SAVING FOR A RAINY DAY

With near-term growth on stronger footing, policy-makers can turn their attention to rebuilding buffers and supporting medium-term growth. The pickup in economic activity in 2017 has been broad-based and continues to strengthen in 2018, suggesting that fiscal stimulus to support demand is no longer the priority. Rather, focus should now be on a twofold strategy to support growth over the medium term. First, countries need to build fiscal buffers now by reducing government deficits and putting debt on a steady downward path. This will create room for fiscal support in case of a downturn and prevent fiscal vulnerabilities from becoming a source of stress on the economy if financing conditions tighten suddenly. Second, such a fiscal adjustment needs to be anchored on structural fiscal reforms that support potential growth by promoting human and physical capital, and by increasing productivity.

Introduction

Global debt is at historic highs, reaching the record peak of US$164 trillion in 2016, equivalent to 225 percent of global GDP. The world is now 12 percent of GDP deeper in debt than the previous peak in 2009, with China as a driving force (Box 1.1).

Public debt plays an important role in the surge in global debt, with little improvement expected over the medium term. The rise in government debt reflects the economic collapse during the global financial crisis and the policy response, as well as the effects of the 2014 fall in commodity prices and rapid spending growth in the case of emerging market and low-income developing countries. For advanced economies, debt-to-GDP ratios have plateaued since 2012 above 105 percent of GDP—levels not seen since World War II—and are expected to fall only marginally over the medium term (Figure 1.1). In emerging market and middle-income economies, debt-to-GDP ratios in 2017 reached almost 50 percent—a level seen only during the 1980s' debt crisis—and are expected to continue on an upward

trend. For low-income developing countries, average debt-to-GDP ratios exceeded 40 percent in 2017, climbing by more than 10 percentage points since 2012, and are not expected to decline much over the medium term. Although the current level is below historical peaks for these countries, debt reduction from earlier peaks was driven by debt forgiveness and restructuring (IMF 2017a, 2018d). Underpinning debt dynamics are large primary deficits, which are at their highest in decades in the case of emerging market and developing economies (Figure 1.2). In the case of advanced economies, there has been little improvement in primary balances since 2015.

There are several reasons why high government debt and deficits are a cause for concern and should motivate countries to build buffers by reducing deficits and putting debt on a steady downward path.
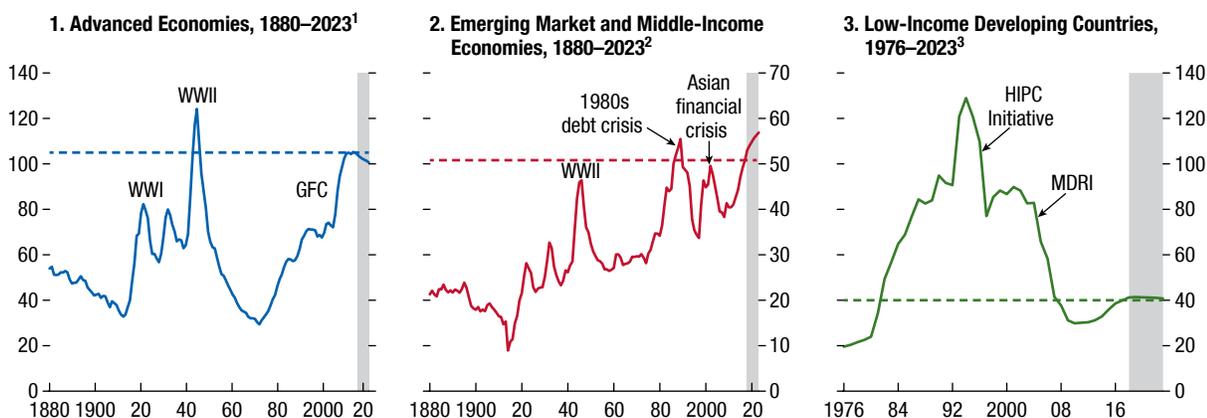
- First, high government debt can make countries vulnerable to rollover risk because of large gross financing needs, particularly when maturities are short.[1] Market access could be disrupted if global financing conditions tighten abruptly or if there is a shift in investor sentiment (see the April 2018 *World Economic Outlook* [WEO] and the *Global Financial Stability Report* [GFSR]). Recent bouts of equity market volatility suggest that investors could become fickle. A high debt-to-GDP ratio could cause a spike in risk premiums if investors become skeptical about a country's ability or willingness to pay—including because of concerns with the political feasibility of fiscal policies, in particular in the event of unfavorable growth outcomes or fiscal shocks.[2] Indeed, Figure 1.3 illustrates that in a number of countries debt is

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[1]For a theoretical treatment of rollover crises, see Cole and Kehoe (2000).

[2]Ghosh and others (2013) show that, historically, large primary surpluses have been difficult to sustain over longer periods. See Eaton and Gersovitz (1981) or Arellano (2008) for a "willingness to pay" perspective on debt sustainability and sovereign spreads. D'Erasmo and Mendoza (2016) and D'Erasmo, Mendoza, and Zhang (2016) emphasize the political economy dimension of debt sustainability.

Figure 1.1. General Government Debt
(Percent of GDP)

Average debt-to-GDP ratios are at historic highs.

1. Advanced Economies, 1880–2023[1]

2. Emerging Market and Middle-Income Economies, 1880–2023[2]

3. Low-Income Developing Countries, 1976–2023[3]

Sources: Abbas and others 2010; Bolt and others 2018; IMF, Historic Public Debt Database; Maddison Project Database, version 2018; and IMF staff estimates and projections.
Note: Average is calculated using GDP at purchasing power parity. Dashed lines refer to the debt level in 2017. GFC = gobal financial crisis; HIPC = heavily indebted poor countries; MDRI = Multilateral Debt Relief Initiative; WWI = World War I; WWII = World War II.
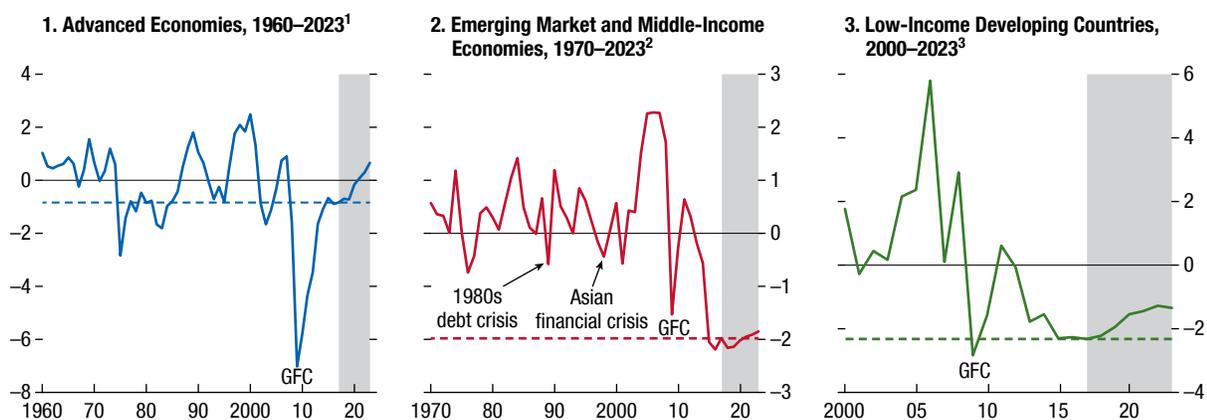[1]Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong SAR, Ireland, Italy, Japan, Korea, Netherland, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Taiwan Province of China, United Kingdom, United States.
[2]Argentina, Brazil, Bulgaria, Chile, China, Colombia, Egypt, Hungary, India, Indonesia, Iran, Jordan, Kazakhstan, Kenya, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Poland, Romania, Russia, South Africa, Sri Lanka, Thailand, Turkey, Ukraine, Uruguay, Venezuela.
[3]Bangladesh, Benin, Burkina Faso, Cameroon, Chad, Democratic Republic of the Congo, Côte d'Ivoire, Ethiopia, Ghana, Haiti, Honduras, Kenya, Madagascar, Mali, Myanmar, Nepal, Nicaragua, Niger, Nigeria, Papua New Guinea, Rwanda, Senegal, Tanzania, Uganda, Vietnam, Zambia, Zimbabwe.

Figure 1.2. General Government Primary Balance
(Percent of GDP)

Average primary balances are at historic lows among emerging market and developing economies.

1. Advanced Economies, 1960–2023[1]

2. Emerging Market and Middle-Income Economies, 1970–2023[2]

3. Low-Income Developing Countries, 2000–2023[3]

Sources: Mauro and others 2013; Bolt and others 2018; Historical Public Finance Dataset; Maddison Project Database, version 2018; and IMF staff estimates and projections.
Note: Primary balance defined as overall balance excluding interest expenditure. Average is calculated using GDP at purchasing power parity. Dashed lines refer to primary balance in 2017. GFC = global financial crisis.
[1]Australia, Canada, France, Germany, Italy, Japan, Korea, Spain, United Kingdom, United States.
[2]Argentina, Brazil, China, India, Indonesia, Mexico, Russia, South Africa, Turkey.
[3]Bangladesh, Benin, Burkina Faso, Cameroon, Chad, Democratic Republic of the Congo, Côte d'Ivoire, Ethiopia, Ghana, Haiti, Honduras, Kenya, Madagascar, Mali, Myanmar, Nepal, Nicaragua, Niger, Nigeria, Papua New Guinea, Rwanda, Senegal, Tanzania, Uganda, Vietnam, Zambia, Zimbabwe.

**Figure 1.3. General Government Debt in 2017
Compared with Debt at Time of Fiscal Crises**
(Percent of GDP)

Debt in several countries is close to or above levels at which
fiscal crises have occurred in the past.
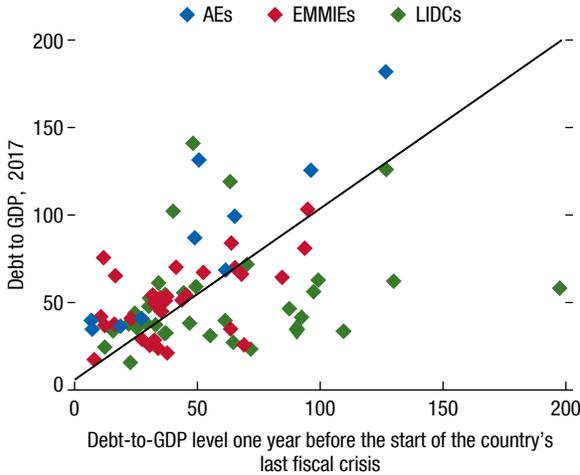
Sources: Gerling and others 2017; and IMF staff calculations.
Note: Fiscal crises are identified as in Gerling and others (2017).
AEs = advanced economies; EMMIEs = emerging market and
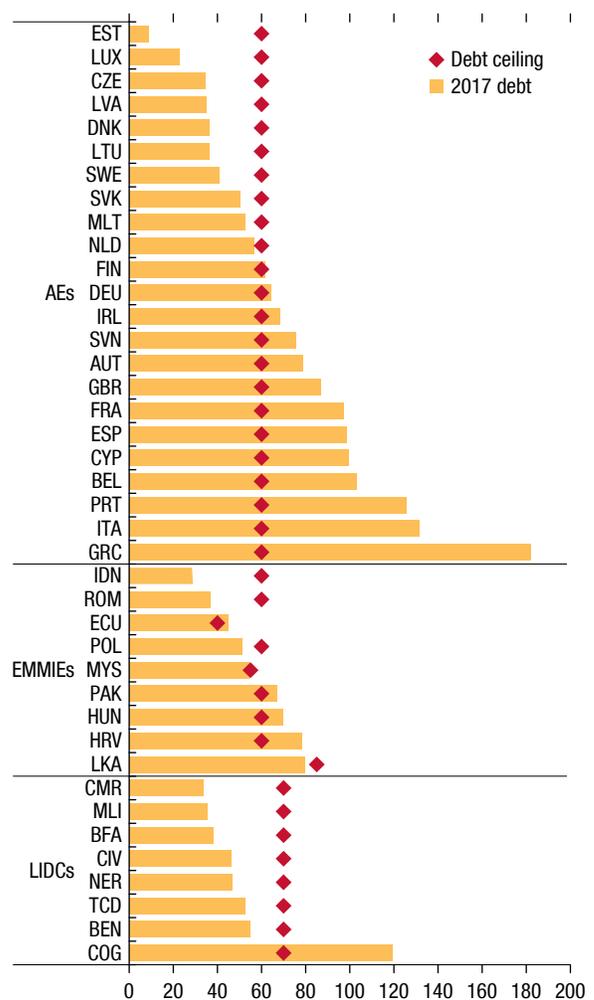middle-income economies; LIDCs = low-income developing countries.

**Figure 1.4. General Government Debt Levels in 2017
and Debt Ceilings under Fiscal Rules**
(Percent of GDP)

In several countries, debt is close to or above debt ceilings
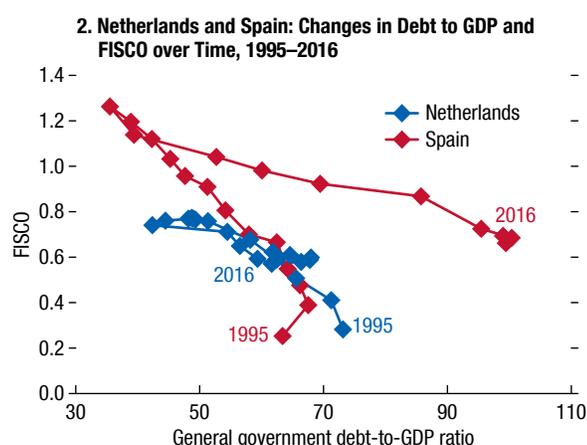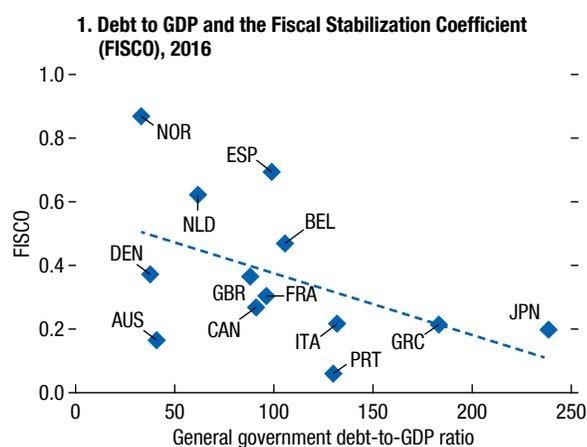defined under the fiscal rule.

Sources: IMF, fiscal rules database; and IMF staff estimates.
Note: Data labels in the figure use International Organization for
Standardization (ISO) country codes. AEs = advanced economies;
EMMIEs = emerging market and middle-income economies;
LIDCs = low-income developing countries.

above levels at which fiscal crises occurred in the
past.[3] Figure 1.4 suggests that some countries may
be beyond their comfort levels, as debt-to-GDP
ratios in 2017 exceed the debt ceilings set under
their fiscal rules.

- Second, countries can be subject to large unex-
pected shocks to public debt-to-GDP levels, which
would exacerbate rollover risk. Indeed, based on
a sample of 179 episodes of debt spikes in 90
advanced, emerging market, and low-income devel-
oping countries, Jaramillo, Mulas-Granados, and
Kimani (2017) find that the biggest driver of pub-
lic debt spikes is not primary deficits, output con-
tractions, or higher interest payments, but rather a
sudden increase in the stock of debt—arising from

the realization of contingent liabilities, quasi-fiscal
spending, or the correction of previous underre-
porting of deficits, among others.[4] Furthermore,

[3]Gerling and others (2017) characterize fiscal crises as periods
of extreme fiscal distress, which include credit events (debt default
or restructuring), exceptionally large official financing (financial
support from the IMF with a fiscal adjustment objective), implicit
domestic public debt default (very high inflation or accumulation
of domestic arrears), and loss of market confidence (loss of market
access or increase in spreads of more than 1,000 basis points). Their
study covers 188 countries over 1970 to 2015 and identifies 436
fiscal crisis episodes, with countries facing on average two crises in
this period.

[4]While some of the factors contributing to debt shocks could be
contained through enhanced transparency and more stringent finan-
cial regulation, other factors are often not easily anticipated. Bova
and others (2016) provide a comprehensive data set of contingent
liability realizations in advanced and emerging market economies for
the period 1990–2014.

Figure 1.5. General Government Debt and Fiscal Stabilization

Fiscal policy is less stabilizing in countries with higher debt to GDP.

1. Debt to GDP and the Fiscal Stabilization Coefficient (FISCO), 2016

2. Netherlands and Spain: Changes in Debt to GDP and FISCO over Time, 1995–2016

Sources: IMF, April 2015 *Fiscal Monitor;* IMF, April 2017 *Fiscal Monitor;* and IMF staff calculations.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes. The Fiscal Stabilization Coefficient (FISCO) measures how much a country's overall budget balance changes in response to a change in real GDP growth. The higher the FISCO, the more countercyclical is the conduct of fiscal policy. FISCO was introduced in the April 2015 *Fiscal Monitor;* its sample coverage was expanded and updated in the April 2017 *Fiscal Monitor.* Estimates are based on the time-varying coefficients model proposed by Schlicht (1985, 1988). Technical details on FISCO estimation are in Annex 2.1 of the April 2015 IMF *Fiscal Monitor* and Furceri and Jalles (2018).

IMF (2016) finds that fiscal risks can be highly correlated with each other, with a distinct bunching of contingent liability realizations during crisis periods.[5] Looking at data for the United States and the United Kingdom as far back as 1790, Escolano and Gaspar (2016) find that these countries have faced infrequent but large negative shocks. They show that the optimal policy in normal times is to reduce debt ratios gradually but persistently in anticipation of future large negative events.

- Third, high government debt levels make it difficult to conduct countercyclical policies, especially in the event of a financial crisis. The combination of excessive public and private debt levels can be dangerous in the event of a downturn because it would prolong the ensuing recession (Box 1.1).[6] Empirical estimates in the October 2016 *Fiscal Monitor* suggest that entering a financial crisis with a weak fiscal position worsens the depth and duration of the ensuing recession, particularly in emerging market economies. This is because fiscal policy tends to be procyclical in these cases. Romer and Romer (2018) study the postcrisis economic performance of 24 advanced economies since 1967 and show that the decline in output following a financial crisis is less than 1 percent when a country possesses monetary and fiscal policy space, but almost 10 percent when it has neither. In particular, they find that countries with low debt-to-GDP ratios typically engage in aggressively expansionary fiscal policy after a crisis, while those without such space usually pursue highly contractionary policy.[7] To illustrate, Figure 1.5 shows that the fiscal stabilization coefficient—an indicator introduced in the April 2015 *Fiscal Monitor* that measures how much a country's overall budget balance changes in

[5]IMF (2012) finds that only one-third of the deterioration of debt ratios among the hardest hit countries during the global financial crisis was due to standard macro-fiscal dynamics, with the balance arising from the crystallization of an array of other fiscal risks.

[6]Several studies point out the dangers of excessive credit growth in triggering banking crises and in deepening recessions. Excessive private debt impedes economic recovery because it constrains consumption and investment, and limits the transmission of monetary policy as indebted firms and households may not increase borrowing in reaction to reductions in interest rates. See Mian and Sufi 2010; Jordà, Schularick, and Taylor 2013; and Borio 2014.

[7]See also Jordà, Schularick, and Taylor 2016; Corsetti, Kuester, and others 2012; Aghion and Kharroubi 2013; Bernardini and Forni 2017; and Bernardini and Forni forthcoming.

response to a change in output—tends to be lower in advanced economies with higher ratios of debt to GDP.[8]

- Fourth, high government debt levels could constitute a drag on potential growth, although this is very much an open debate.[9] High debt can result in lower growth because it can crowd out private investment (Gale and Orszag 2003) and create uncertainty about higher future distortionary taxation (Dotsey 1994).

Decisive action is needed now to strengthen fiscal buffers, taking full advantage of the recent broad-based pickup in economic activity. Following a countercyclical fiscal policy will allow governments to build fiscal space in the present good times that they can then rely on during future bad times.[10] As growth gains momentum, fiscal stimulus to support demand is no longer the priority. At the same time, fiscal multipliers—which measure the short-term impact of discretionary fiscal policy on output—are expected to be smaller.[11] This is especially the case for countries with positive output gaps, where central banks would be expected to raise interest rates to, at least partly, neutralize the inflationary impact of

fiscal stimulus.[12] Hence, for these countries, the gains from short-term fiscal stimulus are limited and the economic costs of fiscal adjustment relatively smaller. Although there is some uncertainty about the amount of slack that countries have in their economy (see Box 1.3 of the April 2018 WEO), and therefore the size of fiscal multipliers, economic costs can be minimized if the adjustment is based on policies that raise medium-term growth. Therefore, countries should allow automatic stabilizers (that is, tax and spending that moves in sync with output and employment) to operate fully and should make efforts to put deficits and debt firmly on a downward path toward their medium-term targets.[13]

The size and the pace of adjustment would need to be calibrated to the country's cyclical conditions and available fiscal space to avoid becoming a drag on growth. In economies that are operating at or near potential output, and where debt to GDP is at high levels, fiscal adjustment should be implemented. Where output gaps remain and fiscal space is constrained, there is little choice but to continue consolidation efforts. Without a sufficiently high growth dividend, fiscal expansions in these countries could exacerbate fiscal risks. For a few advanced economies that have ample fiscal space and are operating at or close to capacity, fiscal policy could be used to facilitate structural reforms to boost potential growth, which would also help, if needed, to narrow unduly large current account surpluses. Despite the recent partial recovery in commodity prices, commodity exporters should continue to adjust to ensure that spending is aligned with medium-term revenue prospects. Several low-income countries need to make room in their budgets to accommodate the implementation of infrastructure plans by mobilizing revenues, rationalizing spending, and improving spending efficiency.

At the same time, in all countries, policymakers need to keep their sights on lifting medium-term growth prospects. Some of the forces propelling the

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[8]Fiscal policies have generally been more stabilizing in advanced economies than in emerging market and developing economies. This largely reflects the latter's specific features, such as less potent fiscal instruments, and the prominence of policy objectives other than output stability. See the April 2015 *Fiscal Monitor*.

[9]For a survey, see IMF (2015b), Panizza and Presbitero (2013), and the April 2013 *Fiscal Monitor*. Several studies have found that beyond a certain threshold—estimates range between 67 and 95 percent of GDP—higher public debt lowers potential growth (see Reinhart and Rogoff 2010; Reinhart, Reinhart, and Rogoff 2012; Cecchetti, Mohanty, and Zampolli 2011; Checherita-Westphal and Rother 2012; Baum, Checherita-Westphal, and Rother 2013; and Kumar and Woo, 2010). By contrast, Irons and Bivens (2010), Panizza and Presbitero (2014), Eberhardt and Presbitero (2015), and Chudik and others (2017) find evidence that thresholds are either nonexistent or highly country-specific. Chapter 3 of the October 2012 WEO provides more stylized facts on debt and growth.

[10]Fiscal space can be defined as the room to raise spending or lower taxes relative to a preexisting baseline, without endangering market access and debt sustainability. See IMF 2018a.

[11]See Auerbach and Gorodnichenko 2012, 2017; DeLong and Summers 2012; Baum, Poplawski-Ribeiro, and Weber 2012; and Jordà and Taylor 2016. Ramey and Zubairy (2014), by contrast, find no evidence of larger multipliers during recessions. Ilzetzki, Mendoza, and Végh (2013) find that multipliers are smaller in times of high debt, although Corsetti, Meier, and Müller (2012) and Auerbach and Gorodnichenko (2017) find little difference in the responses across low- and high-debt states.

[12]Moreover, cross-border output spillovers from fiscal actions are small when there is less economic slack in the source or in the recipient economies. See Blagrave and others 2017.

[13]Fiscal targets, including those set under formal rules, should be country specific, reflecting exposure to and tolerance for macroeconomic risks, as well as fiscal policy objectives including debt sustainability, economic stabilization, and equity. See Eyraud and others 2018; IMF 2018b, 2018c; and Baunsgaard and others 2012.

cyclical upturn will eventually fade, as monetary policy normalizes, investment incentives in the US tax reform expire, and China continues its transition to more balanced growth. Meanwhile, the medium-term growth outlook remains subdued among advanced economies, and emerging market and developing economies need stronger growth to facilitate convergence to higher incomes (April 2018 WEO). It is important to note that past experiences with debt reduction have shown that robust GDP growth and sustained primary balances are necessary to bring down debt-to-GDP ratios.[14] This calls for fiscal adjustment to be underpinned by growth-friendly policies, that is, structural fiscal measures that have a positive effect on medium- to long-term growth by incentivizing human and physical capital accumulation and raising productivity. Recent fiscal adjustment in some countries has not necessarily prioritized growth-friendly measures, as illustrated by the decline in public investment spending as a share of GDP among advanced economies and commodity exporters. In advanced economies, efforts should focus on seeking efficiency gains in spending and rationalizing entitlements to make room for more public investment, incentives for labor market participation, and improvements in the quality of education and health services. Some advanced economies would also benefit from broadening tax bases and upgrading their tax systems. For emerging market and developing economies, the priority is to raise revenue to finance critical investment on physical and human capital and social spending. All countries should seek to avoid excessive inequality, which can erode social cohesion, lead to political polarization, and ultimately lower economic growth. This can be achieved through improved design of transfers to households, more progressive tax systems, and greater access to quality education and health care, tailored to country-specific circumstances (see the October 2017 *Fiscal Monitor*).

The rest of the chapter examines fiscal trends and policies aimed at reducing fiscal vulnerabilities and boosting medium-term growth. The next section reviews recent fiscal developments and the fiscal outlook in advanced economies, emerging markets, and low-income developing countries. It revisits recent trends in government debt and provides a more in-depth analysis of changes in fiscal balances, revenue, and spending. It also identifies potential fiscal risks. The third section discusses growth-friendly fiscal policies, touching upon the pace and composition of fiscal adjustment tailored to country-specific circumstances.

Recent Developments and Outlook
High Debt Is of Concern

A large number of countries currently have a high debt-to-GDP ratio, as suggested by critical thresholds identified in the IMF's debt sustainability analysis (Table 1.1).[15] In 2017, more than one-third of advanced economies had debt above 85 percent of GDP, three times more countries than in 2000 (Figure 1.6). One-fifth of emerging market and middle-income economies had debt above 70 percent of GDP in 2017, similar to levels in the early 2000s in the aftermath of the Asian financial crisis. One-fifth of low-income developing countries now have debt above 60 percent of GDP, compared with almost none in 2012. Several countries among this last group have debt-to-GDP levels close to those seen when debt relief was decided under the Heavily Indebted Poor Countries (HIPC) initiative (Figure 1.7).[16] A few countries are already facing debt default or restructuring (Chad, Republic of Congo, Mozambique, Sudan).

Debt ratios are considerably higher when including implicit liabilities linked to pension and health care spending. In this case, the average debt-to-GDP ratio doubles to 204 percent among advanced econ-

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[14]See the October 2012 WEO; Abbas and others 2013; Nickel, Rother, and Zimmermann 2010; Cottarelli and Jaramillo 2013; Mauro 2011; and Baldacci, Gupta, and Mulas-Granados 2015.

[15]The IMF's Debt Sustainability Analysis for Market Access Countries identifies the critical debt thresholds—beyond which debt sustainability is put at high risk—as 85 percent of GDP for advanced economies and 70 percent of GDP for emerging market economies. The Joint World Bank–IMF Debt Sustainability Framework for Low-Income Countries finds critical thresholds to be 49, 62, and 75 percent of GDP depending on the country's institutional quality. For more details on each methodology see https://www.imf.org/external/pubs/ft/dsa/. Net debt could be an additional metric in countries with sizable liquid financial assets that can be readily drawn upon to meet debt obligations, and has been used in debt sustainability assessments, for instance, in the case of Angola, Azerbaijan, Canada, Chile, Finland, New Zealand, Saudi Arabia, and Uruguay.

[16]Based on historical episodes of debt decline in low-income developing countries, IMF (2018d) finds that debt was reduced without debt restructuring in only one-fifth of cases.

Table 1.1. General Government Debt, 2012–23
(Percent of GDP)

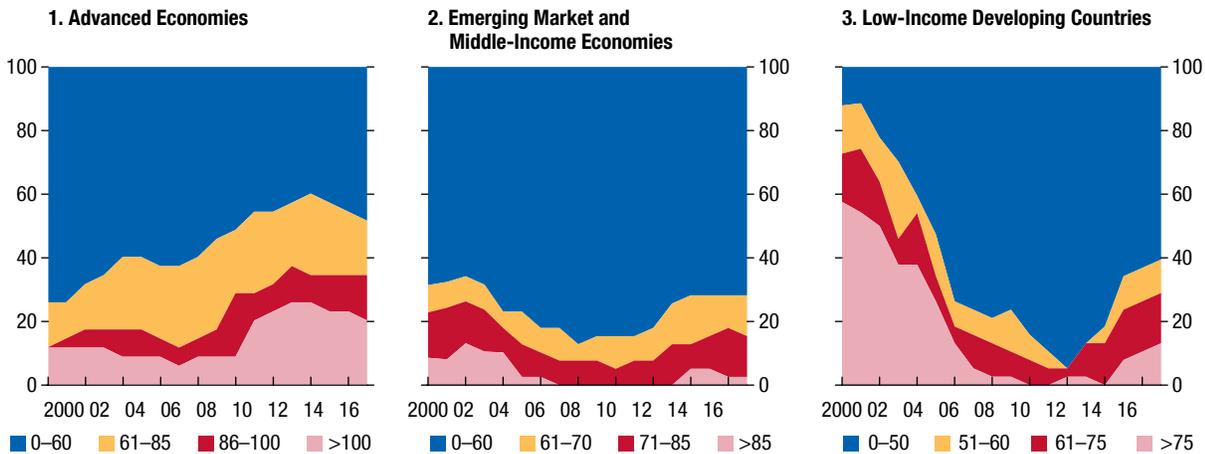|	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
							Projections					
Gross Debt												
World	**79.8**	**78.5**	**78.8**	**80.0**	**83.1**	**82.4**	**82.1**	**81.9**	**81.6**	**81.3**	**81.0**	**80.6**
Advanced Economies	**106.7**	**105.4**	**104.8**	**104.4**	**106.9**	**105.4**	**103.9**	**103.1**	**102.4**	**101.7**	**101.2**	**100.4**
United States[1]	103.5	105.4	105.1	105.3	107.2	107.8	108.0	109.4	111.3	113.1	115.2	116.9
Euro Area	89.4	91.3	91.8	89.9	88.9	86.6	84.2	81.7	79.3	76.8	74.3	71.7
France	90.7	93.5	95.0	95.8	96.6	97.0	96.3	96.2	95.1	93.6	91.6	89.0
Germany	79.8	77.4	74.7	71.0	68.2	64.1	59.8	55.7	52.2	48.7	45.5	42.4
Italy	123.4	129.0	131.8	131.5	132.0	131.5	129.7	127.5	124.9	122.1	119.3	116.6
Spain	85.7	95.5	100.4	99.4	99.0	98.4	96.7	95.1	93.9	92.8	91.8	90.9
Japan	229.0	232.5	236.1	231.3	235.6	236.4	236.0	234.2	232.3	231.4	230.7	229.6
United Kingdom	84.5	85.6	87.4	88.2	88.2	87.0	86.3	85.9	85.2	84.5	83.6	82.5
Canada[1]	84.8	85.8	85.0	90.5	91.1	89.7	86.6	83.8	81.2	78.7	76.4	74.3
Emerging Market and Middle-Income Economies	**37.4**	**38.6**	**40.7**	**44.0**	**47.0**	**49.0**	**51.2**	**52.9**	**54.3**	**55.6**	**56.7**	**57.6**
Excluding MENAP Oil Producers	39.9	41.2	43.5	46.0	48.6	50.6	52.6	54.3	55.7	57.0	58.2	59.2
Asia	39.8	41.5	43.6	44.8	47.2	50.1	52.3	54.5	56.6	58.5	60.1	61.6
China	34.3	37.0	39.9	41.1	44.3	47.8	51.2	54.4	57.6	60.5	63.1	65.5
India	69.1	68.5	67.8	69.6	68.9	70.2	68.9	67.3	65.8	64.3	62.9	61.4
Europe	25.5	26.4	28.5	30.9	32.1	31.8	32.1	32.5	32.6	32.5	32.4	32.2
Russia	11.5	12.7	15.6	15.9	15.7	17.4	18.7	19.5	19.9	20.0	20.1	20.4
Latin America	48.7	49.3	51.4	55.5	59.0	61.8	66.4	67.4	67.9	68.3	68.4	68.4
Brazil[2]	62.2	60.2	62.3	72.6	78.4	84.0	87.3	90.2	92.7	94.6	95.7	96.3
Mexico	42.7	45.9	48.9	52.9	56.8	54.2	53.5	53.4	53.4	53.3	53.3	53.3
MENAP	22.8	23.5	23.6	33.7	41.1	40.3	42.5	43.3	43.0	42.6	41.7	41.3
Saudi Arabia	3.0	2.1	1.6	5.8	13.1	17.3	20.0	23.8	26.0	27.1	27.6	29.4
South Africa	41.0	44.1	47.0	49.3	51.6	52.7	54.9	55.7	56.4	57.0	57.6	58.1
Low-Income Developing Countries	**31.1**	**31.5**	**31.8**	**38.0**	**40.8**	**44.3**	**45.5**	**44.9**	**44.1**	**43.5**	**42.8**	**41.9**
Nigeria	12.7	12.9	13.1	16.0	19.6	23.4	26.8	27.4	27.3	27.8	28.1	28.3
Oil Producers	**32.1**	**32.9**	**33.8**	**39.7**	**43.3**	**43.2**	**45.2**	**45.2**	**44.7**	**44.2**	**43.6**	**43.0**
Net Debt												
World	**65.7**	**64.8**	**65.0**	**66.6**	**69.2**	**68.5**	**67.9**	**67.7**	**67.4**	**67.2**	**67.0**	**66.5**
Advanced Economies	**76.6**	**75.8**	**75.6**	**75.7**	**77.3**	**76.3**	**75.0**	**74.5**	**74.1**	**73.7**	**73.5**	**73.0**
United States[1]	80.5	81.3	80.8	80.5	81.5	82.3	81.4	82.7	84.4	86.3	88.4	90.2
Euro Area	72.2	74.6	75.0	73.9	73.2	71.0	68.9	66.9	64.9	62.9	60.7	58.6
France	80.0	83.1	85.6	86.5	87.5	87.7	87.0	86.9	85.8	84.3	82.3	79.7
Germany	58.4	57.4	54.2	51.2	48.5	45.1	41.5	38.1	35.1	32.3	29.7	27.2
Italy	111.6	116.7	118.8	119.5	120.2	119.9	118.5	116.5	114.1	111.6	109.0	106.5
Spain	71.8	81.1	85.5	85.7	86.5	86.3	85.2	84.0	83.2	82.4	81.8	81.3
Japan	146.7	146.4	148.5	147.6	152.8	153.0	152.6	150.8	148.9	148.1	147.4	146.3
United Kingdom	76.0	77.2	79.1	79.6	79.1	78.2	77.4	77.0	76.2	75.6	74.7	73.6
Canada[1]	28.3	29.3	28.0	27.7	28.5	27.8	27.4	26.6	25.7	24.9	24.1	23.5
Emerging Market and Middle-Income Economies	**22.5**	**22.6**	**23.9**	**28.4**	**34.4**	**35.9**	**38.1**	**39.5**	**40.7**	**41.7**	**42.3**	**43.0**
Asia	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Europe	32.0	31.6	29.6	28.7	31.4	30.6	31.1	31.2	31.1	31.0	30.9	31.4
Latin America	29.4	29.4	31.9	35.2	40.9	43.3	45.2	47.2	49.1	50.7	51.9	52.7
MENAP	-3.2	-4.0	-0.7	15.2	28.6	29.0	34.6	36.8	37.9	39.2	39.8	40.7
Low-Income Developing Countries	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

Source: IMF staff estimates and projections.
Note: All fiscal data country averages are weighted by nominal GDP converted to US dollars at average market exchange rates in the years indicated and based on data availability. In many countries, 2017 data are still preliminary. Projections are based on IMF staff assessments of current policies. For country-specific details, see Data and Conventions and Tables A, B, C, and D in the Methodological and Statistical Appendix. MENAP = Middle East, North Africa, and Pakistan.
[1]For cross-country comparability, gross and net debt levels reported by national statistical agencies for countries that have adopted the 2008 System of National Accounts (Australia, Canada, Hong Kong SAR, United States) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans.
[2]Gross debt refers to the nonfinancial public sector, excluding Eletrobras and Petrobras, and includes sovereign debt held on the balance sheet of the central bank.

Figure 1.6. Distribution of Debt-to-GDP Ratios, 2000–17
(Percent)

A large number of countries have debt-to-GDP ratios above critical levels.


1. Advanced Economies

Legend: 0–60 | 61–85 | 86–100 | >100

2. Emerging Market and Middle-Income Economies

Legend: 0–60 | 61–70 | 71–85 | >85

3. Low-Income Developing Countries

Legend: 0–50 | 51–60 | 61–75 | >75

Source: IMF staff estimates.
Note: The IMF's Debt Sustainability Analysis for Market Access Countries identifies the critical debt thresholds—beyond which debt sustainability is put at high risk—as 85 percent of GDP for advanced economies and 70 percent of GDP for emerging market economies. The Joint World Bank–IMF Debt Sustainability Framework for Low-Income Countries finds critical thresholds to be 49, 62, and 75 percent of GDP depending on the country's institutional quality. For more details on each methodology, see https://www.imf.org/external/pubs/ft/dsa/.

Figure 1.7. General Government Debt in Countries that Received Debt Relief under the Heavily Indebted Poor Countries Initiative
(Percent of GDP)

In a number of countries, debt to GDP is close to the level when debt relief was previously determined.

— Decision year debt   — Debt 2017
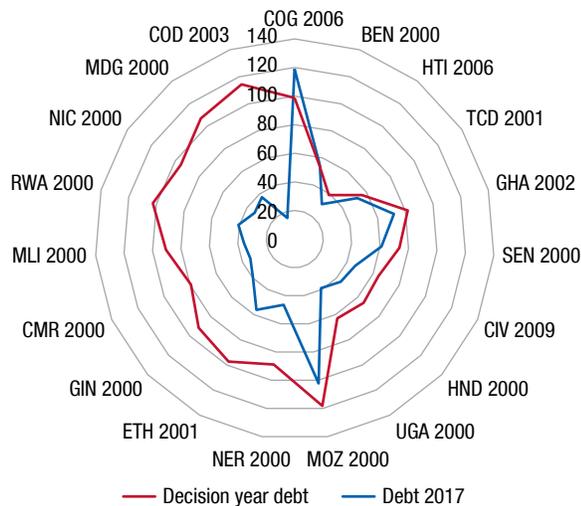
Sources: IMF 2017c; and IMF staff estimates.
Note: Decision year refers to the date when the Executive Boards of the IMF and the World Bank formally determined the country's eligibility for debt relief, and the international community committed to reducing debt to a level considered sustainable. Data labels in the figure use International Organization for Standardization (ISO) country codes.

omies, 112 percent among emerging market and middle-income economies, and 80 percent among low-income developing countries (Figure 1.8).
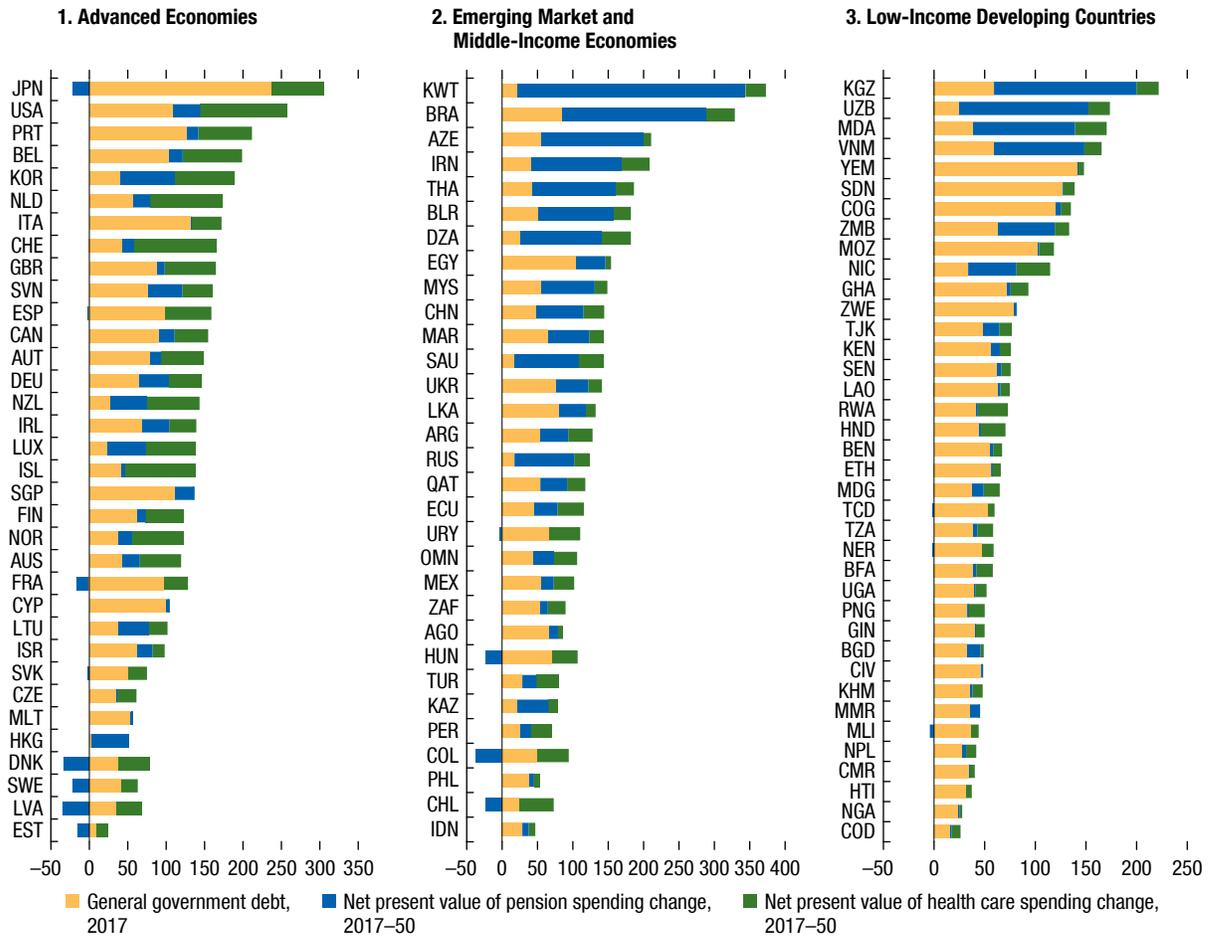
Even with favorable global financing conditions, higher debt ratios are pushing up the interest burden, especially among low-income developing countries. Figure 1.9 shows that interest payments in 2017 among this group of countries reached 18 percent of tax revenue and 9 percent of total expenditure, almost double the burden 10 years earlier. This is approaching the historic peaks reached in the early 2000s, when debt-to-GDP ratios were at all-time highs before HIPC debt relief. Some countries (Ghana, Nigeria) have seen the interest-to-tax revenue ratio climb to more than 30 percent in 2017.[17]

In addition to high debt ratios, the composition of debt makes many countries vulnerable to changes in financing conditions. As low-income developing countries have gained international market access and expanded domestic debt issuance to nonresidents, there has been a gradual shift to nonconcessional financing that reached 46 percent of total debt in 2016

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[17]For Nigeria, only the federal government is responsible for the repayment of interest on debt. Interest payments to federal government revenue is above 60 percent.

Figure 1.8. General Government Debt Including Implicit Liabilities from Pension and Health Care Spending, 2017
(Percent of GDP)

Debt-to-GDP ratios more than double when implicit liabilities linked to aging are included.

1. Advanced Economies

2. Emerging Market and Middle-Income Economies

3. Low-Income Developing Countries

■ General government debt, 2017   ■ Net present value of pension spending change, 2017–50   ■ Net present value of health care spending change, 2017–50

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

(Figure 1.10). In addition, external borrowing from commercial creditors (including commodity traders) has grown quickly from a low base, taking various forms, including Eurobonds and syndicated loans. As discussed in IMF (2018d), recent changes in the composition of creditors and debt instruments amplify both refinancing risk—as nonconcessional debt instruments typically have shorter maturity and grace periods—and the risk of capital flow reversal—as non-resident participation in domestic debt markets could reverse suddenly. First-time and lower-rated issuers in international capital markets may be particularly vulnerable to loss of market access if financial conditions

tighten suddenly. Furthermore, the share of foreign currency debt remains high at one-third of general government debt in emerging market and middle-income economies and two-thirds in low-income developing countries, which increases their exposure to exchange rate risk (Figure 1.11). In some low-income developing countries, loans to state-owned enterprises backed by future commodity exports have increased exposure to commodity price shocks.

With debt at historic highs, debt management becomes an important tool. Indeed, as global interest rates declined, many countries have taken the opportunity to lengthen their debt maturity structure and

Figure 1.9. Low-Income Developing Countries: Interest Expense as a Share of Tax Revenue and Total Expenditure
*(Percent)*

Interest payments as a share of tax revenues have doubled in the past 10 years and are close to historic highs.

1. Interest Expense as a Share of Tax Revenue and Total Expenditure, 1995–2017

2. Interest Expense as a Share of Tax Revenue, 2017
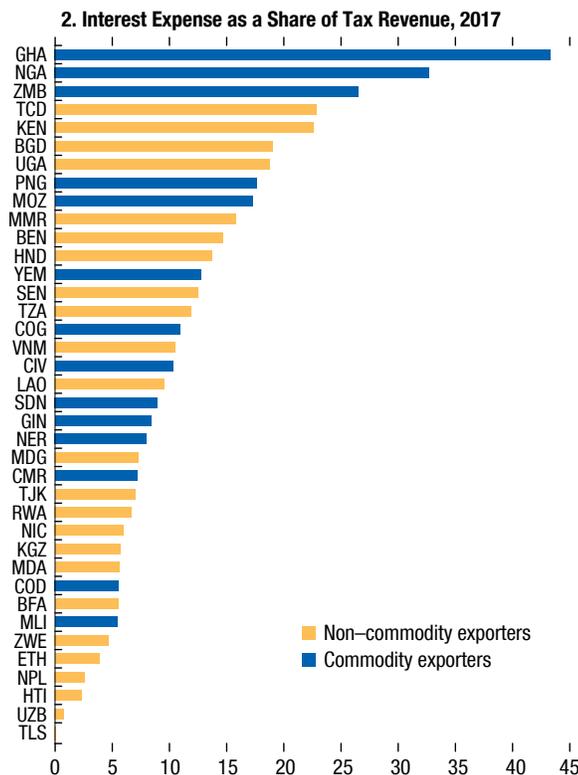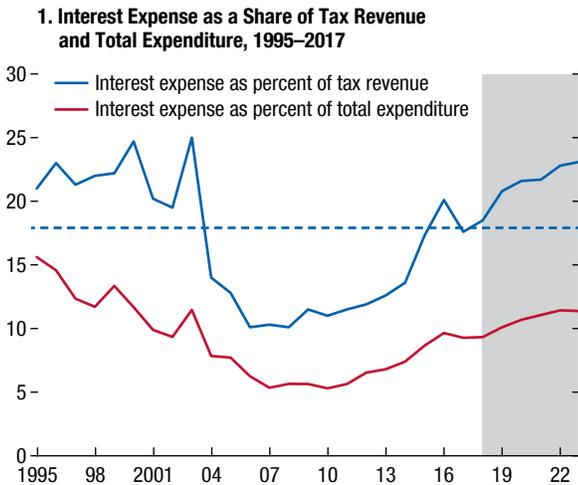
Source: IMF staff estimates and projections.
Note: Dashed line refers to interest expense as percent of tax revenue in 2017. Data labels in the figure use International Organization for Standardization (ISO) country codes.

Figure 1.10. Low-Income Developing Countries: Share of Nonconcessional Financing
(Percent of total public and publicly guaranteed debt)

Low-income developing countries are increasingly relying on nonconcessional debt.

1. Share of Nonconcessional Financing, 2007–16

2. Share of Nonconcessional Financing, 2016
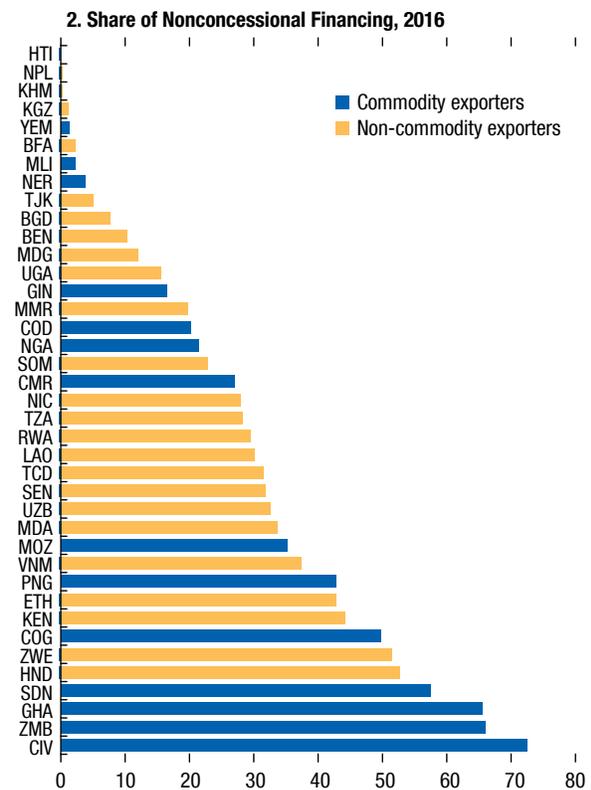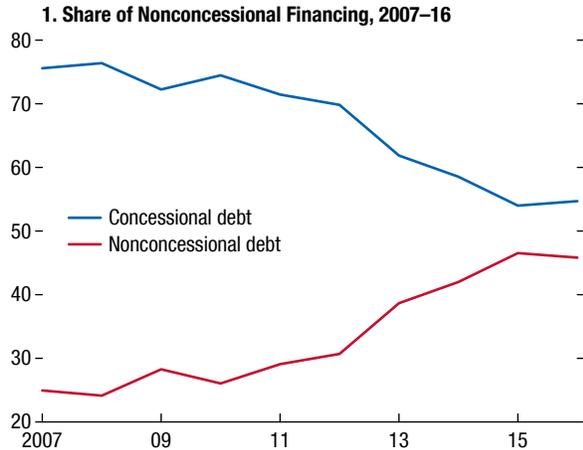
Sources: World Bank, International Debt Statistics; and IMF staff calculations.
Note: Figure 1.10 (panel 1) reports the simple average across 31 countries, as provided by the World Bank International Debt Statistics database. Data labels in the figure use International Organization for Standardization (ISO) country codes.

lock in lower rates, which helps to somewhat mitigate rollover risk. Since 2009, average maturities have risen by 1.4 years in the case of high-income countries, and close to 1 year for emerging market and developing economies (Table 1.2). This includes the growing issuance of ultra-long government bonds (more than 30 years): among OECD countries, the annual volume of ultra-long bond sales tripled (from a low base) and the number of issues doubled between 2006 and 2016 (OECD 2017).[18] In some countries, policymakers have chosen not to aggressively raise the average maturity to avoid putting too much upward pressure on long-term rates for the private sector and also to take advantage of negative bond yields at the shorter end of the yield curve. Furthermore, some emerging market economies have significantly deepened local bond markets, reducing the potential risk of capital-flow reversals (IMF and World Bank 2017). Nonetheless, gross financing needs remain elevated, especially in several emerging market economies (Table 1.3 and Table 1.4).[19]

Advanced Economies: Resting on Laurels

The fiscal stance among advanced economies was broadly neutral in 2017 and overall deficits remained unchanged at 2.6 percent of GDP on average (Table 1.5).[20] In a few countries, the fiscal stance was mildly expansionary, for example, reflecting higher current spending in the United States and higher capital spending in Canada and Japan. Of note, however, capital spending has been insufficient to offset depreciation in several cases (Figure 1.12). Cyclical factors helped contain overall deficits by reducing spending and increasing revenues through automatic stabilizers (Figure 1.13). In many countries, social benefit outlays declined as unemployment rates receded (Denmark, Finland, Netherlands, Norway,
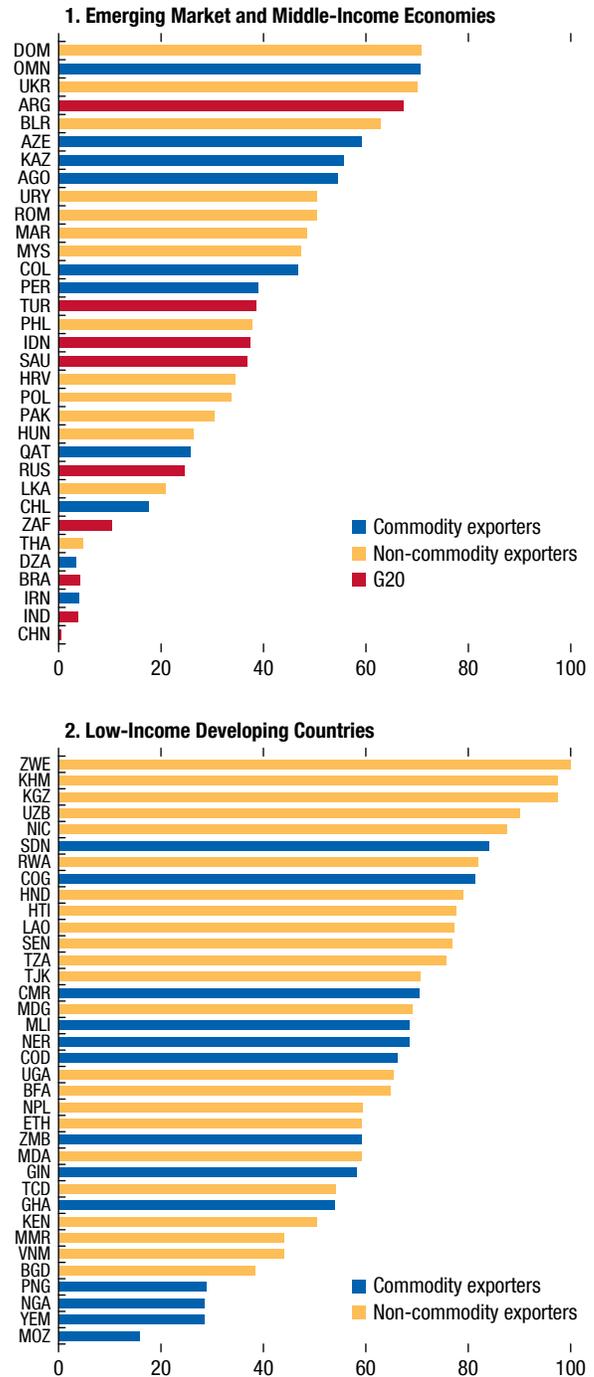
[18]For example, Mexico, Belgium, and Ireland have sold 100-year "century" bonds. As of December 2016, the outstanding stock of ultra-long bonds comprised 9 percent of central government marketable debt in OECD countries. See OECD 2017.

[19]The IMF's Debt Sustainability Analysis for Market Access Countries raises flags when gross financing needs exceed 20 percent of GDP for advanced economies and 15 percent for emerging market economies.

[20]Throughout the report, changes in the fiscal stance are assessed using the change in the structural primary balance (as a share of potential GDP). A broadly neutral stance means that this ratio is broadly constant relative to the previous year.

Figure 1.11. Foreign-Currency-Denominated General Government Debt, 2017
(Percent of total debt)

Exposure to foreign-currency-denominated debt remains elevated.

1. Emerging Market and Middle-Income Economies

- Commodity exporters
- Non-commodity exporters
- G20

2. Low-Income Developing Countries

- Commodity exporters
- Non-commodity exporters

Sources: IMF, Government Finance Statistics; and IMF staff calculations.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes. G20 = Group of Twenty.

Table 1.2. Average Term to Maturity of Outstanding Debt
(Number of years)

	2009		2017	
	Weighted ATM	**Median**	**Weighted ATM**	**Median**
High Income	5.8	5.6	7.2	7.3
Upper Middle Income	5.7	5.8	6.6	6.9
Lower Middle Income	7.3	5.5	8.3	7.3
Market Access	5.8	5.6	7.1	7.1

Sources: Bloomberg L.P.; IMF, *World Economic Outlook;* and IMF staff estimates.
Note: Weighted ATM is calculated using total debt from the World Economic Outlook database. Table excludes nonmarket access countries. ATM = average term to maturity.

Table 1.3. Selected Advanced Economies: Gross Financing Need, 2018–20
(Percent of GDP)

	2018			2019			2020		
	Maturing Debt	**Budget Deficit**	**Total Financing Need**	**Maturing Debt[1]**	**Budget Deficit**	**Total Financing Need**	**Maturing Debt[1]**	**Budget Deficit**	**Total Financing Need**
Australia	1.6	1.7	3.3	2.3	1.1	3.3	3.1	0.1	3.2
Austria	5.9	0.3	6.2	7.2	0.2	7.4	5.4	0.2	5.6
Belgium	17.0	1.3	18.3	16.7	1.3	18.0	16.4	1.3	17.6
Canada	8.5	0.8	9.4	10.2	0.8	10.9	8.4	0.7	9.1
Czech Republic	7.5	−1.1	6.4	4.4	−1.0	3.4	3.1	−0.5	2.6
Denmark	4.0	0.8	4.8	5.0	0.5	5.5	2.7	0.3	3.1
Finland	6.3	1.4	7.7	6.6	0.9	7.4	8.6	0.2	8.8
France	10.4	2.4	12.8	11.5	3.1	14.5	11.8	2.0	13.8
Germany	5.0	−1.5	3.5	4.3	−1.7	2.7	3.4	−1.6	1.8
Iceland	3.2	−1.2	1.9	2.9	−1.1	1.8	3.9	−1.2	2.7
Ireland	6.6	0.2	6.7	7.3	0.1	7.4	8.5	−0.2	8.4
Italy	20.6	1.6	22.2	21.2	0.9	22.1	20.8	0.3	21.1
Japan	37.2	3.4	40.7	36.8	2.8	39.6	32.4	2.2	34.6
Korea	2.6	−2.0	0.6	2.6	−1.9	0.6	2.9	−1.8	1.1
Lithuania	6.9	−0.7	6.2	3.4	−0.8	2.6	3.5	−0.9	2.6
Malta	4.7	−1.6	3.2	4.8	−1.1	3.7	4.7	−0.7	4.0
Netherlands	7.4	−0.6	6.8	6.0	−0.7	5.3	5.8	−0.8	5.0
New Zealand	1.4	−1.1	0.3	5.0	−1.1	3.9	3.5	−2.0	1.5
Portugal	12.7	1.0	13.7	13.7	0.9	14.6	12.8	0.8	13.7
Slovak Republic	7.5	0.9	8.4	4.1	0.4	4.5	2.3	0.2	2.5
Slovenia	5.2	0.0	5.2	6.1	0.3	6.4	4.2	0.4	4.6
Spain[2]	15.9	2.5	18.4	14.5	2.1	16.6	14.4	2.1	16.5
Sweden	4.1	−1.1	3.0	5.4	−0.7	4.7	4.8	−0.6	4.2
Switzerland	2.1	−0.4	1.6	1.9	−0.4	1.5	1.6	−0.3	1.3
United Kingdom	6.7	1.8	8.5	8.3	1.5	9.8	7.5	1.3	8.8
United States[3]	18.7	5.3	24.0	18.1	5.9	24.0	15.3	5.5	20.9
Average	15.5	2.8	18.4	15.4	2.9	18.3	13.5	2.6	16.1

Sources: Bloomberg Finance L.P.; and IMF staff estimates and projections.
Note: For most countries, data on maturing debt refer to central government securities. For some countries, general government deficits are reported on an accrual basis. For country-specific details, see "Data and Conventions" and Table B.
[1]Assumes that short-term debt outstanding in 2018 and 2019 will be refinanced with new short-term debt that will mature in 2019 and 2020, respectively. Countries projected to have budget deficits in 2018 or 2019 are assumed to issue new debt based on the maturity structure of debt outstanding at the end of 2017.
[2]Data refer to the general government on a consolidated basis.
[3]For cross-country comparability, expenditure and fiscal balances of the United States are adjusted to exclude the imputed interest on unfunded pension liabilities and the imputed compensation of employees, which are counted as expenditures under the 2008 System of National Accounts (2008 SNA) adopted by the United States, but not in countries that have not yet adopted the 2008 SNA. Data for the United States in this table may thus differ from data published by the US Bureau of Economic Analysis.

Table 1.4. Selected Emerging Market and Middle-Income Economies: Gross Financing Need, 2018–19
(Percent of GDP)

	2018			2019		
	Maturing Debt	Budget Deficit	Total Financing Need	Maturing Debt	Budget Deficit	Total Financing Need
Argentina	9.0	5.5	14.5	6.4	4.9	11.2
Brazil	5.7	8.3	14.0	8.6	8.3	16.8
Chile	1.0	0.9	1.9	0.7	0.6	1.3
Colombia	2.1	2.7	4.8	2.2	1.9	4.1
Croatia	11.0	0.5	11.6	…	0.3	…
Dominican Republic	6.8	3.0	9.8	7.3	3.2	10.5
Ecuador	11.3	5.0	16.3	10.2	3.7	13.9
Egypt	24.9	10.0	34.9	20.7	6.6	27.4
Hungary	16.3	2.1	18.4	16.0	1.9	17.9
India	4.1	6.5	10.6	…	6.5	…
Indonesia	2.0	2.5	4.5	1.8	2.5	4.3
Malaysia	7.7	2.7	10.4	6.8	2.5	9.3
Mexico	4.6	2.5	7.1	7.2	2.5	9.7
Morocco	7.5	3.0	10.4	6.1	2.8	9.0
Pakistan	24.7	5.3	30.0	25.6	5.7	31.3
Peru	2.0	3.3	5.3	2.0	2.7	4.7
Philippines	4.2	0.5	4.6	4.5	0.6	5.2
Poland	5.6	1.9	7.5	6.0	1.8	7.8
Romania	4.9	3.6	8.5	4.4	3.5	7.8
Russia	1.3	0.0	1.3	1.4	−0.1	1.3
South Africa	8.5	4.2	12.7	9.0	4.1	13.1
Sri Lanka	14.1	4.4	18.5	13.3	3.5	16.8
Thailand	5.0	0.9	6.5	5.3	0.9	6.6
Turkey	3.5	2.9	6.5	3.9	3.2	7.1
Ukraine	5.4	2.5	7.9	6.2	2.7	8.9
Uruguay[1]	9.7	2.9	12.6	12.1	2.5	14.6
Average	5.4	4.1	9.5	5.0	3.9	7.8

Source: IMF staff estimates and projections.
Note: Data in the table refer to general government data. For some countries, general government deficits are reported on an accrual basis. For country-specific details, see "Data and Conventions" and Table C.
[1]Data are for the consolidated public sector, which includes the nonfinancial public sector (as presented in the authorities' budget documentation), local governments, Banco Central del Uruguay, and Banco de Seguros del Estado.

Slovenia). On the revenue side, improvements in some countries largely reflected cyclical gains in tax collection, including a strong pickup in revenues from income taxes (Australia, France, Germany, Korea, Netherlands).

Taking a longer view, overall deficits have been falling since 2012 through a combination of policy action, cyclical gains, and lower interest payments, although less so since 2014. Spending has declined by 1.6 percent of GDP on average since 2012, mainly because of reductions in interest payments (France, Germany, Italy), compensation of employees as a share of GDP (Cyprus, Finland, Spain), and other current spending items (Figure 1.14). Investment spending has also continued to fall on average since 2012, particularly in the United Kingdom and the United States. However, the magnitude of the decline was smaller than during

2010–12, and some countries have made efforts to expand investment to support growth (Greece, Norway). Social benefits have remained roughly stable. Nonetheless, in some cases lower unemployment benefits have been more than offset by discretionary increases in health care spending (Germany, United States), and increases in pension outlays (France, Italy). Revenues as a share of GDP have improved by 0.7 percentage point on average, largely reflecting cyclical gains in taxes and social security contributions, especially in 2017.

The fiscal stance is expected to be mildly expansionary in 2018 and 2019, followed by a gradual adjustment in outer years. Debt is set to decline only marginally, to about 100 percent of GDP by 2023. The small reduction in debt is achieved mainly thanks to higher projected inflation (from low levels), in

Table 1.5. General Government Fiscal Balance, 2012–23: Overall Balance
(Percent of GDP)

	2012	2013	2014	2015	2016	2017	Projections 2018	2019	2020	2021	2022	2023
World	**−3.7**	**−2.9**	**−2.9**	**−3.3**	**−3.5**	**−3.3**	**−3.2**	**−3.3**	**−3.0**	**−3.0**	**−2.9**	**−2.8**
Advanced Economies	**−5.5**	**−3.7**	**−3.1**	**−2.6**	**−2.6**	**−2.6**	**−2.7**	**−2.8**	**−2.4**	**−2.3**	**−2.3**	**−2.0**
United States[1]	−7.9	−4.4	−4.0	−3.5	−4.2	−4.6	−5.3	−5.9	−5.5	−5.5	−5.4	−5.0
Euro Area	−3.6	−3.0	−2.6	−2.1	−1.5	−0.9	−0.6	−0.5	−0.2	−0.1	0.0	0.1
France	−4.8	−4.0	−3.9	−3.6	−3.4	−2.6	−2.4	−3.1	−2.0	−1.5	−1.0	−0.3
Germany	0.0	−0.1	0.3	0.6	0.8	1.1	1.5	1.7	1.6	1.5	1.5	1.4
Italy	−2.9	−2.9	−3.0	−2.6	−2.5	−1.9	−1.6	−0.9	−0.3	0.0	0.0	0.0
Spain[2]	−10.5	−7.0	−6.0	−5.3	−4.5	−3.1	−2.5	−2.1	−2.1	−2.1	−2.1	−2.2
Japan	−8.6	−7.9	−5.6	−3.8	−3.7	−4.2	−3.4	−2.8	−2.2	−2.1	−2.0	−2.0
United Kingdom	−7.6	−5.4	−5.4	−4.3	−3.0	−2.3	−1.8	−1.5	−1.3	−1.1	−0.7	−0.6
Canada	−2.5	−1.5	0.2	−0.1	−1.1	−1.0	−0.8	−0.8	−0.7	−0.7	−0.7	−0.7
Others	0.5	0.2	0.2	0.1	0.6	1.0	0.6	0.6	0.8	0.9	0.9	0.9
Emerging Market and Middle-Income Economies	**−1.0**	**−1.5**	**−2.4**	**−4.4**	**−4.8**	**−4.4**	**−4.2**	**−4.1**	**−4.0**	**−3.9**	**−3.9**	**−3.8**
Excluding MENAP Oil Producers	−2.0	−2.3	−2.7	−4.1	−4.4	−4.3	−4.2	−4.2	−4.0	−4.0	−4.0	−3.9
Asia	−1.6	−1.8	−1.9	−3.2	−3.9	−4.2	−4.2	−4.3	−4.3	−4.3	−4.3	−4.3
China	−0.3	−0.8	−0.9	−2.8	−3.7	−4.0	−4.1	−4.3	−4.3	−4.3	−4.4	−4.3
India	−7.5	−7.0	−7.2	−7.0	−6.7	−6.9	−6.5	−6.5	−6.4	−6.2	−6.0	−5.9
Europe	−0.7	−1.5	−1.4	−2.7	−3.0	−2.0	−1.4	−1.4	−1.2	−1.1	−1.0	−1.0
Russia	0.4	−1.2	−1.1	−3.4	−3.7	−1.5	0.0	0.1	0.3	0.5	0.5	0.5
Latin America	−3.1	−3.3	−4.8	−7.2	−6.6	−6.2	−5.8	−5.6	−5.1	−4.9	−4.6	−4.4
Brazil	−2.5	−3.0	−5.4	−10.3	−9.0	−7.8	−8.3	−8.3	−7.9	−7.6	−7.0	−6.6
Mexico	−3.7	−3.7	−4.5	−4.0	−2.8	−1.1	−2.5	−2.5	−2.5	−2.5	−2.5	−2.5
MENAP	5.7	4.0	−1.4	−8.4	−9.3	−5.8	−4.6	−3.5	−3.4	−3.2	−3.0	−2.9
Saudi Arabia	11.9	5.6	−3.5	−15.8	−17.2	−9.0	−7.3	−5.6	−5.3	−5.0	−4.4	−4.0
South Africa	−4.4	−4.3	−4.3	−4.8	−4.1	−4.5	−4.2	−4.1	−4.1	−4.0	−4.1	−4.1
Low-Income Developing Countries	**−1.7**	**−3.3**	**−3.2**	**−4.0**	**−4.2**	**−4.3**	**−4.2**	**−4.0**	**−3.7**	**−3.6**	**−3.5**	**−3.4**
Nigeria	0.2	−2.3	−2.1	−3.5	−3.9	−5.8	−4.8	−4.6	−4.2	−4.3	−4.2	−4.2
Oil Producers	**1.5**	**0.4**	**−1.2**	**−4.5**	**−4.9**	**−3.2**	**−2.2**	**−1.9**	**−1.8**	**−1.8**	**−1.7**	**−1.7**
Memorandum												
World Output (percent)	**3.5**	**3.5**	**3.6**	**3.5**	**3.2**	**3.8**	**3.9**	**3.9**	**3.8**	**3.7**	**3.7**	**3.7**

Source: IMF staff estimates and projections.

Note: All fiscal data country averages are weighted by nominal GDP converted to US dollars at average market exchange rates in the years indicated and based on data availability. Projections are based on IMF staff assessments of current policies. In many countries, 2017 data are still preliminary. For country-specific details, see "Data and Conventions" and Tables A, B, C, and D in the Methodological and Statistical Appendix. MENAP = Middle East, North Africa, and Pakistan.

[1]For cross-country comparability, expenditure and fiscal balances of the United States are adjusted to exclude the imputed interest on unfunded pension liabilities and the imputed compensation of employees, which are counted as expenditures under the 2008 System of National Accounts (2008 SNA) adopted by the United States, but not in countries that have not yet adopted the 2008 SNA. Data for the United States in this table may thus differ from data published by the US Bureau of Economic Analysis.

[2]Including financial sector support.

Figure 1.12. Advanced Economies: General Government Net and Gross Investment in Nonfinancial Assets, 2016 or Latest
(Percent of GDP)

In several countries, investment spending has been insufficient to offset depreciation.
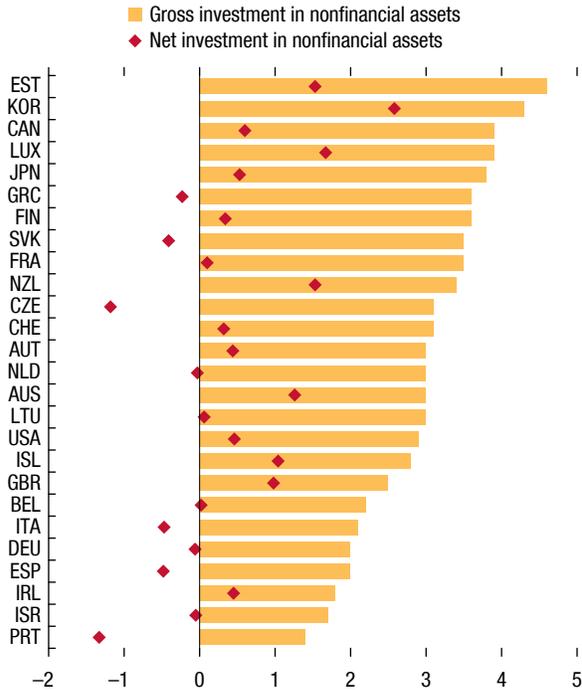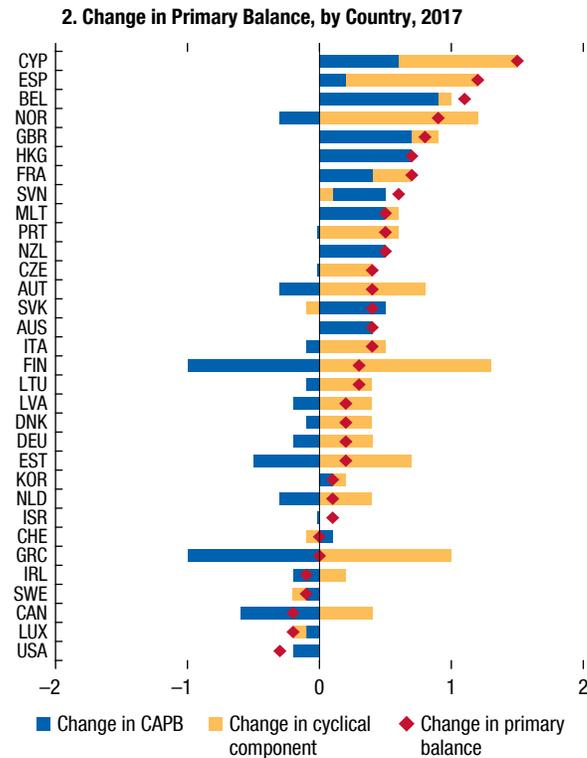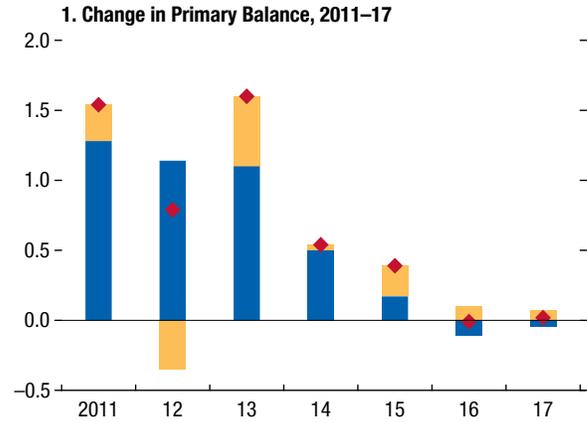

Sources: IMF, Government Finance Statistics; and IMF staff estimates.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes. Net investment in nonfinancial assets = gross investment in nonfinancial assets minus depreciation.

the context of continued low nominal interest rates (particularly in the euro area and Japan) and despite an expected tapering of real GDP growth. Several countries intend to remain expansionary in the near term (Germany, United States), some plan to implement a gradual consolidation (Japan, United Kingdom), while a few countries expect to follow a neutral stance in 2018, resuming consolidation in later years (Canada, Italy) (see Table 1.6).

The fiscal outlook for the United States is driving the average for advanced economies. Following two years of fiscal expansion in the United States in 2016–17, the revised tax code and the two-year budget agreement provide an additional expansionary fiscal impulse until 2019. The increase in spending authority by US$150 billion (0.7 percent of GDP)

Figure 1.13. Advanced Economies: Change in Primary Balance
(Percent of GDP)

Cyclical factors have helped countries contain their primary balances.

1. Change in Primary Balance, 2011–17

2. Change in Primary Balance, by Country, 2017

Source: IMF staff estimates.
Note: Cyclical component refers to improvements in the primary balance driven by automatic stabilizers that react to changes in output growth and employment (for example, tax payments that move in sync with income, and social transfers, such as unemployment benefits). Negative change in CAPB denotes fiscal expansion. Data labels in the figure use International Organization for Standardization (ISO) country codes. CAPB = cyclically adjusted primary balance.

Figure 1.14. Advanced Economies: Change in Total Expenditure, 2012–17
(Percent of GDP)

Investment spending has not been spared from cuts.
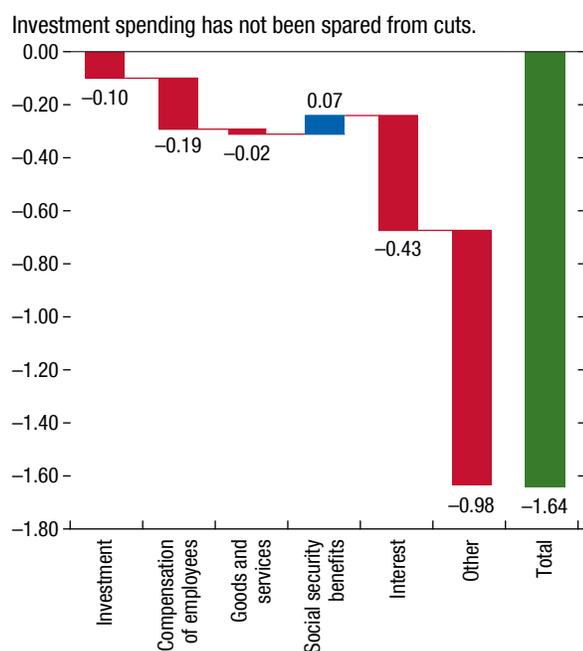
Sources: IMF, *World Economic Outlook*; and IMF staff estimates.
Note: The 2012 weights were used to calculate averages for 2012–17.
"Other" includes subsidies and grants.

per year for the next two years, and lower corporate and personal income tax rates will give rise to overall deficits in excess of US$1 trillion over the next three years (above 5 percent of GDP). This adds to the rising trend in government debt, bringing it to 117 percent of GDP by 2023. Part of the expansion is expected to be unwound when certain provisions start to expire, notably the full expensing of equipment in 2023 and the personal income tax cuts in 2025. The stimulus will strengthen near-term growth in the United States with some short-term positive spillovers on trading partners' growth (see Chapter 1 of the April 2018 WEO). Box 1.2 provides a stylized illustration of the distributional effects of certain aspects of the reform using a dynamic general equilibrium model. The estimates show that all income groups would benefit from the reform as tax cuts raise the profitability of businesses, which increases demand for labor and hence wages. Those in the top quintile of the income distribution would gain the most, followed by those in the lower quintile. However, because the increase in consumption for the middle is substantially outpaced by increases at the top and bottom of the distribution, the reform may contribute further to the hollowing out of the middle of the

Table 1.6. Selected Advanced Economies: Fiscal Stance for 2018 and the Medium Term

Canada	After expanding significantly over the past two years, Canada is expected to take a broadly neutral stance in 2018, while the authorities are committed to implementing the long-term infrastructure investment plan, complemented with an "Innovation and Skills" plan.
France	The draft multiyear budget aims to reduce annual real spending growth gradually to close to zero by 2022, so as to bring the overall deficit to 0.2 percent of GDP by 2022. Specific spending reforms to achieve this objective are yet to be defined. At the same time, the authorities are reducing the corporate tax rate and implementing structural and tax reforms that support employment, including conversion of an existing tax credit into a permanent tax cut in 2019. They are also replacing the wealth tax with a less distortionary tax on real estate.
Germany	The draft budget for 2018 envisages a mild expansion through a revision of tax brackets and more generous child-related tax credits, together with higher social benefits. Following the expansion, structural primary balances would remain unchanged over the medium term.
Italy	Plans for an increase in value-added tax rates in 2018 have been canceled and fiscal policy is expected to remain broadly neutral.
Japan	A supplementary budget amounting to 0.5 percent of GDP was adopted, which would partly offset a fiscal contraction resulting from the expiration of a previous fiscal stimulus package in 2018. Plans for a consumption tax hike in 2019—delayed from 2017—remain unchanged. Part of the revenue increase would be used for childcare support and education.
Spain	The authorities envisage a gradual consolidation through expenditure restraint, to bring the overall deficit to 0.5 percent of GDP by 2020, although a medium-term fiscal plan with concrete measures has yet to emerge.
United Kingdom	Fiscal consolidation is projected to proceed at a gradual pace that accommodates a more subdued growth outlook, with the objective of bringing cyclically adjusted public sector net borrowing below 2 percent of GDP and putting debt to GDP on a declining path in 2020/21. The consolidation plans include cuts to welfare and current spending, with the exception of defense, education, and health.
United States	The increase in spending authority by US$150 billion (0.7 percent of GDP) per year for the next two years and lower corporate and personal income tax rates will give rise to overall deficits in excess of US$1 trillion over the next three years (above 5 percent of GDP), and debt is projected to increase to 117 percent of GDP by 2023. Part of the expansion would be unwound in 2023 when the provisions on the personal income tax are set to expire.

Source: IMF staff estimates.

Table 1.7. Selected Emerging Market and Middle-Income Economies: Fiscal Developments in 2017

Brazil	Fiscal consolidation continued in 2017—supported by a recovery of revenues, containment in discretionary expenditure, and lower interest on debt—with the overall deficit declining from 9.0 to 7.8 percent of GDP.
China	The on-budget deficit continued to rise to 4 percent of GDP in 2017. Stimulus measures included reforms to reduce multiple value-added tax rates and tax cuts for some small enterprises that more than offset on-budget investment spending cuts.
India	Fiscal consolidation was paused in fiscal year 2017/18 at the federal level as the economy recovered from disruptions related to demonetization and the rollout of the new national goods and service tax. Relatively buoyant revenues supported by base-broadening efforts and lower capital expenditures were offset by higher spending (including higher compensation to states for the rollout of the new goods and service tax) and lower profit transfers from the Reserve Bank of India due to costs incurred during the demonetization.
Indonesia	While the overall deficit remained at 2.5 percent of GDP in 2017, spending was rebalanced toward education, health, and social protection, and efficiency improved, particularly the targeting of energy subsidies.
Mexico	The overall deficit was cut to 1.1 percent of GDP in 2017, helped by a contraction in capital spending, a continued reduction in the wage bill, and a one-off transfer from the central bank.
Russia	The overall deficit is projected to have fallen by over 2 percentage points to 1.5 percent of GDP in 2017, mainly through a nominal spending freeze and temporary revenue measures, supported by higher oil prices.
Saudi Arabia	The overall deficit was reduced from over 17 percent of GDP in 2016 to 9 percent in 2017. This was driven by a combination of key non–oil revenue measures—such as the introduction of excises on tobacco and beverages, increased fees on expatriate labor, and savings from energy price reforms—and spending cuts of close to 2.5 percent of GDP largely in capital expenditures.
Thailand	The overall balance of the public sector weakened by slightly over 1 percent of GDP as sales of licenses and income tax revenues declined.

Source: IMF staff estimates.

income distribution. These results contrast with static analyses, which show lower-income households gaining the least from the reform. Furthermore, the US tax reform includes several innovative international provisions that will likely deepen the debate on the future of the international tax system (Box 1.3).

Emerging Market and Middle-Income Economies: Progress, but Not Enough

Overall fiscal deficits in emerging markets and middle-income economies fell marginally in 2017 for the first time after four years of steady increase, explained mainly by fiscal adjustment among commodity exporters. On average, the overall deficit declined from 4.8 percent of GDP in 2016 to 4.4 percent of GDP in 2017, with diverging fiscal developments across countries. Commodity exporters have continued to push through reform to adjust to "lower for longer" oil prices. The headline fiscal balances improved in most commodity exporters, supported by a pickup in commodity prices and by expenditure cuts (Gulf Cooperation Council members, Mexico, and Russia). In contrast, the fiscal position was relaxed in major non–commodity exporters, including to provide stimu-

lus to the economy (China, India, Thailand). The average trend among emerging market and middle-income economies is largely driven by rising fiscal deficits in China, which are higher when off-budget spending is also taken into account (Box 1.4). In contrast, fiscal consolidation in Brazil continued in 2017 (see Table 1.7).

Developments in 2017 did little to reverse the revenue and spending trends of the past five years. Tax-to-GDP ratios have been declining, whereas spending rigidities have crowded out investment. Tax revenues have fallen by 1 percentage point of GDP among non–commodity exporters since 2012, in some cases linked to stimulus measures (China, Turkey) and in others due to cyclical considerations. For commodity exporters, tax revenues have also been declining, in some cases because of lower corporate income tax collection from oil companies (Figure 1.15). Although non–commodity revenues have held their ground supported by recent reforms (Mexico, Saudi Arabia), in many cases the improvement has not been enough to offset the earlier decline in commodity revenues. Of note, 40 percent of emerging market and middle-income economies continue to have tax-to-GDP ratios below 15 per-

Figure 1.15. Emerging Market and Middle-Income Economies: General Government Revenue
(Percent of GDP)

Tax revenue to GDP has been falling since 2012, although recent reforms by commodity exporters have lifted non-commodity revenues.

1. Tax Revenue, 2000–23

2. Commodity Exporters: Commodity and Non-Commodity Revenue, 2000–23[1]
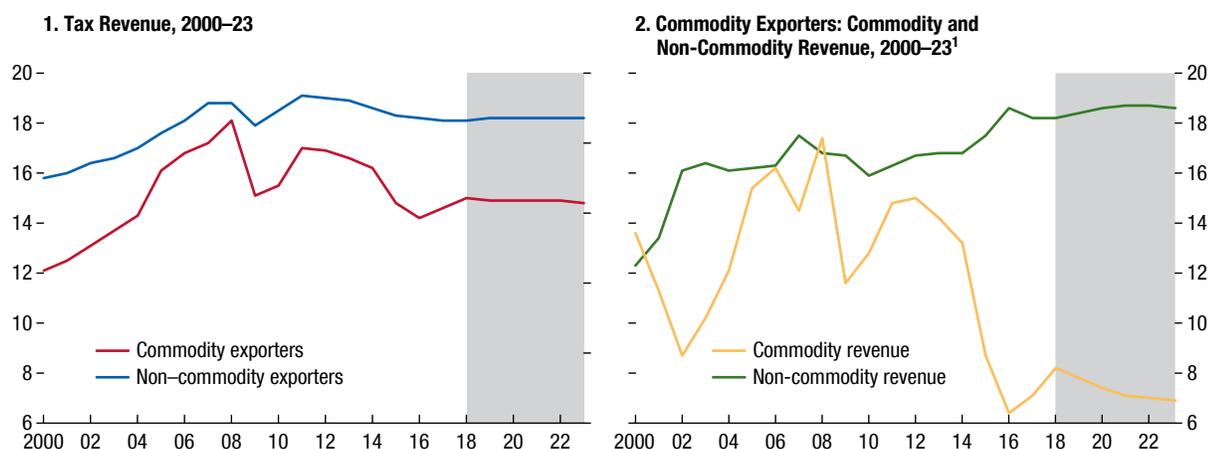
Source: IMF staff estimates.
[1]Algeria, Angola, Argentina, Chile, Colombia, Ecuador, Indonesia, Iran, Kuwait, Malaysia, Mexico, Oman, Peru, Qatar, Russia, Saudi Arabia, United Arab Emirates, Venezuela.

Figure 1.16. Emerging Market and Middle-Income Economies: Change in Expenditure Categories, 2012–17
(Percent of GDP)

The composition of spending has shifted away from investment to wages, transfers, and social assistance.
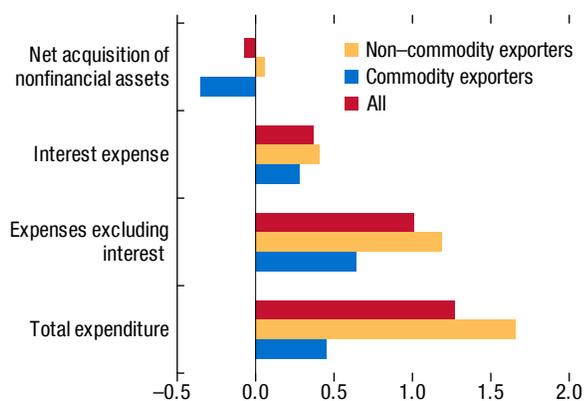
Source: IMF staff estimates.
Note: The 2012 weights were used to calculate averages for 2012–17.

cent.[21] Meanwhile, all expenditure categories have been rising as a share of GDP on average across all countries, with the exception of investment spending, which remained flat (Figure 1.16).

For 2018 and over the medium term, spending restraint is expected to keep deficits in check. Countries aim to contain current expenditure growth below nominal GDP growth, including the wage bill. Investment spending is expected to increase slightly for non–commodity exporters, but to continue contracting for commodity exporters. Meanwhile, total revenues are expected to decline slightly in the forecast period, as the small improvement in tax revenue (less than ½ percent of GDP) is not enough to offset the continued deterioration in nontax revenue driven by the expected moderation in oil prices. It is important to note that the expected improvement in overall balances will be insufficient to stabilize debt. Several commodity exporters are expected to continue reducing their overall deficits (Gulf Cooperation Council members, Russia). Several non–commodity exporters are also expected to adjust over the medium term (Brazil,

[21]Gaspar, Jaramillo Mayor, and Wingender (2016) provide empirical evidence that once the tax-to-GDP level exceeds 12¾ percent, real GDP per capita increases sharply and in a sustained manner over several years.

Table 1.8. Selected Emerging Market and Middle-Income Economies: Fiscal Stance in 2018 and the Medium Term

Brazil	The fiscal rule introduced at the end of 2016—which establishes a limit on the real growth of primary spending at the federal level—will imply a primary spending reduction of about 0.5 percent of GDP per year starting in 2019. However, approval of a pension reform, which could generate savings of about 9.5 percent of GDP over the next decade, has been delayed. Debt is expected to stabilize just under 100 percent of GDP in the mid-2020s.
China	A tightening of local government spending on infrastructure investment has been announced. However, a recalibration of the economy toward consumption and reform of state-owned enterprises will leave the on-budget deficit stable at about 4 percent of GDP over the medium term, with a moderate decline in off-budget spending.
India	Consolidation is expected to resume in fiscal year 2018/19 and after, but further measures—including to ensure smooth implementation of the new goods and services tax, reductions in fuel and food subsidies, and tax reforms—are needed to support it over the medium term.
Kuwait	Three-year rolling indicative expenditure ceilings have been set, which, combined with recent revenue measures, would keep the overall balance in surplus. The government balance after transfer to the Future Generation Fund and excluding investment income, which better reflects the government's financing needs, would continue to post a large deficit.
Mexico	A constant fiscal deficit target of 2.5 percent of GDP has been set, starting in 2018.
Russia	The 2018–20 budget targets an annual reduction of 1 percent of GDP in the overall deficit, to be achieved mostly through a continued nominal spending freeze. This adjustment aims to bring the overall deficit to balance by 2019, as mandated by the new budget rule passed in 2017 that requires a zero primary balance at the benchmark oil price of US$40 per barrel (in 2017 US dollars).
Saudi Arabia	Fiscal consolidation will continue to be pursued to balance the budget by 2023. To support growth and redistribution, the authorities plan to raise capital spending, provide a direct targeted cash transfer to low- and middle-income households, and offer support to the private sector through specialized funds in the real estate and industrial sectors.
Thailand	The fiscal balance is expected to weaken owing to a moderate boost to infrastructure spending expected over the coming years, and a gradual rise in public spending on health and pensions, in line with demographics.
Turkey	Fiscal expansion is expected in 2018–19. The revenue gains from the expiration of temporary tax breaks and earlier reforms to the corporate income tax rate would be offset by recently announced value-added tax exemptions, continuation of minimum wage subsidies, and several new employment incentives, some of which will be effective until the end of 2019.

Source: IMF staff estimates.

India), while some countries do not envisage adjustment (China, Thailand) (see Table 1.8).

Low-Income Developing Countries: Vulnerabilities Drifting Upward

Overall fiscal deficits in low-income developing countries were broadly unchanged at 4.3 percent of GDP on average. Deficits continued to deteriorate among commodity exporters, notwithstanding the improvement in commodity prices during the second half of the year that raised revenue slightly. The overall deficit for non–commodity exporters remained flat, with a slight improvement in tax revenue.

The deterioration in fiscal balances over the past five years does not reflect a scaling up of investment. Commodity exporters have not been able to fully compensate for the fall in commodity revenues. They

implemented cuts to both current and capital expenditure, whereas the public wage bill remained flat as a percentage of GDP (Figure 1.17). Meanwhile, non–commodity exporters let spending drift upward across most items, except for investment spending, which remained unchanged. In some cases, higher current spending reflected increases in education spending, even though this corresponds to a relatively small share of the spending increase (Figure 1.18). Furthermore, there has been limited progress among both commodity and non–commodity exporters in mobilizing revenues, with tax-revenue-to-GDP ratios in half of low-income developing countries still below 15 percent (Figure 1.19).

Protracted fiscal deficits have contributed to rapidly rising debt-to-GDP ratios in recent years. Debt increased by 13 percentage points on average since 2012, to 44 percent of GDP in 2017. Debt was rising

Figure 1.17. Low-Income Developing Countries: Change in Expenditure Categories, 2012–17
*(Percent of GDP)*

Investment has taken a hit as commodity exporters adjust to lower prices.
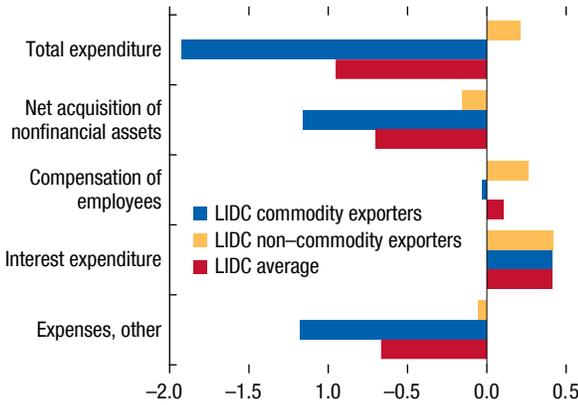
Source: IMF staff estimates.
Note: The 2012 weights were used to calculate averages for 2012–17.
LIDC = low-income developing country.

Figure 1.18. Low-Income Developing Countries: Change in Government Secondary Education Spending and Outcome, 2012–15

Some countries have increased spending on education.
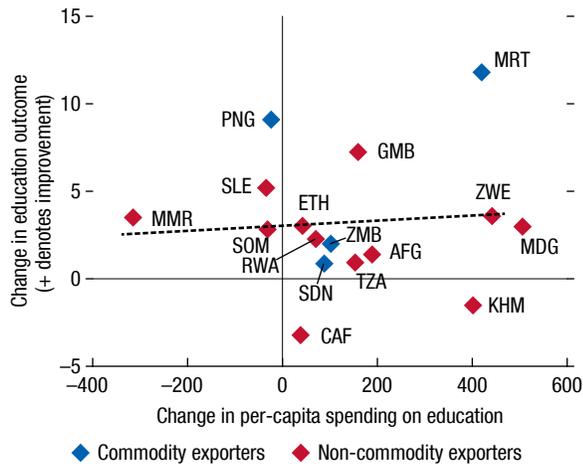
Sources: Garcia-Escribano and Liu 2017; and IMF, Fiscal Affairs Department Expenditure Assessment Tool.
Note: Change in education outcome refers to change in net secondary school enrollment. Data labels in the figure use International Organization for Standardization (ISO) country codes.

Figure 1.19. Low-Income Developing Countries: General Government Revenue
(Percent of GDP)

Since 2012, both commodity and non–commodity exporters have made limited progress in mobilizing revenue.

1. Tax Revenue, 2000–23
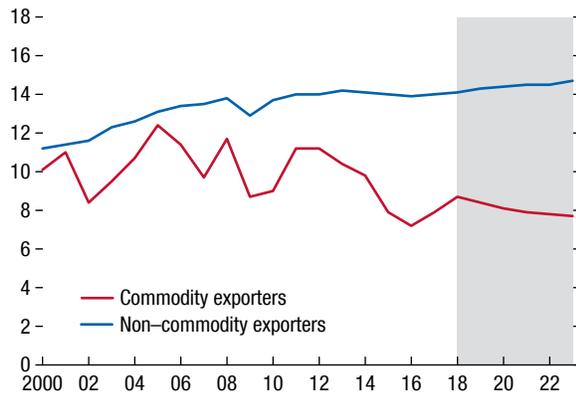
2. Commodity Exporters: Commodity and Non-Commodity Revenue, 2000–23[1]
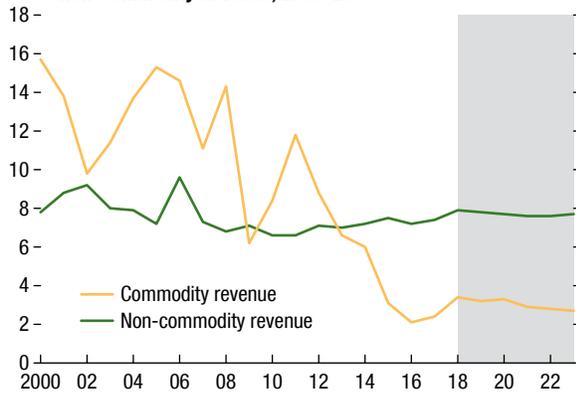
Sources: IMF staff estimates and projections.
[1]Includes Cameroon, Republic of Congo, Côte d'Ivoire, Ghana, Guinea, Madagascar, Mali, Niger, Nigeria, Senegal, Sudan, Vietnam, Yemen, and Zambia.

in about two-thirds of low-income developing countries in 2017. Debt increases were highest among commodity exporters, many of which continued to rely on debt financing to cushion the effects of falling revenues (Figure 1.20). The rise in debt since 2012 was mainly driven by deteriorating primary deficits and rising interest burdens. Other factors have also contributed in some cases, including exchange rate depreciations (Côte d'Ivoire, Senegal, Zambia), bailing out of the financial system (Moldova), and reporting of previously undisclosed debt (Republic of Congo, Mozambique). Furthermore, in 2017, eight countries were classified as in debt distress

under the IMF–World Bank debt sustainability framework, almost double the number from one year ago.[22] For these countries in debt distress, the average effective interest rate has risen by about 100 basis points since 2014—considerably higher than the increment faced by other low-income developing countries—and of interest payments to tax revenue ratios have risen by over 12 percentage points since 2014.

Spending control is expected to help bring fiscal deficits down in 2018 and over the medium term. Overall deficits would decline by close to 1 percent of GDP between 2018 and 2023, though the adjustment is expected to be significantly more ambitious in some cases (Niger, Yemen). Much of the improvements in fiscal balances reflect governments' intention to unwind previous stimulus (Kenya) and cut current administrative expenditures (Vietnam), while maintaining public investment (Ethiopia). However, several countries are forecast to have cuts in public investment over the medium term, after having expanded investment spending over the past few years. Meanwhile, medium-term revenue forecasts for commodity exporters are disappointing. While there is an expected pickup in commodity revenues in 2018, these are expected to moderate over the medium term, and little improvement is envisaged in terms of tax mobilization. In contrast, some non–commodity exporters are expected to expand their tax collection by about 1 percent of GDP or more over the next five years (Ethiopia, Uganda).

Debt buildup is expected to slow moderately over the medium term. The average debt ratio is projected to stabilize in 2018 at about 45 percent of GDP and then to start declining slightly. The expected stabilization of debt is driven by more favorable interest rate–growth differentials. Narrowing deficits contribute to declining debt in about one-third of the countries (Cameroon, Ghana, Kenya).

Risks to the Fiscal Outlook

Risks appear broadly balanced in the near term owing to the economic upswing. On the upside, the cyclical recovery could prove stronger and support

[22]The IMF–World Bank Debt Sustainability Framework for Low-Income Countries uses a statistical model based on debt stock and debt service indicators, relevant debt distress thresholds as determined by historical episodes, and tailored stress test results to assign risk ratings (low, moderate, or high risk of debt distress, or in debt distress) for individual low-income developing countries (IMF 2017e).

Figure 1.20. Low-Income Developing Countries: General Government Debt, 2007–23
(Percent of GDP)

Government debt to GDP has risen among LIDCs to unprecedented levels since the global financial crisis.
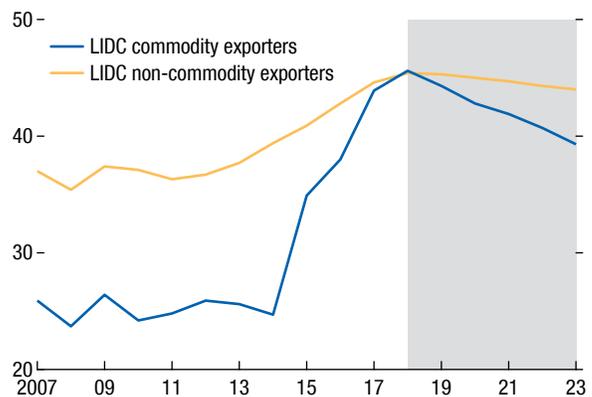
Source: IMF staff estimates and projections.
Note: LIDC = low-income developing country.

both public and private deleveraging. Stronger demand could also result in higher-than-expected commodity prices, a boon for commodity exporters.

Nonetheless, there are a number of downside risks, particularly for the medium and longer term. Though each is discussed separately below, it is important to keep in mind that these different shocks can be correlated and would reinforce one another, which would magnify the adverse effect on public finances and exacerbate the drag on growth.

• A sudden tightening in global financial conditions would worsen debt dynamics in several advanced economies, emerging markets, and low-income developing countries (see the April 2018 GFSR and the 2015 *Spillover Report*). A faster-than-expected increase in global interest rates—in response to a faster pickup in inflation in the United States, for example—would add to the public debt burden, especially among countries with large gross financing needs and still low growth, and could disrupt market access. A divergence in monetary policy rates across major economies or a shift in investors' risk appetite could lead to an appreciation of the US dollar, affecting countries with foreign currency debt. Similarly, a large depreciation or correction in asset prices could give rise to potential strains on private sector balance sheets wherever currency mismatches are prevalent, so contingent liabilities could materialize.

- Global policy uncertainty remains a key concern, and difficulties in implementing announced consolidation policies could eventually undermine market confidence in some countries, as projected economic growth alone would be insufficient to significantly bring debt ratios down. Brexit negotiations remain a key source of risk. In several advanced economies, the implementation of necessary fiscal adjustment could be delayed because of reduced political cohesion or because of complacency given the favorable economic environment. Geopolitical risks—such as intensifying conflicts in parts of the Middle East and Africa—and a potential retreat from globalization also increase policy uncertainty.

- A slowdown in potential growth would undermine the projected reduction in debt-to-GDP ratios. It would directly raise the debt-to-GDP ratio because of a lower denominator, unless fully offset by lower effective interest rates. It would further add to debt because of weaker primary balances unless expenditure growth is also curtailed.

- There is also uncertainty with respect to movements in oil prices. While oil prices are projected to rise modestly, they could fall if, for example, cohesion of the cartel among oil producers weakened or oil production in Africa were to recover. Oil exporters would see a significant drop in revenues, putting pressure on fiscal balances. In countries where fuel prices are administered by the government, a decrease in oil prices would lead to lower subsidies and thus support the fiscal position.

- For the long term, demographic changes and aging populations pose a challenge. A shrinking labor force in some advanced economies will create headwinds to potential growth (Germany, Japan, Korea), and the fiscal cost of retirement benefits and age-related health expenditures could put the sustainability of current policies at risk (Korea, United States).[23]

Saving for a Rainy Day

Enhancing Resilience

The ongoing recovery presents a golden opportunity to focus fiscal policy on rebuilding buffers and raising potential growth. Forecasts indicate that economic activity will continue to accelerate, which implies that fiscal stimulus to support demand is no longer a priority in most countries. Governments should avoid the temptation of spending the revenue windfalls during good times. Starting to rebuild buffers now will ensure that policymakers have sufficient fiscal ammunition to respond in case of a downturn and prevent fiscal vulnerabilities themselves from hurting the economy. There is some uncertainty as to the amount of slack that countries have in their economies. Nonetheless, economic costs should be moderate if adjustment is based on policies that support medium-term growth. In general, countries should allow automatic stabilizers to operate fully, and make concerted efforts to bring deficits and debt toward their medium-term targets.[24] The size and pace of adjustment need to be tailored to country-specific circumstances, taking into account cyclical conditions and available fiscal space

Fiscal policy in advanced economies should turn to consolidation over the medium term, but additional support in the near term would be helpful in some countries.
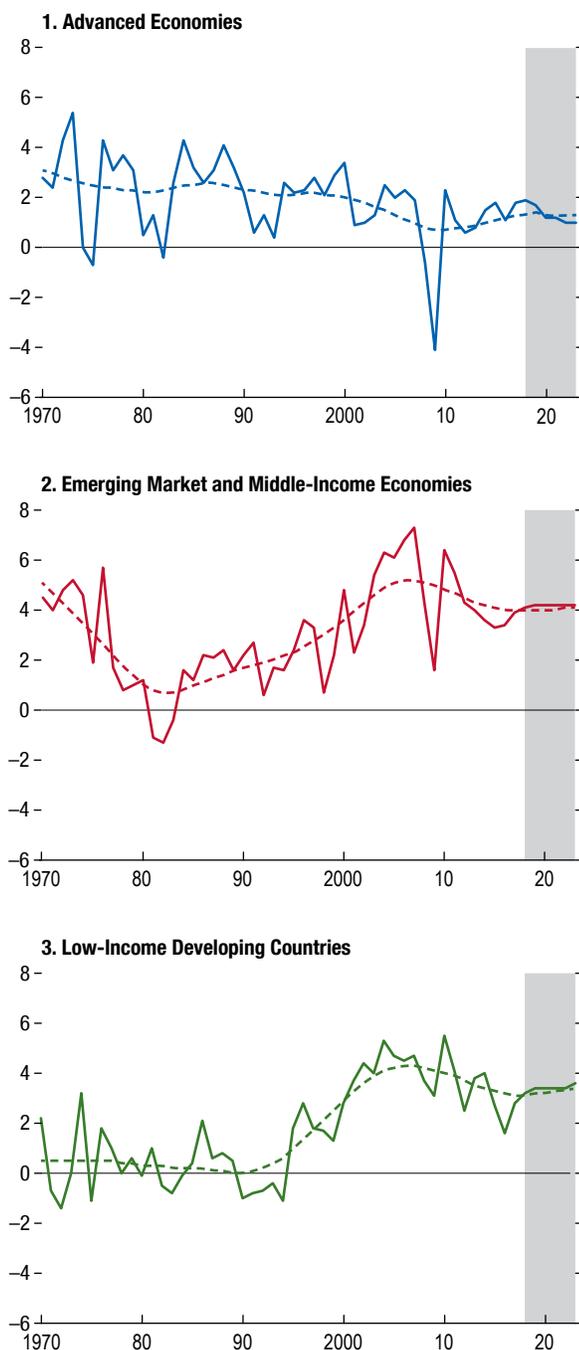
- In economies with smaller or already-closed output gaps and where debt has reached high levels, fiscal policy support should be withdrawn sooner. In the United States, where tax reform and the two-year budget agreement provide a procyclical stimulus and a less favorable debt outlook, fiscal policy should be recalibrated to ensure that the government debt-to-GDP ratio declines over the medium term. This should be achieved by mobilizing higher revenues and gradually curbing public spending dynamics, while shifting its composition toward much-needed infrastructure investment. In the United Kingdom, a steady but gradual fiscal consolidation to rebuild buffers against future shocks could have greater reliance on revenue measures, as earlier adjustment fell heavily on expenditure. In Belgium, where the recovery is strengthening, continuing fiscal consolidation will require efficiency-oriented spending reforms, as recent reforms to reduce the tax wedge will result in lower revenues in coming years. In Ireland, where the economy may be approaching full capacity, consolidation may need to accelerate to take advantage of the favorable cyclical condition to continue rebuilding buffers. In Spain, where economic momentum remains strong, a con-

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[23]See Clements and others 2015; Amaglobeli, Chai, and others forthcoming; and Congressional Budget Office 2017.

[24]Debt management strategies, such as extending debt maturity profiles or prefinancing, can help somewhat mitigate rollover risk.

solidation of the structural primary balance of about 0.5 percent of GDP is advisable for 2018, with room for measures lying mostly on the revenue side.

- Where output gaps remain and fiscal space is constrained, consolidation efforts should continue, based on policies that will support medium-term growth. In France, public spending as a share of GDP needs to be reduced (wage bill and local government spending) and its efficiency improved (the targeting of social benefits and health spending) with a view to gradually reducing the fiscal deficit while creating room to reduce taxes. In Italy, the priority should be to start a credible and ambitious fiscal consolidation to put debt on a robust downward path, based on cutting current primary spending while supporting the vulnerable, raising capital spending, lowering tax rates on productive factors, shifting taxation toward wealth and property and consumption, and broadening the tax base.

- A few advanced economies that have ample fiscal space and are operating at or close to capacity should focus on structural reforms to boost potential growth. This would also support external rebalancing by helping to narrow unduly large current account surpluses. Germany has the fiscal space to support medium-term growth through higher spending on public investment in physical and digital infrastructure, childcare, refugee integration, and relief of the tax burden on labor. In the Netherlands, the loosening of the fiscal stance through increased spending on education and research and development and a reduction of the tax burden will help unlock potential growth. In Korea, where cyclical shortfalls remain, reducing the structural balance toward zero by at least 0.5 percentage point a year during the coming years through higher expenditures on social policies and structural reforms (including targeted transfers to the most vulnerable, and increased spending on childcare and active labor market policies) could increase growth by an estimated 0.2 percentage point each year (IMF 2017d).

- In Japan, a premature drop in the level of fiscal support should be avoided to sustain the growth momentum and promote structural reforms, while the debt trajectory needs to be anchored by a credible medium-term fiscal consolidation plan.

In emerging market and developing economies, fiscal policy is appropriately focused on consolidation,

especially in those countries that are still adjusting to lower commodity prices. However, the speed of adjustment could be fine-tuned and, in some cases, it can be more ambitious.

- Several countries could step up the speed of their fiscal adjustment. Given the strength of the recovery, Brazil should quicken the pace of consolidation and front-load the fiscal effort. In Argentina, the primary deficit targets set forth by the authorities for 2018–20 put fiscal policy on the right track, but a faster pace of deficit reduction would decrease financing needs and support the disinflation effort. In Turkey, a stronger, front-loaded fiscal consolidation—achieved by rationalizing untargeted transfers, containing wage bill increases and subsidies, and cutting discretionary investment incentives—would support internal and external rebalancing, help avoid overburdening monetary policy, and buoy investor sentiment. In India, a return to a gradual path of growth-friendly fiscal consolidation is desirable to create fiscal space, but full and smooth implementation of the new goods and services tax is necessary to avoid tax revenue underperformance resulting in cuts to capital expenditures. In China, a consolidation of 0.5 percent of GDP a year of the "augmented" deficit (a broader concept that also includes local government financing vehicles and other off-budget activities that should continue to be monitored closely) and recomposition of spending away from infrastructure investment and toward health, education, and social security is necessary over the medium term to curb the rapid buildup of debt and support the rebalancing of the economy. Consolidation should only be interrupted if growth were to fall significantly.

- The recent pickup in commodity prices should not sidetrack commodity exporters from rebuilding fiscal buffers. In Angola, the medium-term non-oil primary balance needs to improve by at least 4.5 percent of GDP over the medium term to put public debt firmly on a downward path. In Mongolia, the 2018 budget commitment to save any revenue overperformance will help avoid the overborrowing that initially triggered financial distress in 2016. In Nigeria, a growth-friendly fiscal adjustment—driven by the front-loading of non-oil revenue mobilization while increasing public investment—would raise growth and reduce the ratio of interest payments to federal government revenue toward more sustainable levels. Members of the Central African

Figure 1.21. Real GDP per Capita Growth, 1970–23
(Percent)

Real per capita growth has not returned to earlier levels.

1. Advanced Economies

2. Emerging Market and Middle-Income Economies

3. Low-Income Developing Countries

Source: IMF staff estimates and projections.
Note: The dashed lines represent trends based on a Hodrick-Prescott filter.

Economic and Monetary Community (CEMAC) need to advance with a steadfast fiscal adjustment—supported by measures to increase non-oil revenues—combined with sufficient financing to smooth the adjustment path.

- Many non–commodity exporting low-income developing countries should retain their focus on addressing fiscal vulnerabilities. Several countries will need to keep debt under control (Ethiopia, Ghana, Tajikistan). In Sudan, deficit reduction could also support the disinflation effort, as it would reduce central bank direct budget financing. In some countries that have planned a consolidation path, concrete measures should be better identified (Vietnam). Other countries will have to mobilize revenues, rationalize spending, and improve investment spending efficiency to create the fiscal space needed to accommodate the implementation of infrastructure plans (Guinea, Tanzania).

- In a few countries, there is room to scale back the pace of adjustment. In Saudi Arabia, availability of fiscal space has enabled the authorities to appropriately slow the pace of the projected budgetary retrenchment starting in 2018 to smooth economic activity. In Malaysia, fiscal consolidation could proceed gradually over the medium term; however, priority should be given to revenue measures, including broadening the tax base and raising the tax rate on goods and services.

Structural Fiscal Policies to Buttress Growth

Adjustment strategies should center on structural fiscal policies that strengthen medium-term growth prospects. In turn, stronger medium-term growth helps reduce fiscal vulnerabilities, including through stronger balances and lower risk premiums. In the case of advanced economies, real GDP per capita growth is expected to remain subdued after declining for several decades. Among emerging market and developing economies, little improvement is forecast for real GDP per capita growth rates, while stronger growth is needed to facilitate convergence to higher incomes (Figure 1.21).

Growth-friendly fiscal policies can act through both direct and indirect channels, as discussed in the April 2017 *Fiscal Monitor*. They can impact growth directly through structural tax and expenditure measures that boost employment, the accumulation of physical and human capital, and productivity. They can work indirectly by reducing macroeconomic volatility and by facil-

itating the implementation of productivity-enhancing structural reforms in labor and product markets. Also, as discussed in the October 2017 *Fiscal Monitor*, fiscal policies can be used to avoid excessive inequality.

Countries can directly raise growth by upgrading their tax systems to ensure that firms' decisions are made for business reasons and not for tax reasons. Tax reform measures should focus on reducing distortionary taxes, cutting inefficient tax expenditures, better targeting tax incentives, and lowering burdensome tax administration practices. Several studies have shown that budget-neutral changes in the tax structure can support stronger growth (De Mooij and Keen 2013; European Commission 2013; IMF 2015b; Bussière and others 2017). Using the newly created database on tax reform measures by Amaglobeli, Crispolti, and others (forthcoming),[25] a recent analysis by Dabla-Norris and others (forthcoming) finds that, in contrast with tax rate hikes, measures that broaden tax bases (such as limiting interest deduction or preferential tax rates and relief) can raise significant tax revenues without a negative impact on growth over the medium term.

- Advanced economies have room to make their tax systems more growth friendly. The United States has several areas for reform not addressed with the recent tax legislation. For example, the eligibility and generosity of the earned income tax credit should be expanded to boost labor supply and sustain wages for the working poor. There is also scope to rely more on other revenue sources, including a federal-level consumption tax, a broad-based carbon tax, and a higher federal gas tax.[26] In France, government cuts in labor, corporate income, and capital tax rates, and narrowing of the wealth tax base should be complemented by reforms that remove threshold effects for small businesses that create disincentives for company growth. In Italy, Spain, and the United Kingdom, reducing value-added tax gaps would remove economic distortions and create room for growth-friendly spending (Figure 1.22, panel

[25]This novel, cross-country database contains major tax policy reforms in 23 advanced and emerging market economies from 1970 to 2014, using narrative information from Organisation for Economic Co-operation and Development country reports and the International Bureau of Fiscal Documentation. The database contains granular information on rate and base changes for personal income taxes, corporate income taxes, and value-added taxes. It also provides specific information on the announcement and implementation dates of each reform episode. See Amaglobeli, Crispolti, and others forthcoming.

[26]See Parry (2015) for considerations on implementing a carbon tax in the United States.

Figure 1.22. Value-Added Tax, Compliance, and Policy Gaps

Even among advanced economies, there is room to improve VAT compliance.

1. European Union: VAT Compliance and Policy Gaps in 2015
(Percent of potential revenue[1])

2. VAT Compliance and Policy Gaps[2]
(Percent of GDP)
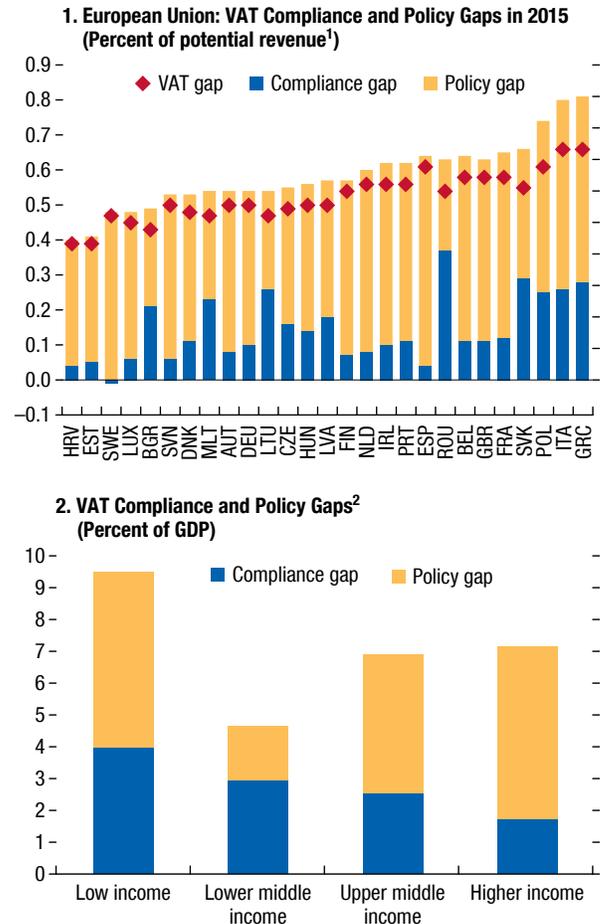
Sources: Center for Social and Economic Research 2017; Hutton 2017; and IMF, Revenue Administration—Gap Analysis Program.
Note: The policy gap is the difference between the potential VAT revenue if all final consumption were taxed at the current standard rate and the potential VAT given the current policy framework. The compliance gap is the difference between the potential VAT revenue that could have been collected given the current policy framework and actual accrued VAT revenue. The VAT gap is the difference between the potential VAT revenue if all final consumption were taxed at the current standard rate and the actual accrued VAT revenue. Data labels in the figure use International Organization for Standardization (ISO) country codes. VAT = value-added tax.
[1]For the VAT and policy gap, potential revenue refers to the VAT revenue if all final consumption were taxed at the current standard rate. For the compliance gap, potential revenue refers to the VAT revenue that could have been collected given the current policy framework.
[2]The figure displays the simple average across countries that have received technical assistance from the IMF through the Revenue Administration–Gap Analysis Program. The number of countries in each group is 4 low income, 4 lower middle income, 10 upper middle income, and 8 higher income.

1). In Japan, eliminating the spousal tax deduction should boost female labor force participation.

- For most emerging market and developing economies, the focus should be on improving tax administration, broadening the tax base, and improving collection from non–commodity taxes. A well-designed Medium-Term Revenue Strategy (MTRS) can provide a useful road map.[27] Indonesia is working toward putting in place an MTRS aimed at raising revenue by at least 3 percentage points over the medium term by streamlining tax administration, removing exemptions to VAT and income taxes, and introducing excise taxes on vehicles and fuel. In Papua New Guinea, an MTRS will aim at rebalancing the tax mix, broadening the tax base, and, in the short-term, introducing new excise rates and undertaking administrative initiatives to strengthen revenue institutions. Many countries have room to raise revenues by narrowing VAT compliance and policy gaps (Figure 1.22, panel 2). Revenue mobilization is also crucial for continued progress by low-income developing countries toward their 2030 Sustainable Development Goals.[28] In the case of commodity exporters, greater tax capacity can make room for spending on human capital and infrastructure, as well as on other structural reforms to facilitate diversification.[29]

- Digital technologies can enhance the efficiency of overall government operations. In particular, they can improve tax compliance and enforcement (see Chapter 2). By improving access to taxpayer data, these technologies can help countries reconcile payment differences, monitor revenue collection in real time, perform audits, and identify anomalous behavior of taxpayers. This in turn has helped improve domestic revenue mobilization, tackle tax evasion from cross-border fraud, and lower revenue losses from personal income and wealth sheltered in tax havens. However, cautious implementation is needed because

digitalization may also create new fraud opportunities, for example, the use of cryptocurrencies to accumulate wealth outside the reach of tax authorities or digital identity theft to illegally claim benefits.

Expenditure measures that raise public investment and enhance human capital can also support growth directly.[30]
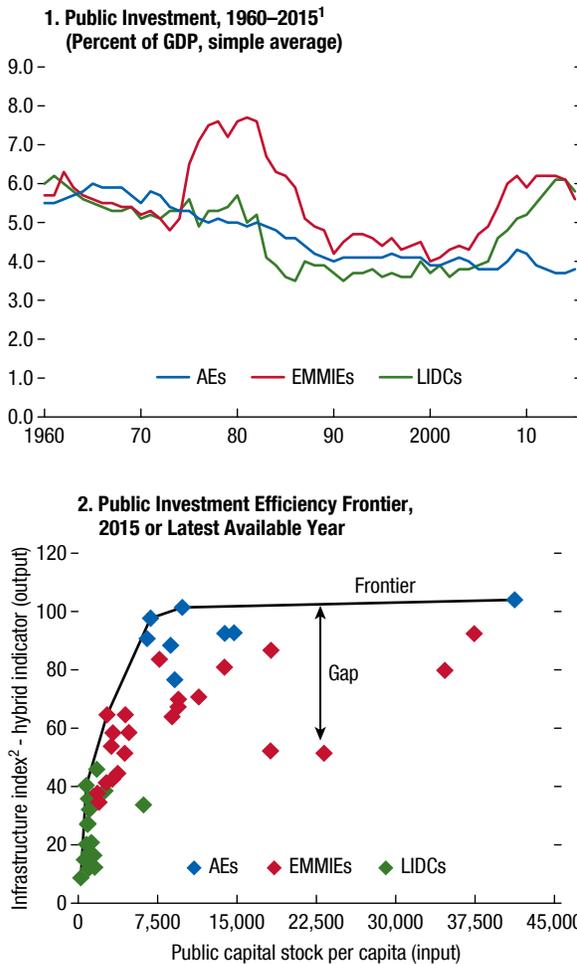
- Public investment can spur economic growth, but its efficiency hinges on the institutional setting and how it is managed. After three decades of decline, public investment remains at historical lows in advanced economies. It has begun to recover in emerging market and developing economies but efficiency of investment spending is low in many cases (Figure 1.23). IMF (2015c) finds that countries that significantly improve public investment efficiency could potentially double the impact of investment on output. Experience with the IMF's Public Investment Management Assessment (PIMA)[31] across 29 countries so far shows that there is room to improve public investment management across multiple fronts (IMF 2018e). PIMAs also reveal that countries need not only to improve their institutional framework (existence of formal rules and procedures), but also to make sure the framework is implemented effectively (Figure 1.24). Advanced economies should ensure that their fiscal and budgetary frameworks provide stable and sustainable bases for investment planning across levels of government. The United States should increase public investment in infrastructure, currently at historically low levels, while ensuring the right balance is achieved between maintenance and new projects. Germany should improve public investment management at the local level, including by rebuilding staffing capacity. Canada should enhance efforts to consolidate existing information on project plans from all levels of government and expand the use of common standards of project evaluation.

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[27]An MTRS is a high-level road map of the tax system reform over four to six years, covering policy, administration, and legal components. It is a government-led initiative supported by development partners and private stakeholders aimed at mobilizing tax resources to finance a country's spending needs for economic development and macroeconomic stability. See https://www.imf.org/external/np/pp/eng/2016/072016.pdf.

[28]See Gaspar and Selassie 2017.

[29]For recent IMF analytical work in this area, see the October 2017 *Sub-Saharan Africa Regional Economic Outlook*; Callen and other 2014; and, in the context of low-income developing countries, https://www.imf.org/external/np/res/dfidimf/topic6.htm.

[30]For a discussion on policies to increase productivity by fostering innovation and the efficient allocation of resources, see the April 2016 and April 2017 editions of the *Fiscal Monitor*.

[31]The IMF's PIMA is a diagnostic tool that helps countries evaluate the strength of their public investment management practices. The PIMA evaluates 15 institutions that shape decision making at the planning, allocation, and implementation stages of the public investment cycle. See http://www.imf.org/external/np/fad/publicinvestment/index.htm.

Figure 1.23. Public Investment Trends and Efficiency

The scope for increasing public investment and efficiency is substantial in many countries.

1. Public Investment, 1960–2015[1]
(Percent of GDP, simple average)

**2. Public Investment Efficiency Frontier, 2015 or Latest Available Year**

Sources: IMF, Investment and Capital Stock Dataset, 2017; IMF 2015c; and IMF staff estimates.
Note: AEs = advanced economies; EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries.
[1]Public investment refers to general government investment (gross fixed capital formation), in billions of constant 2011 international dollars.
[2]The infrastructure index (PIE-X) is a hybrid indicator, which combines the physical and survey-based indicators into a synthetic index of the coverage and quality of infrastructure networks. For more details, see IMF (2015c).

Ireland should improve the integration between strategic planning and capital budgeting, oversight of public-private partnerships, and management and maintenance of infrastructure assets.[32] Given

[32]The recently published National Development Plan highlights several measures taken by the government, drawing on PIMA recommendations.

Figure 1.24. Public Investment Management Assessment (PIMA) Scores: Institutional Framework and Effectiveness

There are many weaknesses to be addressed both in the institutional framework and in the effectiveness of public investment management.
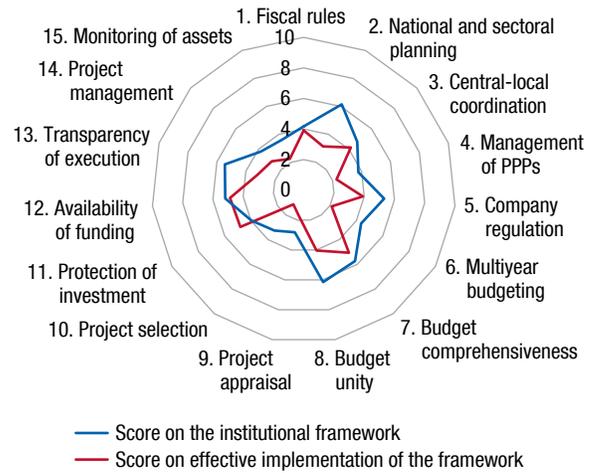

Sources: IMF, Public Investment Management Assessment (PIMA); IMF 2018e; and IMF staff estimates.
Note: The PIMA evaluates 15 key institutions for planning, allocation, and implementation of public investment. For each of the 15 key institutions, three key design features are identified, each of which can be fully met, partly met, or not met. Based on how many of these key features are in place, countries are given a PIMA score between 0 (no key features in place) and 10 (all key features fully in place). For details see IMF 2015c. The figure shows average scores across 26 countries: Albania, Botswana, Brazil, Burkina Faso, Cameroon, Côte d'Ivoire, Ghana, Guyana, Honduras, Ireland, Jordan, Kosovo, Kyrgyz Republic, Liberia, Malaysia, Maldives, Mali, Mauritius, Mongolia, Morocco, Peru, Serbia, Timor-Leste, Togo, Ukraine, and Zambia. PPPs = public-private partnerships.

development needs and infrastructure bottlenecks, emerging market and developing economies should protect capital expenditure and increase its efficiency through more rigorous and transparent arrangements to select, fund, and monitor investment projects (Bangladesh, Nigeria). Countries with limited fiscal space, such as South Africa, should continue to attract private sector participation and strengthen the evaluation and management of investment projects.

• Spending policies can also help raise the supply and quality of the labor force (see Chapter 2 of the April 2018 WEO). Among advanced economies where population is aging (Germany, Italy, Japan), public spending should aim to expand the labor force by raising access to vocational training

Figure 1.25. Government Social Spending and Outcome, Latest Year Available

All countries can enhance the efficiency of their health care and education spending.
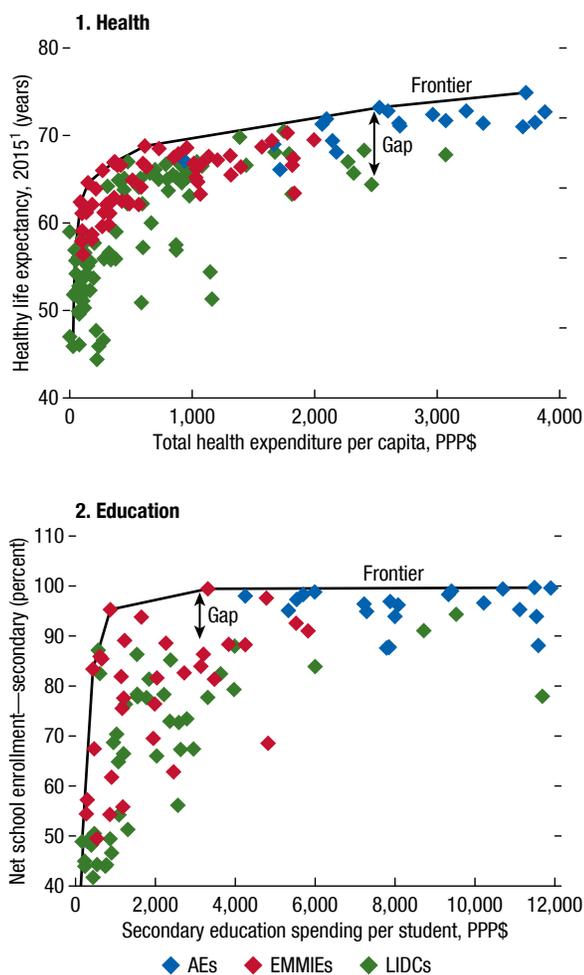
1. Health

2. Education

◆ AEs   ◆ EMMIEs   ◆ LIDCs

Sources: Garcia-Escribano and Liu 2017; and IMF, Fiscal Affairs Department Expenditure Assessment Tool.
Note: AEs = advanced economies; EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries; PPP = purchasing-power parity-adjusted.
[1]Healthy life expectancy is a measure that applies disability weights to health states to compute the equivalent number of years of life expected to be lived in full health.

and increasing female labor force participation (for example, through greater provision of child and senior care). Emerging market and developing economies need to focus on raising the quality of the labor force by improving access to health, education, and social protection among vulnerable groups. Figure 1.25 illustrates that improvements in education and health outcomes could be achieved within the existing budget envelope. In China, continued increases in public spending in these sectors would boost medium-term growth, while reducing income inequality and facilitating economic rebalancing. Encouraging female labor force participation in India and Saudi Arabia will go a long way in improving the quality of the labor force. In low-income developing countries, such as Mozambique and Tanzania, spending should be mainly targeted to improving access to primary and secondary education.

There is scope for the implementation of the policies outlined above to be budget neutral. For example, France can obtain important fiscal savings by gradually reducing the wage bill, consolidating subnational governments, better targeting social benefits, improving the efficiency of health spending, and implementing measures to further raise the effective retirement age. In Italy, efforts to cut current spending (including high pension spending) and improve the targeting of the social safety net should also create room for pro-growth and inclusive measures. In Mexico, consolidating and better targeting existing social assistance programs should continue in order to create space for much-needed infrastructure spending. In China, lower infrastructure investment could make room for greater spending on education, health, and social security. With oil prices rising, Nigeria and several other developing economies would benefit from implementing a fuel price adjustment mechanism to prevent petroleum subsidies from reemerging. Digital tools can also enhance financial management, service delivery, and spending efficiency. They can be used to disseminate important information and monitor public servants. Better identification and authentication systems, such as biometric technology, and electronic payment systems can facilitate the delivery of social benefits and reduce leakages and the cost of reaching targeted populations (see Chapter 2).

Fiscal policy can also support long-term growth indirectly by reducing macroeconomic volatility and facilitating the implementation of productivity-enhancing structural reforms. Volatility hampers long-term growth by increasing uncertainty about investment returns and spurring a misallocation of resources as price signals become distorted (Ramey and Ramey 1995; Fatás and Mihov 2013). Fiscal stabilization policies have been shown to reduce output volatility and support growth (see the April 2015 *Fiscal Monitor*). Amaglobeli, Jaramillo, and others (forthcoming) find that implementing tax reforms that broaden the tax base can increase the magnitude of automatic stabilizers. They estimate that tax base reforms lift tax revenue elasticity with respect to

output by about 15 percent and significantly increase consumption smoothing. In the euro area, a central fiscal capacity for macroeconomic stabilization would enhance the currency union's ability to respond to both euro area–wide and country-specific shocks, especially when monetary policy is constrained and fiscal space is limited in some countries (Arnold and others 2018). In some cases, temporary loosening of the fiscal stance could be used to increase the likelihood of structural reforms being implemented, by spreading the gains more widely across the population (see Chapter 3 of the April 2016 WEO; Banerji and others 2017). For fiscal support to be successful, it should be temporary, targeted to those adversely affected by the reform, and restricted to politically feasible reforms.

Box 1.1. Private Debt and Its Discontents

At $164 trillion—equivalent to 225 percent of global GDP—global debt continues to hit new record highs almost a decade after the collapse of Lehman Brothers.[1] Compared with the previous peak in 2009, the world is now 12 percent of GDP deeper in debt, reflecting a pickup in both public and nonfinancial private sector debt after a short hiatus (Figure 1.1.1). All income groups have experienced increases in total debt but, by far, emerging market economies are in the lead (Mbaye, Moreno Badia, and Chae forthcoming b). Only three countries (China, Japan, United States) account for more than half of global debt (Table 1.1.1)—significantly greater than their share of global output.

Greater insights into the drivers of global debt trends are possible thanks to an update of the October 2016 *Fiscal Monitor* data set—which will be available as the Global Debt Database. The Global Debt Database offers unparalleled coverage of public and nonfinancial private sector debt for 190 countries—accounting for 99 percent of global output—and going as far back as 1950 (Mbaye, Moreno Badia, and Chae forthcoming a).

From a longer-term perspective, global indebtedness has been driven by private sector debt—which has almost tripled since 1950. For almost six decades, advanced economies spearheaded the global leverage cycle, with the debt of the nonfinancial private sector

Figure 1.1.1. Global Debt
(Weighted average percent of GDP)
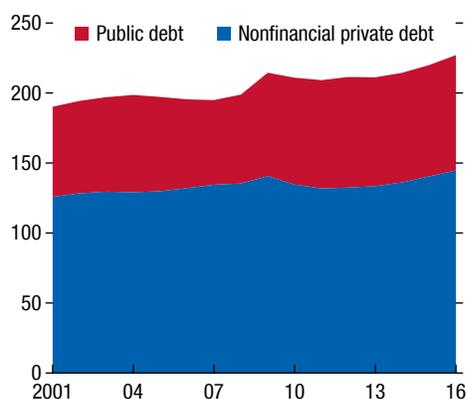
Sources: Mbaye, Moreno Badia, and Chae forthcoming-a; Global Debt Database; and IMF staff calculations.
Note: Data refers to the gross debt of the nonfinancial sector—comprising the government, households, and nonfinancial firms. The weighted average is calculated separately for public and nonfinancial private debt using an unbalanced sample comprising 190 countries.

[1]This figure comprises the debt of the government, households, and nonfinancial firms. Compared with the $152 trillion figure published in the October 2016 *Fiscal Monitor*, this updated estimate expands the coverage by 77 countries to a total of 190 countries and introduces significant methodological changes.

reaching a peak of 170 percent of GDP in 2009 (Figure 1.1.2), with little deleveraging since. Emerging market economies, in contrast, are relative newcomers. Their nonfinancial private debt started to accelerate in 2005, overtaking advanced economies as the main force behind global trends by 2009. Private debt ratios doubled in a decade, reaching 120 percent of GDP by 2016. Developments since the onset of the global financial crisis are, however, almost a mirror image

### Table 1.1.1. Global Debt
(Trillions of US dollars)

	2001	2007	2015	2016
Total	61.8	115.9	158.3	164.4
Advanced Economies	55.1	99.9	116.5	119.2
United States	20.3	33.6	46.0	48.1
Japan	13.2	15.7	17.1	18.2
France	2.7	6.2	6.7	6.7
Emerging Market Economies	6.4	15.6	40.6	43.9
China	1.7	4.9	23.6	25.5
Low-Income Developing Countries	0.3	0.5	1.2	1.3

Sources: Mbaye, Moreno Badia, and Chae forthcoming-b; Global Debt Database; and IMF staff calculations.
Note: Data refer to the global gross debt (both public and nonfinancial private) for an unbalanced sample comprising 190 countries. For each country and year, public debt corresponds to the largest institutional unit for which data are available.

Box 1.1 *(continued)*

Figure 1.1.2. Nonfinancial Private Debt, by Income Group
(Weighted average percent of GDP)
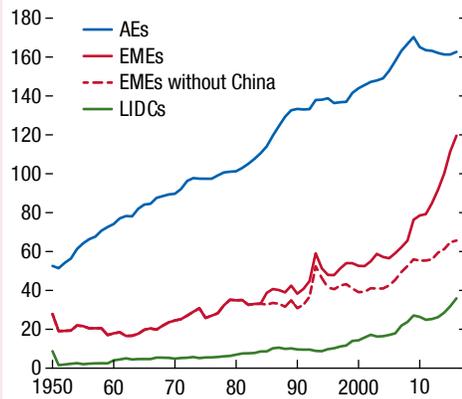
Sources: Mbaye, Moreno Badia, and Chae forthcoming-b; Global Debt Database; and IMF staff calculations.
Note: The weighted average is calculated using an unbalanced sample comprising 158 countries.
AEs = advanced economies; EMEs = emerging market economies; LIDCs = low-income developing countries.

of just one country: China alone explains almost three-quarters of the increase in global private debt. By contrast, financial deepening in low-income developing countries has been limited.

As discussed in the October 2016 *Fiscal Monitor*, excessive private debt carries great risks for growth and financial stability. If left unchecked, the private sector is vulnerable to an abrupt deleveraging process and ultimately a financial crisis. In the event of a financial crisis, a weak fiscal position increases the depth and duration of the ensuing recession, as the ability to conduct countercyclical fiscal policy is significantly curtailed. This underscores the need to build fiscal buffers during upturns, to create space that can later be deployed if needed in times of crisis.

Box 1.2. The Distributional Effects of Income Tax Cuts in the United States

The Tax Cuts and Jobs Act (TCJA), signed into law in December 2017, makes substantial changes to corporate and personal income taxes in the United States. This box provides a stylized illustration of the long-term distributional effects of certain aspects of the TCJA, taking into account that the effects will depend on workers' skill level and focusing on possible general equilibrium effects not considered by static incidence analyses. The discussion below draws on a dynamic, multisector, heterogeneous agent, general equilibrium model calibrated to the United States, as developed by Lizarazo, Peralta-Alva, and Puy (2017).[1] The model incorporates the following assumptions[2]:

[1]The model is dynamic and populated by households differentiated by skills and productivity shocks. It has three sectors (manufacturing, low-skill services, and high-skill services) with different capital and labor (by skill) intensities, and an input-output structure intended to match US data at the macro level. The implications of the transmission mechanism of the model are consistent with empirical work by Mertens and Montiel Olea (2018).

[2]This box does not provide a detailed distributional costing of the various provisions of the legislation, including the numerous features on the corporate income tax (CIT) side of the reform

- *Personal income tax (PIT).* The TCJA reduced average and marginal effective rates across the various tax brackets. The Tax Policy Center estimates that the reform will (1) lower the average effective PIT rate by about 0.5 percent for households with incomes less than $50,000, (2) reduce the average effective PIT rate by about 1.2 percent for households with incomes less than $200,000, and (3) and reduce the average effective PIT rate by about 2 percent for those with incomes greater than $200,000; (iii) and reduce the average effective PIT rate by about 2 percent for those with incomes greater than $200,000.[3] Although these provisions are to expire

(see Box 1.3 for more details on CIT reform). Other institutions have published their own assessments of the reform based on static incidence analyses, for example, the Joint Committee on Taxation (2017), the Tax Policy Center (2018), and the Tax Foundation (2017).

[3]For details, see https://www.taxpolicycenter.org/simulations/individual-income-tax-provisions-tax-cuts-and-jobs-act-tcja-february-2018.

Figure 1.2.1. Long-Run General Equilibrium Estimates of the Change in US Consumption, by Quintile
(Percent)
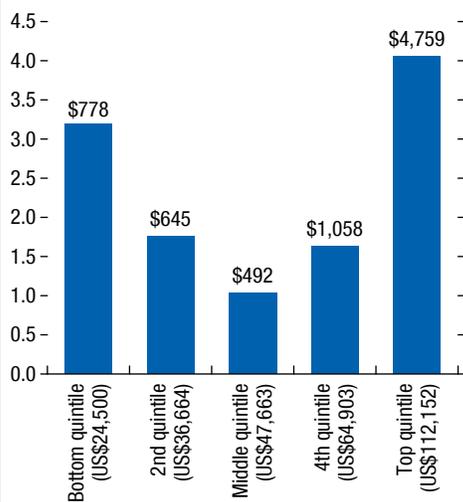
Source: IMF staff estimates.
Note: Numbers on top of each bar correspond to the US dollar equivalent of the percentage change in consumption. Numbers in parentheses on the *x*-axis correspond to the mean household income in each quintile, as estimated in the model.

Figure 1.2.2. Static Estimates by the Tax Policy Center of the Change in After-Tax Income, by Quintile
(Percent)
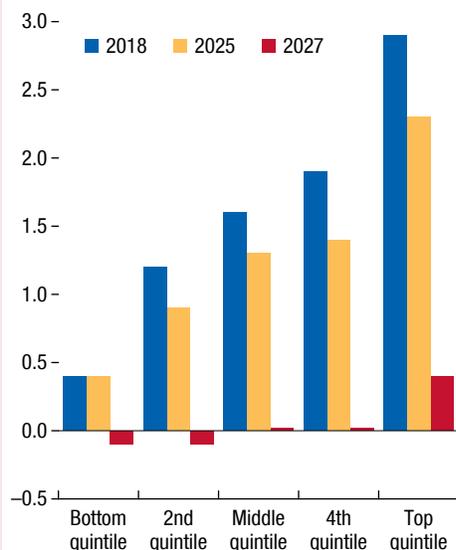
Source: Tax Policy Center 2018.
Note: The change in income drops markedly in 2027 because almost all individual income tax provisions would sunset after 2025.

Box 1.2 *(continued)*

under the current legislation, the model is based on expectations that they are permanent.[4]

- *Corporate income tax (CIT).* The reform cut the statutory federal rate from 35 percent to 21 percent. This reduction is comparable to that of the 1986 tax reform, which reduced statutory rates from 48 percent to 35 percent, corresponding to a decline of about 4 percentage points in the effective CIT rate. Given the lack of readily available estimates of the change in effective tax rates resulting from the TCJA, the model uses the reduction in effective tax rates from the 1986 reform as a rough and imperfect approximation.

- *Financing of the permanent revenue loss.* The model makes the optimistic assumption that revenue losses from the reform can be offset by cuts to unproductive government spending to keep the government deficit unchanged. The implications of other assumptions are also discussed below.

Based on these assumptions, Figure 1.2.1 illustrates the simulated *general equilibrium* long-term effects of the reform on consumption across the income distribution. For comparison, Figure 1.2.2 provides the *static* estimates provided by Tax Policy Center (2018).

- The analysis finds that the increase in consumption of households in the top quintile of the distribution is higher than the rest, making the reform, in that sense, regressive. In a similar vein, the Joint Committee on Taxation (2017), the Tax Policy Center (2018), and the Tax Foundation (2017) find that the increase in after-tax income is highest for those at the top. The upper income quintiles of the population gain the most because they receive higher cuts in PIT. The CIT reform (which directly benefits the return on capital) further strengthens the gains for higher income households because they hold most of the wealth.

- Strikingly, the model suggests that the lower quintiles of the income distribution also benefit from this reform. CIT cuts raise the profitability of businesses, which increases demand for labor and hence wages. PIT cuts push up the prices of nontradables, particularly services, leading to higher demand for labor and wages in that sector, which benefits lower-income individuals who tend to work in the services sector. This result contrasts with the static estimates of the Joint Committee on Taxation, the Tax Policy Center, and the Tax Foundation, which

show lower-income households gaining the least from the reform. It is important to note, however, that if the PIT provisions expire in 2025 as foreseen in the TCJA, the demand for services would be dampened, shrinking the benefits of the reform for the working poor. In addition, if consumption of services were weaker than estimated by the model, the benefits of the reform would tilt further in favor of higher-income households.

- The middle quintile is the one that benefits the least from the reform. The reason is that tax cuts (in particular CIT cuts) stimulate capital investment, and capital tends to be a substitute particularly for middle-skill individuals.

Although inequality does not increase, polarization deepens. Inequality, as measured by the Gini coefficient, is estimated to remain constant because of two opposing effects: higher gains of the upper quintiles of the income distribution compared with the middle increases the Gini coefficient while higher gains of the bottom quintiles compared with the middle reduces it. However, because the increase in consumption for the middle is substantially outpaced by increases at the top and bottom of the distribution, the reform may contribute further to the hollowing out of the middle of the income distribution, a characteristic of the United States in recent decades.[5]

Alternative ways of bringing public finances into balance significantly affect the distributional effects of the reform. The simulation shows a permanent revenue loss of 1 percent of GDP, offset by cuts to unproductive spending that may be difficult to achieve in practice.[6] If, instead, regressive expenditure cuts were implemented, the estimated gains for the three bottom quintiles of the distribution would be wiped out. If revenue losses were offset with the introduction of a value-added tax, the estimated gains would be lower for all, in particular those in the middle and bottom of the distribution. If no action were taken to offset revenue losses, higher deficits would need to be market financed, which could push interest rates higher, taking a toll on growth that affects all income groups. This analysis suggests that the United States would need to address the revenue losses from the reform with a careful mix of spending and tax measures.

[5]See Autor and Dorn 2013 and Alichi, Kantenga, and Solé 2016.

[6]Static costing by the Joint Committee on Taxation points to revenue losses from the TCJA of about US$1.5 trillion over 10 years. These values were used as inputs for the WEO forecasts.

[4]Staff estimates of the growth outlook for the United States in the *World Economic Outlook* are based on existing legislation.

## Box 1.3. International Tax Policy Implications from US Corporate Tax Reform

The US tax reform will affect not only the United States but also the rest of the world. Macroeconomic spillovers resulting from the fiscal stimulus will affect global demand (see the April 2018 WEO). Other spillovers will arise because the reform will affect the decisions of multinational companies and that, in turn, will prompt other countries to look closely again at their own tax systems. This box provides a preliminary assessment of these latter tax spillovers—some of which, reflecting innovative features of the reform, are quite complex.

While the reform introduces numerous new features, two central elements bring the US tax system closer to those of other advanced economies. One is the reduction in the headline federal corporate tax rate from 35 to 21 percent[1]; the mean central government corporate income tax rate in other Organisation for Economic Co-operation and Development (OECD) countries is currently 22 percent (Figure 1.3.1). The second is the exemption from US taxation of repatriated active business income by US subsidiaries abroad. This territoriality is a feature that is common among most advanced economies, although in the United States it is restricted by some other features of the new tax law, described below. There are further major aspects of the corporate tax reform, including expensing of investment for the next five years and the one-off US taxation of accumulated earnings of US subsidiaries abroad.

The reduced tax rate (and more generous tax allowances for investment) will make it more attractive for multinationals to invest and produce in the United States. Moreover, the lower corporate tax rate makes it less attractive for multinationals to shift profits out of the United States through tax planning techniques—an effect that some studies have put in the range of one-quarter of the US tax base under the pre-2018 system (Clausing 2016). These two consequences negatively affect the tax bases of other countries into which profits were previously shifted or where investment would otherwise be located. The territorial system, in contrast, makes it more attractive to invest outside the United States in countries offering lower tax rates. Moreover, it implies that US investment abroad will become more responsive to

Figure 1.3.1. US Central Government Corporate Tax Rate, 1990–2018
(Percent)
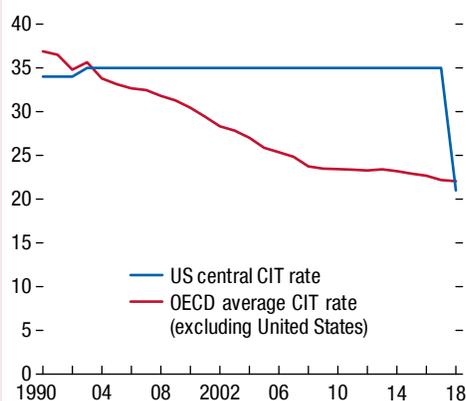
Source: Organisation for Economic Co-operation and Development (OECD) Tax Database.
Note: CIT = corporate income tax.

local tax rates because these now become the only applicable tax.[2]

As a result of these changed incentives for multinationals, other countries may respond to the US reforms. For example, they may well be tempted to lower their own tax rates and offer more generous treatment of investment so as to lure US businesses and prevent erosion of their own tax bases. Empirical studies on this issue have estimated tax reaction functions, by which each country's tax rate is explained by (among other factors) the weighted average of the rates prevailing in other countries. With GDP weights, studies find that a reduction of 1 percentage point in the mean statutory rate in all other countries will induce a country to reduce its own rate by between 0.35 and 0.75 percentage points (Devereux, Lockwood, and Redoano 2008; Crivelli, De Mooij, and Keen 2016). As the global share of US GDP is approximately one-quarter and the rate cut in the United States is 14 percentage points, this implies a direct average response in the rate of other countries by between 1 and 3 percentage points. The equilibrium effect will be larger because each country will also respond to rate cuts of all other countries.

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[1]Most US states levy additional corporate income taxes, raising the overall rate in the United States by about 5 percentage points, on average.

[2]There is evidence that this happened, for example, when Japan and the United Kingdom moved from worldwide to territorial systems in 2009 (Liu 2017).

Box 1.3 *(continued)*

Caution is needed in applying these generic results to the specifics of the US reform, however: because the US rate has not changed since 1993, the aforementioned estimates are driven more by reforms elsewhere and the recent reform is much more than simply a cut to the rate.

The other features of the reform, which are highly innovative and complex, can either offset or magnify the spillover effects. Their effect is likely to be highly country and company specific, which makes it hard to assess their overall effect. Three are especially important:

- *Global Intangible Low-Taxed Income (GILTI).* US multinationals with subsidiaries abroad that earn foreign income exceeding 10 percent of tangible assets will be liable to a minimum US tax rate of 10.5 percent on that income—with an 80 percent tax credit for foreign tax paid.[3] The intent (if not the actual substance) of this provision is to ensure that US-based multinationals with substantial income from intangible assets pay tax on that income in the United States. It means that the new system is **not** purely territorial, but includes an element of worldwide taxation for excess returns—indeed more strongly so than under the prereform system, given that this minimum tax is due immediately, instead of being deferred until repatriation. GILTI may in some respects mitigate the increased pressure for tax competition, making it harder to attract the intangible assets of US multinationals by offering low tax rates.

- *Foreign-Derived Intangible Income (FDII).* Multinationals producing in the United States that earn a large portion of their income from export sales and that obtain a return exceeding 10 percent of tangible assets, will be taxed at a reduced rate on that income of 13.125 percent. FDII is intended to encourage multinationals to produce for foreign markets in the United States instead of in other countries with tax rates above 13.125 percent. This provision is likely to further intensify tax competition.

- *Base Erosion Anti-Avoidance Tax (BEAT).* Large multinationals that operate in the United States

(including US subsidiaries of foreign parents) with large payments to their foreign affiliates other than the cost of goods sold (such as interest[4] or service fees) will face a new minimum tax. The tax is based on the profit calculated without otherwise applicable deductions for those payments, at a rate that increases sharply over time.[5] This BEAT intends to discourage profit shifting out of the United States through excessive intracompany payments. To the extent that it reduces such actual offshore payments, it would result in a smaller tax base in other countries.

These new and innovative international tax measures in the United States are now shaping the global tax debate. Some have noted that the FDII provisions and some aspects of the BEAT may risk noncompliance with rules of the World Trade Organization (Avi-Yonah and Vallespinos 2018); they may also override obligations in existing bilateral tax treaties. Moreover, the BEAT implies more aggressive action against tax avoidance through excessive foreign payments than envisaged in the G20/OECD Base Erosion and Profit Shifting project. How other countries will respond remains unclear.

The reform brings the United States closer to international norms. This puts pressure on other countries to protect their tax bases and offer incentives to become or remain hosts for US investment. Whereas reductions in statutory tax rates are the most obvious response, investment incentives (either across the board or targeted to specific investments) could become more prevalent. Countries might also tighten antiavoidance provisions. The reform also introduces wholly new tax concepts for others to consider, including the conditioning of tax liability on the return on tangible assets. Through the differential treatment of export sales under the controversial FDII provisions, it also implicitly introduces an element of destination taxation—a much-discussed and contentious idea in the international tax context.[6] Not least because of these structural novelties, the US tax reform is likely to intensify and strongly affect the continuing debate on the future of the international tax system.

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[3]This implies that, if the foreign tax rate is 13.125 percent or more, the total (US plus foreign) tax payable on this income under this provision would be higher than that under the FDII provision (applicable if the firm instead exported from the United States). If the foreign tax rate was reduced to less than 13.125 percent, it would not have much impact, as 80 percent of that tax is in any event credited against GILTI liability in the United States, and the total tax rate cannot fall below 10.5 percent.

[4]Interest deductions will in general be limited to 30 percent of earnings before interest, taxes, depreciation and amortization; after 2021, this will be further tightened to 30 percent of earnings before interest and tax.

[6]See Chapter 2 on digitalization and international taxation and Box 1.1 in the April 2017 *Fiscal Monitor*.

Box 1.4. General Government Debt and Fiscal Risks in China
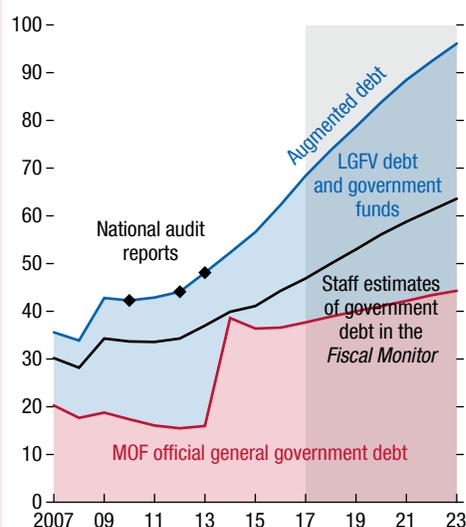
General government debt in China is projected to rise over the medium term, driven largely by sizable off-budget borrowing by local governments. The official debt concept points to a stable debt profile over the medium term at about 40 percent of GDP. However, a broader concept that includes borrowing by local governments and their financing vehicles (LGFVs) shows debt rising to more than 90 percent of GDP by 2023 primarily driven by rising off-budget borrowing (Figure 1.4.1).[1] Rating agencies lowered China's sovereign credit ratings in 2017, citing concerns with a prolonged period of rapid credit growth and large off-budget spending by LGFVs.

The Chinese authorities are aware of the fiscal risks implied by rapidly rising off-budget borrowing and undertook reforms to constrain these risks. In 2014, the government recognized as government obligations two-thirds of legacy debt incurred by LGFVs (22 percent of GDP). In 2015, the budget law was revised to officially allow provincial governments to borrow only in the bond market, subject to an annual threshold. Since then, the government has reiterated the ban on off-budget borrowing by local governments, while more strictly regulating the role of the government in public-private partnerships and holding local officials accountable for improper borrowing. Given these measures, the authorities do not consider the LGFV off-budget borrowing as a government obligation under applicable laws.

There is some uncertainty regarding the degree to which these measures will effectively curb off-budget borrowing. Since the implementation of government reforms, the net issuance of LGFV bonds declined and their spreads rose slightly to reflect greater credit risk

Figure 1.4.1. Broader Perimeters of General Government Could Help Provide a Better Understanding of China's Fiscal Risks
(Percent of GDP)

Sources: Chinese Ministry of Finance; and IMF staff estimates.
Note: The IMF staff estimates of general government debt in the *Fiscal Monitor* comprise the numbers reported by MOF, and two-thirds of new contingent debt contracted by local governments since 2015 (IMF 2017a).
LGFV = local government financing vehicles;
MOF = Ministry of Finance.

(Figure 1.4.2). However, there have been no LGFV defaults so far, despite weak and deteriorating interest rate coverage ratios and return on equity for LGFVs (see Figure 1.4.3), which suggests that there continues to be implicit local government support. Moreover, fiscal risks are arising from new borrowing avenues that have emerged, such as less supervised public-private partnerships and government-guided funds (Mano and Stokoe 2017).[2]

Close monitoring of off-budget activities is needed to maintain a comprehensive view of fiscal risks in China. Effective surveillance of fiscal risks requires a clear definition of the perimeter of the government and the wider public sector, as well as enhancement

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[1]The baseline debt measure in the *World Economic Outlook* corresponds to the Ministry of Finance official definition of general government debt and two-thirds of new borrowing incurred since 2015 by local government financing vehicles (LGFVs). The "augmented" debt measure estimated by IMF staff expands the Ministry of Finance official definition of general government debt by including new borrowing incurred since 2015 by LGFV and other entities (such as government guided funds and special construction funds) that are largely government controlled and operate on noncommercial terms. Most of the activity of LGFVs—based on their economic behavior—is treated as part of the general government in accordance with the *Government Finance Statistics Manual* (IMF 2017d). See Mano and Stokoe (2017) and IMF (2017a) for a more detailed discussion. Similar criteria have been used in other countries (Belgium, Brazil, Russia, United Kingdom) to include corporate entities—mainly those undertaking public infrastructure—in the general government perimeter.

[2]Other contingent liabilities to consider include the potential bank recapitalization costs to restore financial stability under a severe stress scenario (IMF 2017e) and the cost of reforming state-owned enterprises.

Box 1.4 *(continued)*

Figure 1.4.2. Local Government Financing Vehicle Spreads Rose Slightly in 2017 after a Series of Government Measures[1]
(Percentage points above sovereign bond yields)
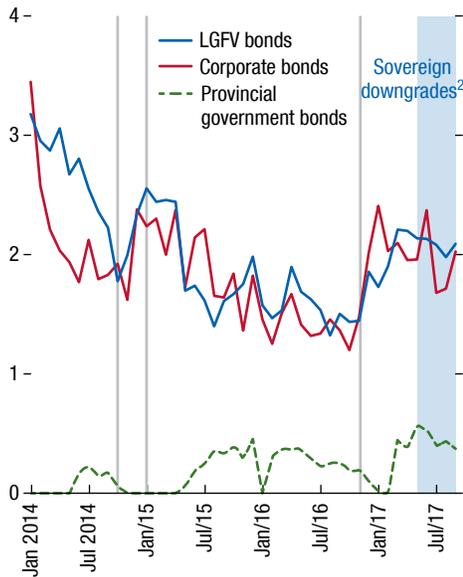
Source: WIND database.
Note: LGFV = local government financing vehicles.
[1]Bond spreads over sovereign yields in the secondary market. Gray vertical solid lines refer to the announcement of key government measures to tighten imprudent local government borrowing (IMF 2017a).
[2]Sovereign downgrades by separate rating agencies in May and September 2017.

Figure 1.4.3. Deteriorating Performance among Local Government Financing Vehicles
(Percent)
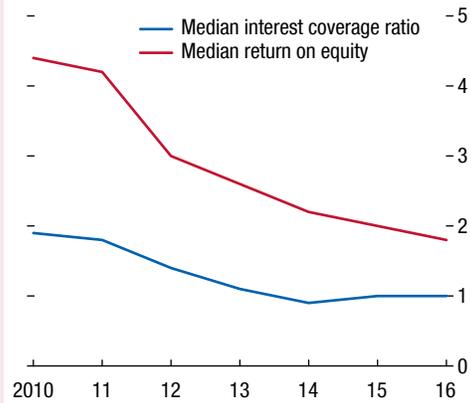
Sources: WIND database; and IMF staff estimates.
Note: Median ratios are estimated based on individual local government financing vehicle financial data.

of data collection and disclosures. Further analysis of individual LGFVs is needed to assess the extent to which they operate on a fully commercial basis, with sound earnings and debt outlook. Recent efforts to control borrowing are commendable and greater priority can now be placed on containing new financing channels—such as public-private partnerships and policy bank quasi-fiscal lending—and improving fiscal statistics in line with the *Government Finance Statistics Manual.* Over the medium term, fiscal policy should support rebalancing toward consumption and gradually reduce off-budget investment. In addition, developing a sound local government bond market (Lam, Wei, and van Eden 2017) and resolving intergovernmental relations will reduce the need for off-budget financing.

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