent)



Sources: IMF, *World Economic Outlook* October 2018; OECD; and IMF staff calculations.
Note: Data from 2010, 2011 or 2013 is used when 2012 is unavailable. Data from 2005 or 2006 is used when 2004 is unavailable. Countries with both 2004 and 2012 number are included in the aggregations.
1/ ESP is a permanent invitee.

Figure A4.4 Income inequality: Emerging markets

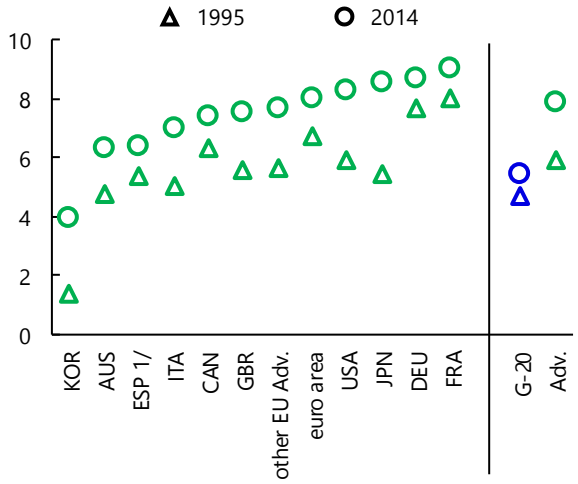
(ratio between bottom and top income decile in percent)



Sources: IMF, *World Economic Outlook* October 2018; OECD; and IMF staff calculations.
Note: Data from 2010, 2011 or 2013 is used when 2012 is unavailable. Data from 2005 or 2006 is used when 2004 is unavailable. Countries with both 2004 and 2012 number are included in the aggregations.

Figure A4.5 Public health expenditures: Advanced economies

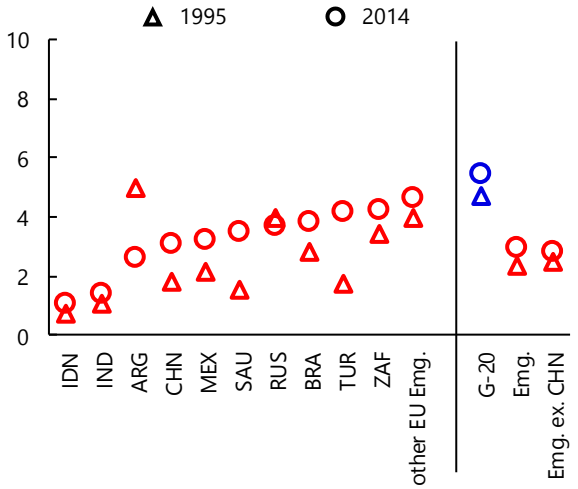
(percent of GDP)



Sources: IMF, *World Economic Outlook* October 2018; World Bank, *World Development Indicators;* and IMF staff calculations.
1/ ESP is a permanent invitee.

Figure A4.6 Public health expenditures: Emerging markets

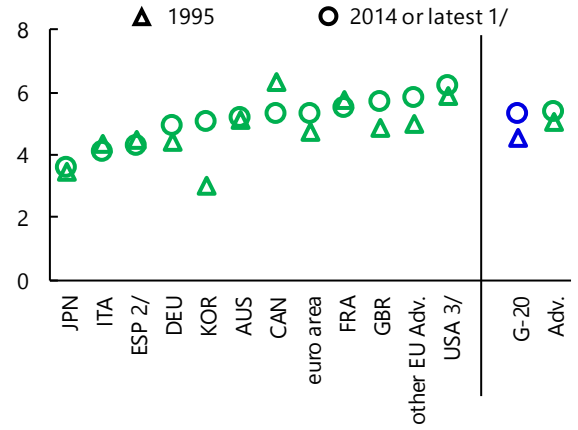
(percent of GDP)



Sources: IMF, *World Economic Outlook* October 2018; World Bank, *World Development Indicators;* and IMF staff calculations.

Figure A4.7 Public education expenditures: Advanced economies

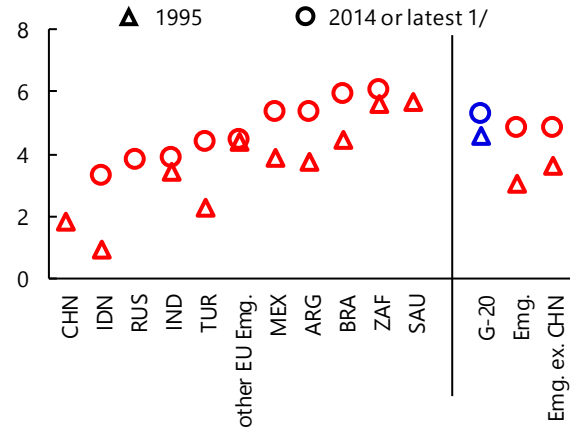
(percent of GDP)



Sources: IMF, *World Economic Outlook* October 2018; World Bank, *World Development Indicators*; OECD; and IMF staff calculations.
Note: Data from 1996 or 1997 is used when 1995 data is unavailable. Countries with both 1995 and 2014 numbers are included in the aggregations.
1/ Latest data for CAN is 2011.
2/ ESP is a permanent invitee.
3/ Data is from OECD database.

Figure A4.8 Public education expenditures: Emerging markets

(percent of GDP)

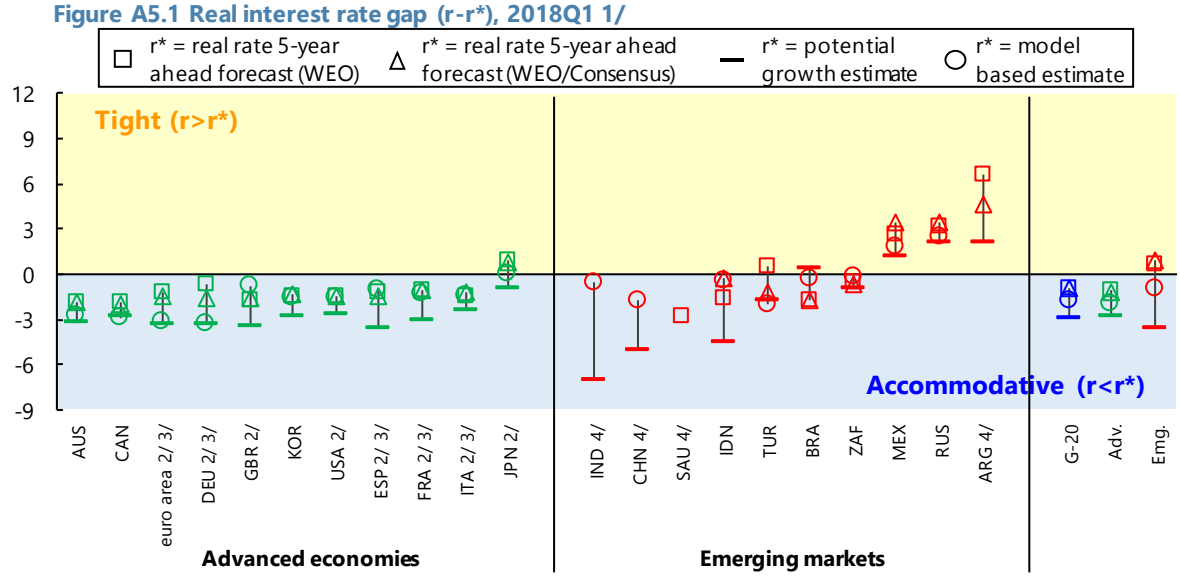


Sources: IMF, *World Economic Outlook* October 2018; World Bank, *World Development Indicators*; OECD; and IMF staff calculations.
Note: Data from 1996 or 1997 is used when 1995 data is unavailable. Countries with both 1995 and 2014 numbers are included in the aggregations.
1/ Latest data for IND is 2013; RUS is 2012.

5. MACROECONOMIC POLICIES

Monetary Policy

Figure A5.1 Real interest rate gap (r-r*), 2018Q1 1/



Sources: Consensus Economics; Haver Analytics; IMF, *Global Assumptions*; IMF, *World Economic Outlook* April 2018; IMF, *Global Data Source*; and IMF staff calculations.

1/ This is the difference between the real interest rate (r) and the real natural rate (r*). Monetary policy is tight (accommodative), when the real interest rate is above (below) its natural level. The natural rate is approximated by means of 5-year ahead forecasts of the real short-term rate using IMF staff projections, IMF staff estimates of potential growth, and model-based estimates.

2/ For countries where the central bank has operated or is still operating at the effective lower bound, the policy rate may represent an upper bound of the effective policy stance. ESP is a permanent invitee.

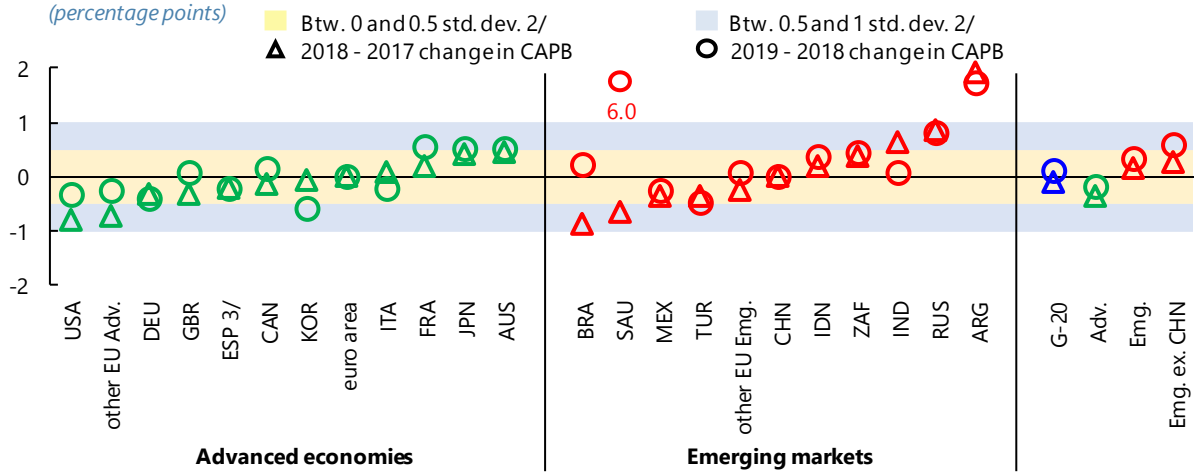
3/ The euro area and its member countries, including DEU, ESP, FRA, and ITA, have the same policy rate.

4/ Some measures of natural rate estimates are not available due to data limitations.

Fiscal Policy

Figure A5.2 Change in cyclically adjusted primary balance 1/

(percentage points)



Sources: IMF, *World Economic Outlook* October 2018; and IMF staff calculations.

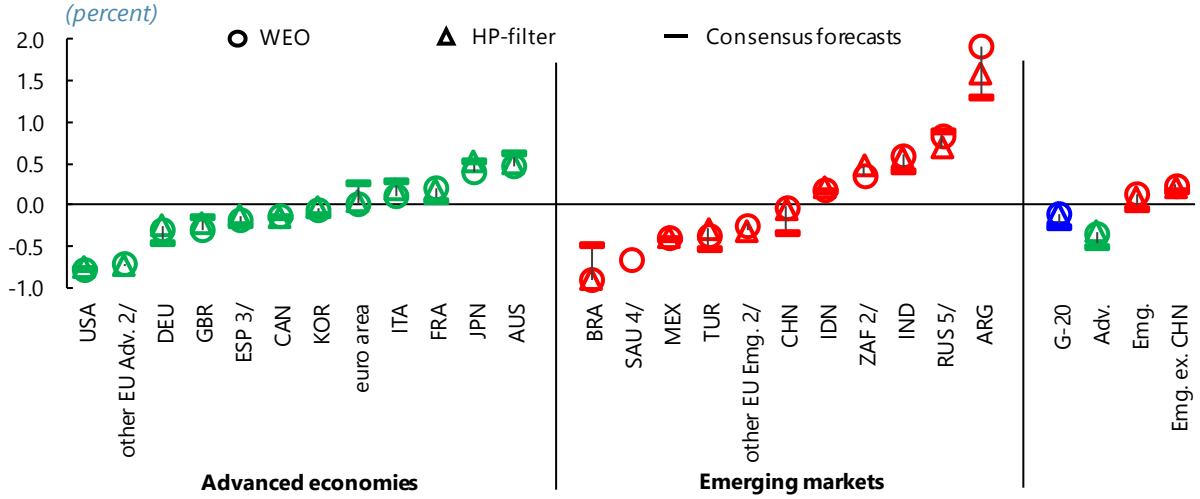
1/ For RUS, non-oil primary balance in percent of potential GDP is used. For SAU, non-exported oil primary fiscal balance in percent of non-oil GDP is used.

2/ Standard deviations are calculated from 1990 to 2016, excluding outliers above 99% and below 1% for each income group.

3/ ESP is a permanent invitee.

Figure A5.3 Different measures of change in cyclically adjusted primary balance, 2018 1/

(percent)



Sources: IMF, *World Economic Outlook* October 2018; Consensus Economics; and IMF staff calculations.

1/ All approaches use WEO fiscal projections, but the three different measures reflect different cyclical adjustments, based respectively on the desk's method for cyclical adjustment and potential output estimate, consensus forecasts of potential and actual growth, and potential output estimated using an HP-filter.

2/ 5-year ahead Consensus Forecast data are not available.

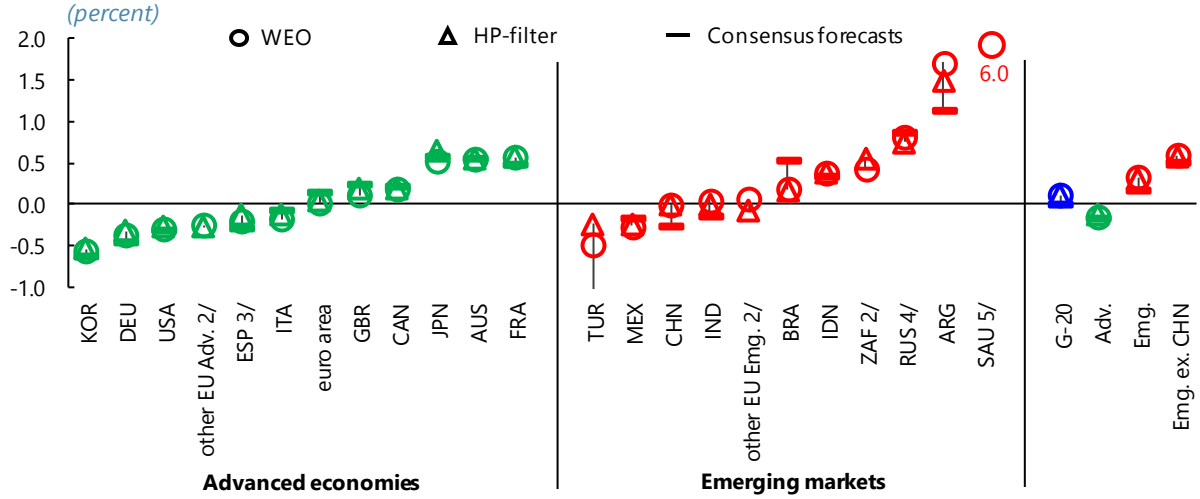
3/ ESP is a permanent invitee.

4/ For SAU, non-exported oil primary fiscal balance in percent of non-oil GDP is used as the WEO measure; HP-filter estimate and 5-year ahead Consensus Forecast data are not available.

5/ For RUS, non-oil primary balance in percent of potential GDP is used.

Figure A5.4 Different measures of change in cyclically adjusted primary balance, 2019 1/

(percent)



Sources: IMF, *World Economic Outlook* October 2018; Consensus Economics; and IMF staff calculations.

1/ All approaches use WEO fiscal projections, but the three different measures reflect different cyclical adjustments, based respectively on the desk's method for cyclical adjustment and potential output estimate, consensus forecasts of potential and actual growth, and potential output estimated using an HP-filter.

2/ 5-year ahead Consensus Forecast data are not available.

3/ ESP is a permanent invitee.

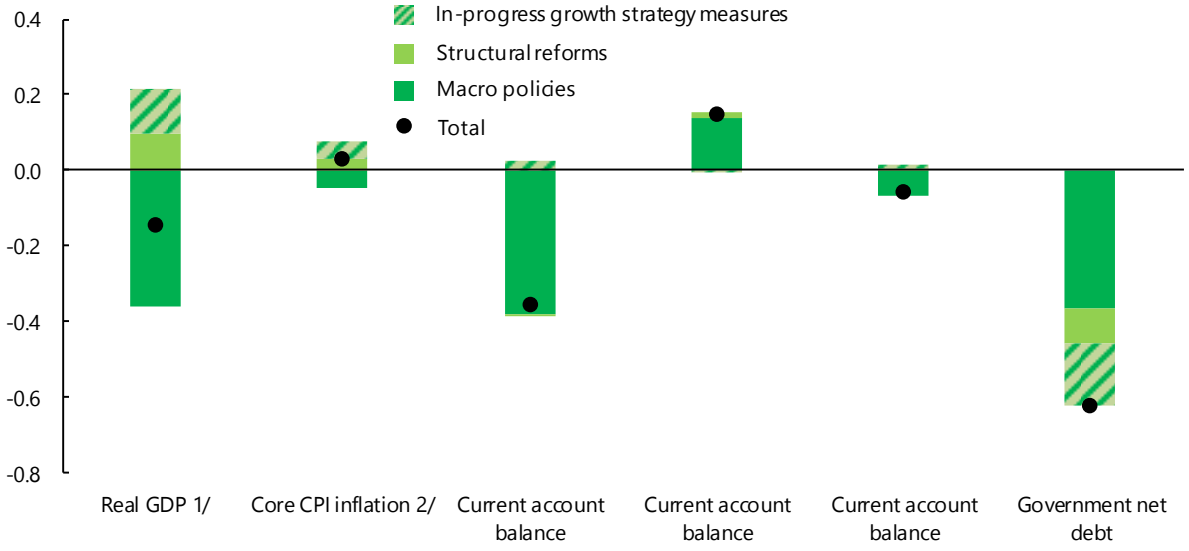
4/ For RUS, non-oil primary balance in percent of potential GDP is used.

5/ For SAU, non-exported oil primary fiscal balance in percent of non-oil GDP is used as the WEO measure; HP-filter estimate and 5-year ahead Consensus Forecast data are not available.

6. SIMULATION OUTCOMES

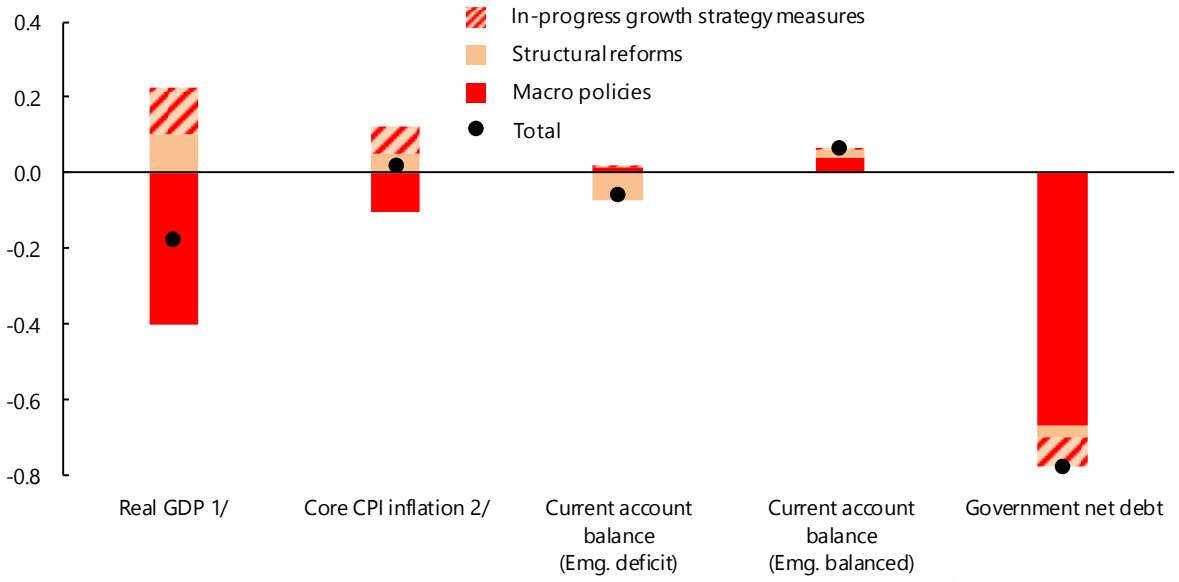
Short-Term Effects

Figure A6.1 Advanced economies (2019)
(percent of GDP; percentage point difference from WEO baseline, unless otherwise specified)



Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Percent difference from WEO baseline.
2/ Percentage point difference from WEO baseline.

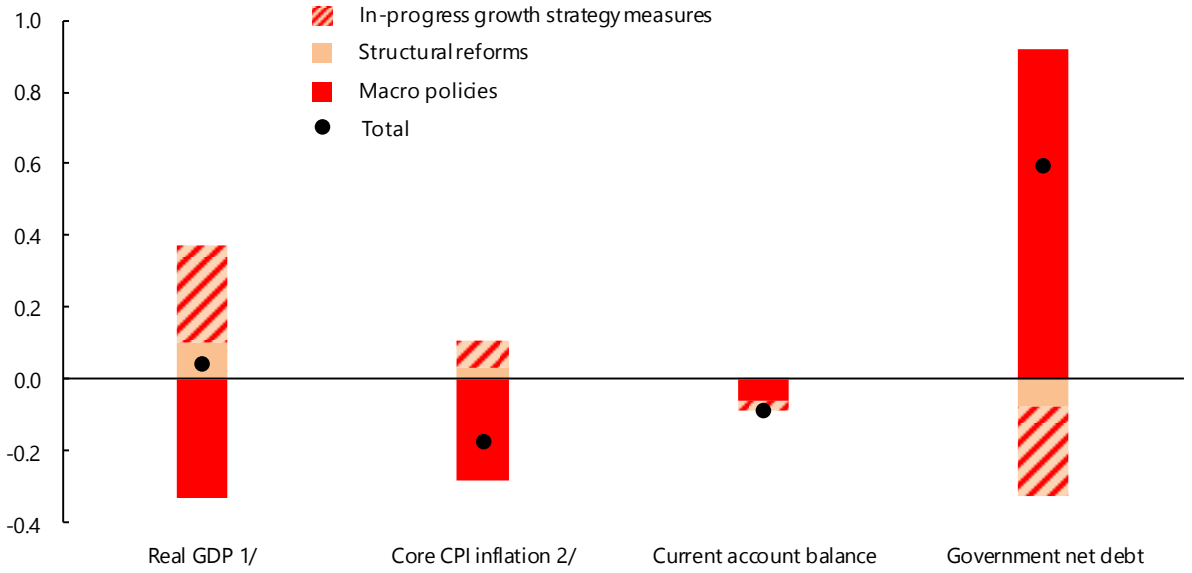
Figure A6.2 Emerging markets excluding China (2019)
(percent of GDP; percentage point difference from WEO baseline, unless otherwise specified)



Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Percent difference from WEO baseline.
2/ Percentage point difference from WEO baseline.

Figure A6.3 China (2019)

(percent of GDP; percentage point difference from WEO baseline, unless otherwise specified)

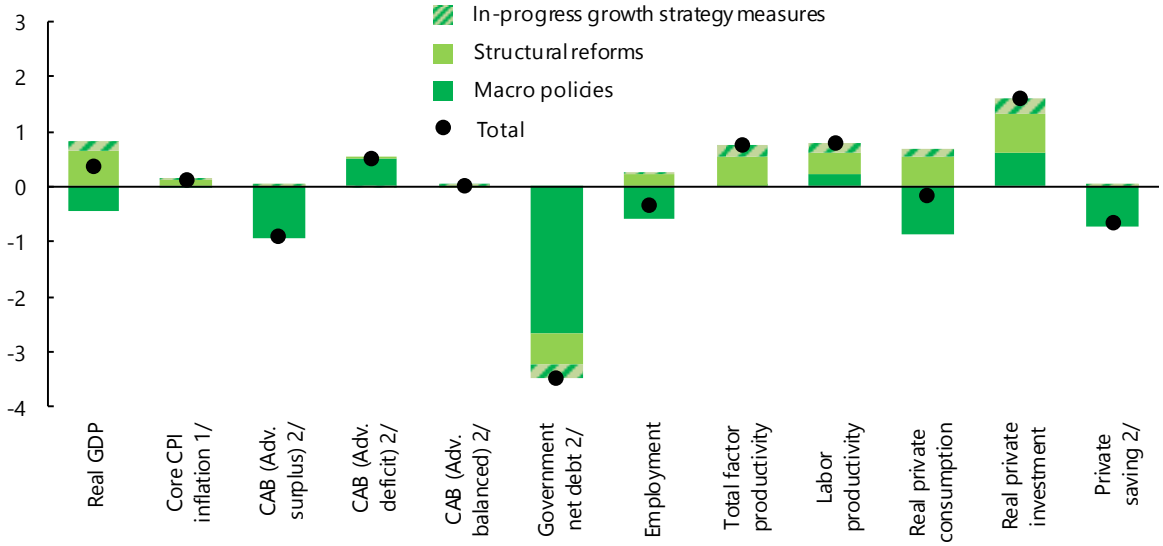


Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Percent difference from WEO baseline.
2/ Percentage point difference from WEO baseline.

Medium-Term Effects

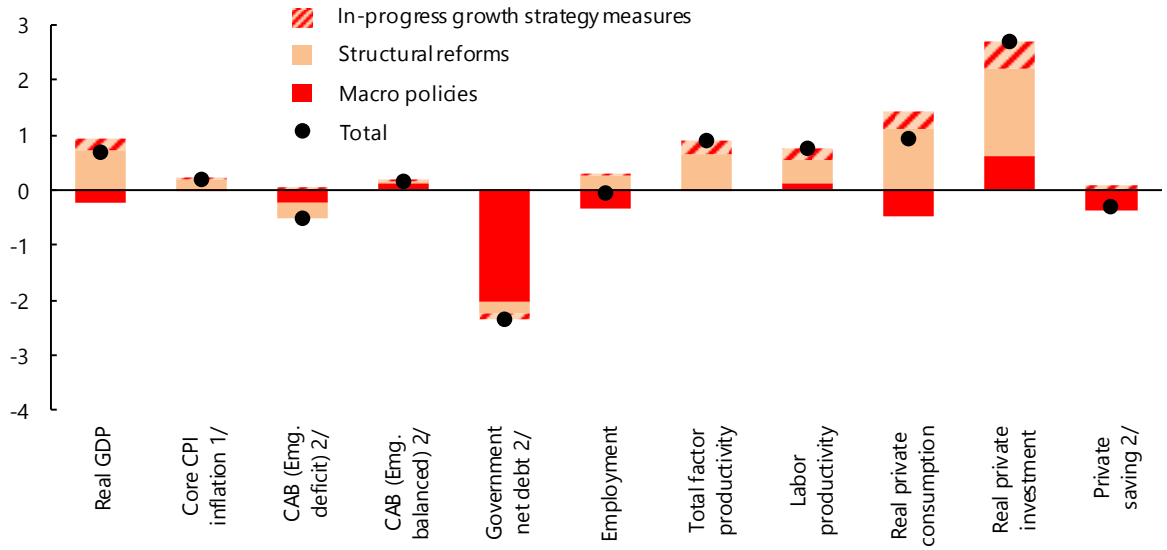
Figure A6.4 Advanced economies (2020-23 average)

(percent difference from WEO baseline, unless otherwise specified)



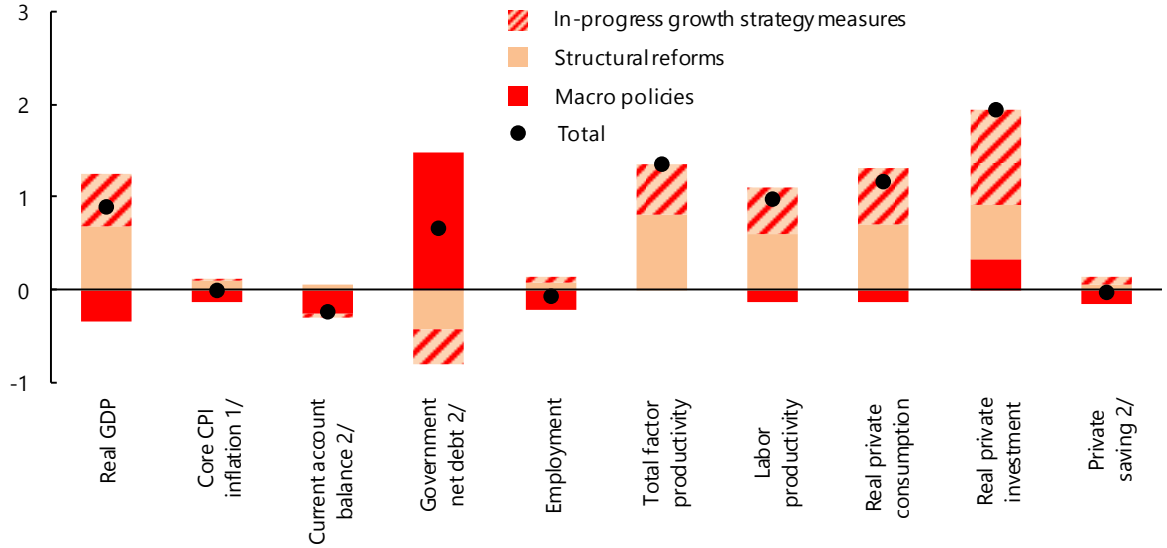
Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
Note: CAB = current account balance.
1/ Percentage point difference from WEO baseline.
2/ Percent of GDP; percentage point difference from WEO baseline.

Figure A6.5 Emerging markets excluding China (2020-23 average)
(percent difference from WEO baseline, unless otherwise specified)



Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
Note: CAB = current account balance.
1/ Percentage point difference from WEO baseline.
2/ Percent of GDP; percentage point difference from WEO baseline.

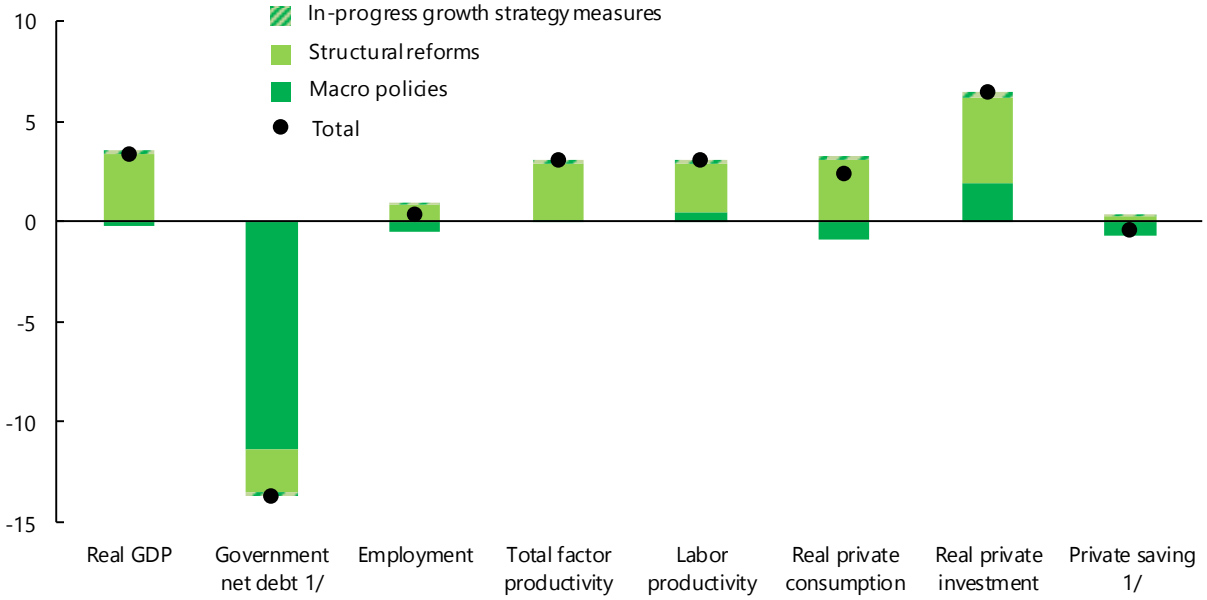
Figure A6.6 China (2020-23 average)
(percent difference from WEO baseline, unless otherwise specified)



Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Percentage point difference from WEO baseline.
2/ Percent of GDP; percentage point difference from WEO baseline.

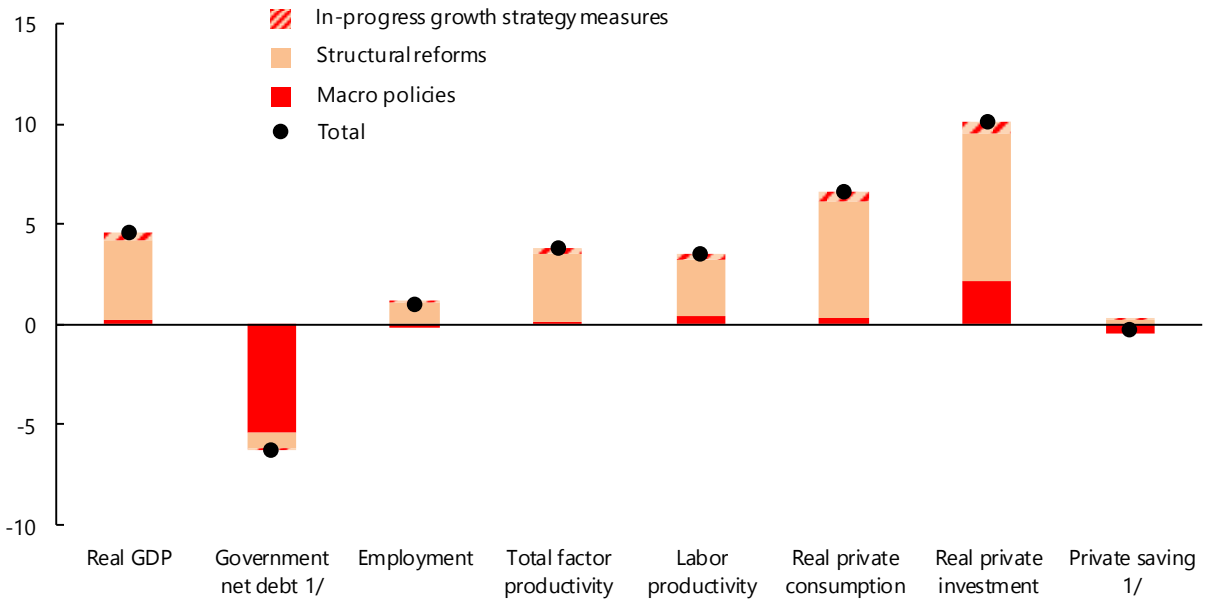
Long-Term Effects

Figure A6.7 Advanced economies (2029)
(percent difference from WEO baseline, unless otherwise specified)



Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Percent of GDP; percentage point difference from WEO baseline.

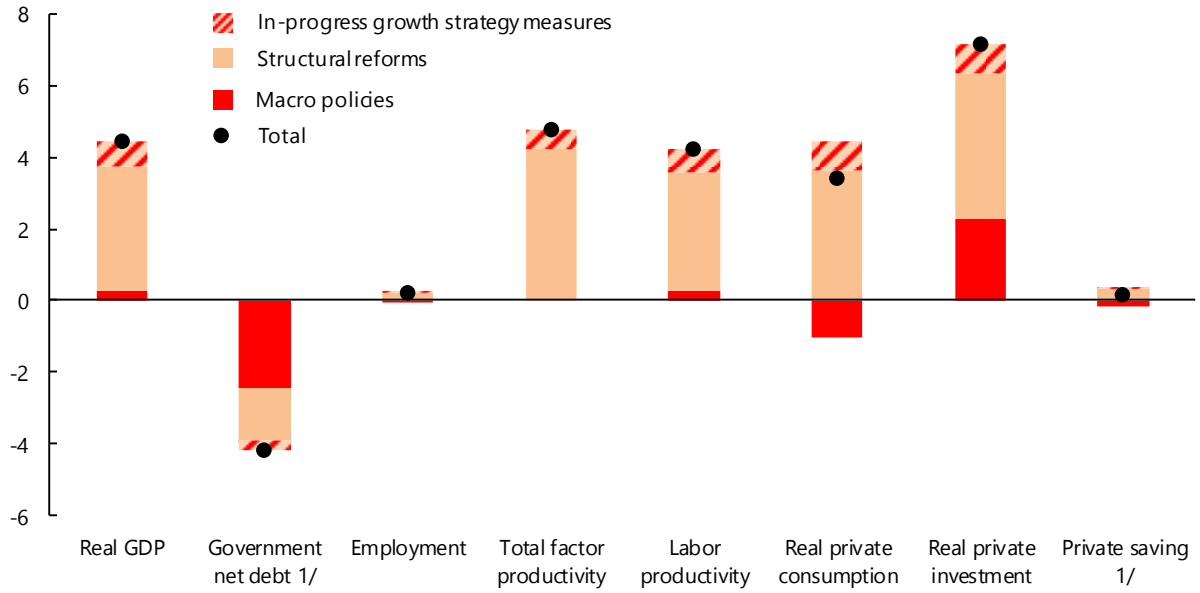
Figure A6.8 Emerging markets excluding China (2029)
(percent difference from WEO baseline, unless otherwise specified)



Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Percent of GDP; percentage point difference from WEO baseline.

Figure A6.9 China (2029)

(percent difference from WEO baseline, unless otherwise specified)



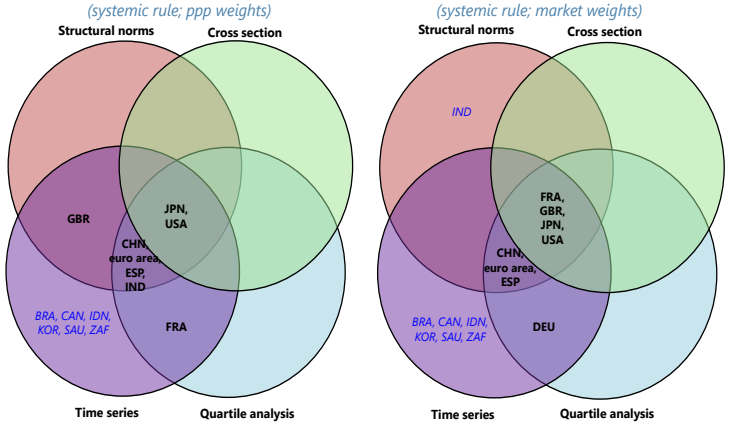
Sources: IMF, G-20 Model simulations; IMF, *World Economic Outlook* October 2018; and IMF staff calculations.
1/ Percent of GDP; percentage point difference from WEO baseline.

Annex V. Update of G-20 Indicative Guideline[1]

This Annex presents the update of G-20 Indicative Guidelines following the methodology agreed by the G-20 in April 2011. The G-20 methodology consists in assessing a set of indicators mechanically, without normative implications, against reference values to identify members with large imbalances that would require further analysis, under the sustainability updates of the G20 Mutual Assessment Process (MAP).

Indicators to evaluate imbalances: They include (i) public debt and fiscal deficits; (ii) private saving and private debt; and (iii) the external position, comprising trade balance, net investment income flows, and transfers. The indicators are based on average projected values for 2020–2022 from the IMF's April 2018 *WEO*, except for private debt where the latest available data is used.

2018 Indicative guidelines: Comparison of approaches



Sources: IMF, *World Economic Outlook* April 2018; and IMF staff estimates.
Note: ESP is a permanent invitee. Members are selected if at least 2 of the 4 approaches show "large" imbalances. Black and bold indicate selected countries.

Reference points: Reference values against which the indicators are compared, are derived from the following four approaches: (i) a structural approach based on economic frameworks to calculate "norms" (for the external position, the norm is based on staff's ESR methodology); (ii) a time series approach to provide historical trends; (iii) a cross-section approach to identify benchmarks based on averages of countries at similar development stages; and (iv) quartile analysis to provide median values for the full G-20 distribution.

Selection criteria: Members are selected if at least 2 of the 4 approaches show "large" imbalances (i.e. significant deviations of indicators from their reference values) in 2 or 3 sectors (external, fiscal, and private). For "systemic" members (i.e. whose share in the G-20 GDP is 5 percent or more), a "moderate" imbalance is used for selection to account for their systemically important roles.

Results: The updated G-20 Indicative Guidelines identify the same 9 members as in the 2017 exercise as having relatively large imbalances that would have warranted in-depth analysis under the G-20 MAP sustainability updates. Specifically, the main sources of imbalances are the following: China: external, fiscal, and private imbalances; Euro area: external and public debt imbalances; India: trade, fiscal and private saving imbalances; Japan: external, public debt, and private imbalances; United Kingdom: external, public debt, and private imbalances; United States: external, fiscal and private saving imbalances; France: external, public debt, private imbalances; Germany: external surplus; and Spain: external, public debt, and private imbalances.

[1] Prepared by Eric Bang. Note that the approach and the indicators used are specific to the Indicative Guidelines methodology and not necessarily the same as those used elsewhere in the G-20 Report on SSBIG.