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Capitalizing on Good Times

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ASSUMPTIONS AND CONVENTIONS

The following symbols have been used throughout this publication:

. . . to indicate that data are not available

— to indicate that the figure is zero or less than half the final digit shown, or that the item does not exist

– between years or months (for example, 2008–09 or January–June) to indicate the years or months covered, including the beginning and ending years or months

/ between years (for example, 2008/09) to indicate a fiscal or financial year

“Billion” means a thousand million; “trillion” means a thousand billion.

“Basis points” refers to hundredths of 1 percentage point (for example, 25 basis points are equivalent to $\frac{1}{4}$ of 1 percentage point).

“n.a.” means “not applicable.”

Minor discrepancies between sums of constituent figures and totals are due to rounding.

As used in this publication, the term “country” does not in all cases refer to a territorial entity that is a state as understood by international law and practice. As used here, the term also covers some territorial entities that are not states but for which statistical data are maintained on a separate and independent basis.

FURTHER INFORMATION

Corrections and Revisions

The data and analysis appearing in the *Fiscal Monitor* are compiled by the IMF staff at the time of publication. Every effort is made to ensure their timeliness, accuracy, and completeness. When errors are discovered, corrections and revisions are incorporated into the digital editions available from the IMF website and on the IMF eLibrary (see below). All substantive changes are listed in the online tables of contents.

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PREFACE

The projections included in this issue of the *Fiscal Monitor* are based on the same database used for the April 2018 *World Economic Outlook* and *Global Financial Stability Report* (and are referred to as “IMF staff projections”). Fiscal projections refer to the general government, unless otherwise indicated. Short-term projections are based on officially announced budgets, adjusted for differences between the national authorities and the IMF staff regarding macroeconomic assumptions. The medium-term fiscal projections incorporate policy measures that are judged by the IMF staff as likely to be implemented. For countries supported by an IMF arrangement, the medium-term projections are those under the arrangement. In cases in which the IMF staff has insufficient information to assess the authorities’ budget intentions and prospects for policy implementation, an unchanged cyclically adjusted primary balance is assumed, unless indicated otherwise. Details on the composition of the groups, as well as country-specific assumptions, can be found in the Methodological and Statistical Appendix.

The *Fiscal Monitor* is prepared by the IMF Fiscal Affairs Department under the general guidance of Vitor Gaspar, Director of the Department. The project was directed by Abdelhak Senhadji, Deputy Director; and Catherine Pattillo, Assistant Director. The main authors of this issue are Laura Jaramillo Mayor (team leader), Paolo Dudine, Klaus Hellwig, Raphael Lam, Victor Duarte Lledó, and Elif Ture for Chapter 1, which also benefited from contributions by Kyungla Chae, Ruud De Mooij, Michael Keen, Alexander Klemm, Paolo Mauro, Samba Mbaye, Marialuz Moreno Badia, Adrian Peralta-Alva, and Victoria Perry; Geneviève Verdier (team leader), Aqib Aslam, Maria Coelho, Emine Hanedar, João Jalles, Emmanouil Kitsios, Raphael Lam, Adrian Peralta-Alva, and Delphine Prady for Chapter 2, which also benefited from contributions from Ruud De Mooij, Martin Grote, Michael Keen, Toni Matsudeira, Florian Misch, Alpa Shah, and Mick Thackray. Excellent research contributions were provided by Mark Albertson, Kyungla Chae, and Young Kim. The Methodological and Statistical Appendix was prepared by Young Kim. Nadia Malikyar and Erin Yiu provided excellent coordination and editorial support. Linda Kean from the Communications Department led the editorial team and managed the report’s production, with production assistance from Rumi Pancholi and editorial assistance from Lorraine Coffey, Susan Graham, Lucy Scott Morales, Nancy Morrison, and Vector Talent Resources.

Inputs, comments, and suggestions were received from other departments in the IMF, including area departments—namely, the African Department, Asia and Pacific Department, European Department, Middle East and Central Asia Department, and Western Hemisphere Department—as well as the Communications Department, Institute for Capacity Development, Legal Department, Monetary and Capital Markets Department, Research Department, Secretary’s Department, Statistics Department, and Strategy, Policy, and Review Department. The *Fiscal Monitor* also benefited from comments by Matthew Salomon (Global Financial Integrity); Eric Toder (Tax Policy Center); Catherine Tucker (MIT); and Rita Almeida, Rajul Awasthi, Cem Dener, Zahid Hasnain, Philippe Leite, and Kee Hiau Looi (all World Bank). Both projections and policy considerations are those of the IMF staff and should not be attributed to Executive Directors or to their national authorities.

EXECUTIVE SUMMARY

Chapter 1: Saving for a Rainy Day

Strong and broad-based growth provides an opportunity to begin rebuilding fiscal buffers now, improve government balances, and anchor public debt. Strengthening fiscal buffers in the upswing will create room to provide fiscal support in an eventual downturn and will prevent fiscal vulnerabilities from becoming a source of stress if financial conditions deteriorate.

High Debt Is a Concern

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.

Public debt plays an important role in the surge in global debt, reflecting 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 markets and low-income developing countries. Debt in advanced economies is at 105 percent of GDP on average—levels not seen since World War II. In emerging market and middle-income economies, debt is close to 50 percent of GDP on average—levels last seen during the 1980s debt crisis. For low-income developing countries, average debt-to-GDP ratios have been climbing at a rapid pace and exceed 40 percent as of 2017. Moreover, nearly half of this debt is on nonconcessional terms, which has resulted in a doubling of the interest burden as a share of tax revenues in the past 10 years. Underpinning debt dynamics for all countries are large primary deficits, which reached record levels in the case of emerging market and developing economies.

High government debt and deficits are cause for concern. Countries with elevated government debt are vulnerable to a sudden tightening of global financing conditions, which could disrupt market access and put economic activity in jeopardy. Moreover, experience shows that countries can be subject to large, unexpected shocks to public debt-to-GDP ratios, which

would exacerbate rollover risks. It is important to note that large debt and deficits hinder governments' ability to implement a strong fiscal policy response to support the economy in the event of a downturn. Historical experience shows that a weak fiscal position increases the depth and duration of recession—such as in the aftermath of a financial crisis—because governments are unable to deploy sufficient fiscal policy to support growth. Building fiscal room to maneuver is especially relevant now that private sector debt is at record highs and rising. Excessive private debt in some countries puts them at risk of an abrupt and costly deleveraging process.

Enhancing Resilience and Buttressing Growth

Decisive action is needed now to strengthen fiscal buffers, taking full advantage of the cyclical upswing in economic activity. As growth returns to its potential, fiscal stimulus loses its effectiveness while the cost of fiscal consolidation diminishes, making it easier to switch from fiscal expansion to fiscal consolidation. It is important to note that building buffers now will help protect the economy, both by creating room for fiscal policy to step in to support economic activity during a downturn and by reducing the risk of financing difficulties if global financial conditions tighten suddenly. In general, countries should allow automatic stabilizers (that is, tax and spending that moves in sync with output and employment) to operate fully, while making efforts to put deficits and debt firmly on a downward path toward their medium-term targets.

The size and pace of adjustment need to be calibrated to each country's cyclical conditions and available fiscal space to avoid an undue drag on growth. In economies operating at or near potential output and where debt to GDP is at high levels, fiscal adjustment should be implemented. In the United States—where a fiscal stimulus is happening when the economy is close to full employment, keeping overall deficits above \$1 trillion (5 percent of GDP) over the next three years—fiscal policy should be recalibrated to ensure that the government debt-to-GDP ratio declines over the medium term. Where fiscal space is limited, there

is little choice but to undertake consolidation efforts to reduce fiscal risks, based on policies that will support medium-term growth. A few advanced economies that have ample fiscal space and are operating at or close to capacity have room for using fiscal policy to facilitate the implementation of pro-growth structural reforms. 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, all countries need to keep their sights on policies to lift their medium-term growth outlook. Indeed, 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. Advanced economies 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 the design of their tax systems. For emerging market and developing economies, the priority is to raise revenue to finance critical spending on physical and human capital and social spending. All countries should promote inclusive growth to avoid excessive inequality that can impede social mobility, erode social cohesion, and ultimately hurt growth.

Chapter 2: Digital Government

The world is becoming digital and so are governments, albeit at sharply different paces. Almost all country governments now have national websites and automated financial management systems. Digitalization presents both opportunities and challenges for fiscal policy. How can digitalization change the design and implementation of policies now and in the future? And what stands in the way?

Greater availability and access to timely and reliable information can transform how governments operate. Digitalization can reduce the private and public costs of tax compliance and can improve spending efficiency.

For example, governments can use digital tools to tackle cross-border fraud—adopting digital tools could increase indirect tax collection at the border by up to 1–2 percent of GDP per year. Digitalization could also help governments track down taxes on wealth sheltered in low-tax jurisdictions, estimated at an average of 10 percent of world GDP. Although the potential revenue gains from this traditionally inaccessible tax base are low at current tax rates, digitalization could facilitate future tax collection on income at the source before it escapes the reach of tax authorities. On the spending side, the experiences of India and South Africa show how digitalization can help improve social protection and the delivery of public services.

In the future, the increasing digitalization of businesses—and the emergence of digital giants such as Google, Apple, Facebook, and Amazon—may exacerbate challenges faced by the current international tax system. Digitalization raises new questions, such as how commercially valuable information generated by users of online services should affect taxing rights of countries. Should aspects of destination—that is, where the final consumers reside—play a more prominent role in assigning taxing rights? Efforts to modify the international tax framework should preferably be coordinated and consistent with a long-term vision for the international tax architecture.

Governments will need to mitigate new digital risks. Digital interactions with governments may impose a disproportionate burden on small businesses and vulnerable households with limited access to technology. Digitalization itself also creates new opportunities for fraud and disruption of government functions. This includes the use of digital means to evade taxes or illegally claim benefits. Massive data breaches and intrusions of privacy have increased, highlighting the vulnerabilities of public digital systems.

Digitalization is not a panacea. It calls for a proactive, forward-looking, and comprehensive reform agenda. Governments must address multiple political, social, and institutional weakness and manage digital risks. They must also budget adequate resources to finance investments in digital infrastructure and cybersecurity. Last but not least, digitalization makes international cooperation even more necessary.

But digitalization is already an overwhelming trend. It is likely to accelerate further. Governments can try to resist it and adapt late and reluctantly; or they can embrace it, foresee it, and even, to some extent, shape it.

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.

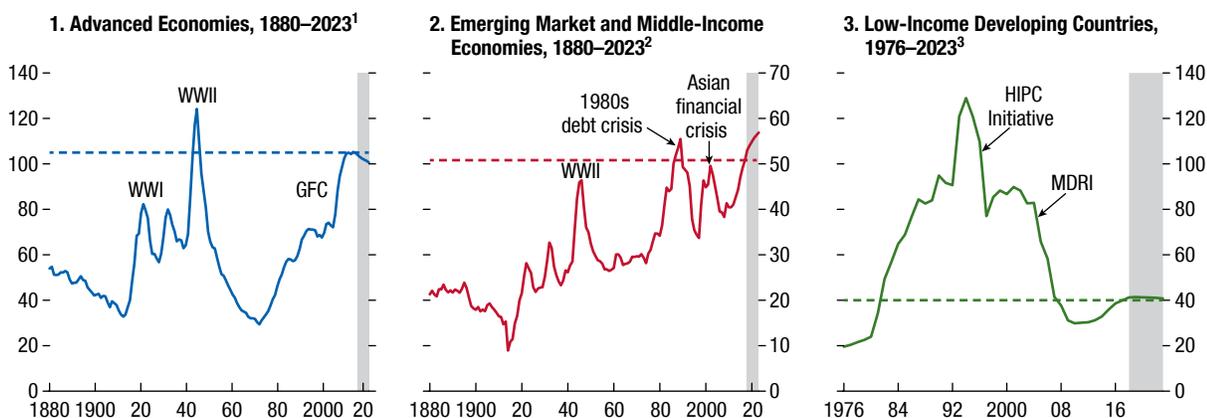
- First, high government debt can make countries vulnerable to rollover risk because of large gross financing needs, particularly when maturities are short.¹ Market access could be disrupted if global financing conditions tighten abruptly or if there is a shift in investor sentiment (see the April 2018 *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

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

²Ghosh 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’Erasmus and Mendoza (2016) and D’Erasmus, 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.



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 = global financial crisis; HIPC = heavily indebted poor countries; MDRI = Multilateral Debt Relief Initiative; WWI = World War I; WWII = World War II.

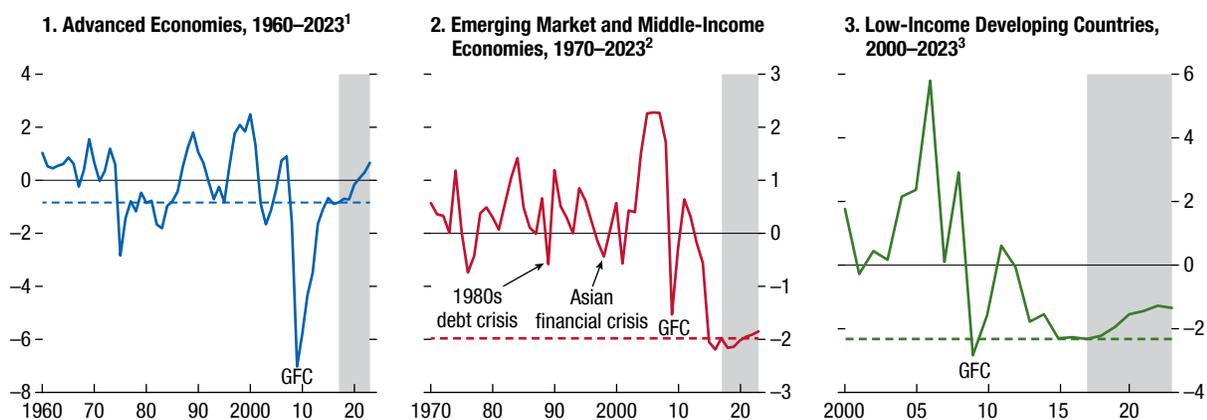
¹Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong SAR, Ireland, Italy, Japan, Korea, Netherland, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Taiwan Province of China, United Kingdom, United States.

²Argentina, 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.

³Bangladesh, 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.



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.

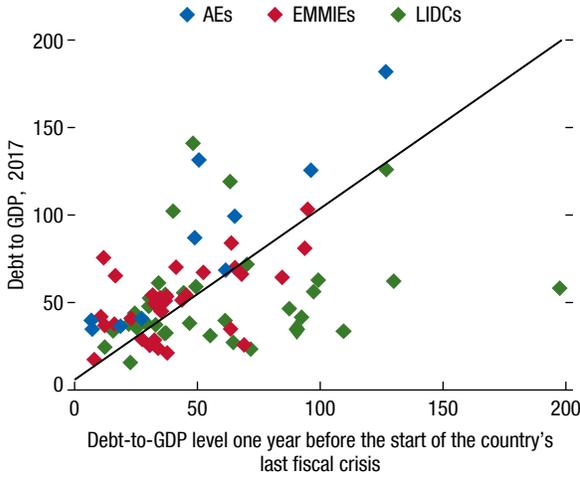
¹Australia, Canada, France, Germany, Italy, Japan, Korea, Spain, United Kingdom, United States.

²Argentina, Brazil, China, India, Indonesia, Mexico, Russia, South Africa, Turkey.

³Bangladesh, 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.

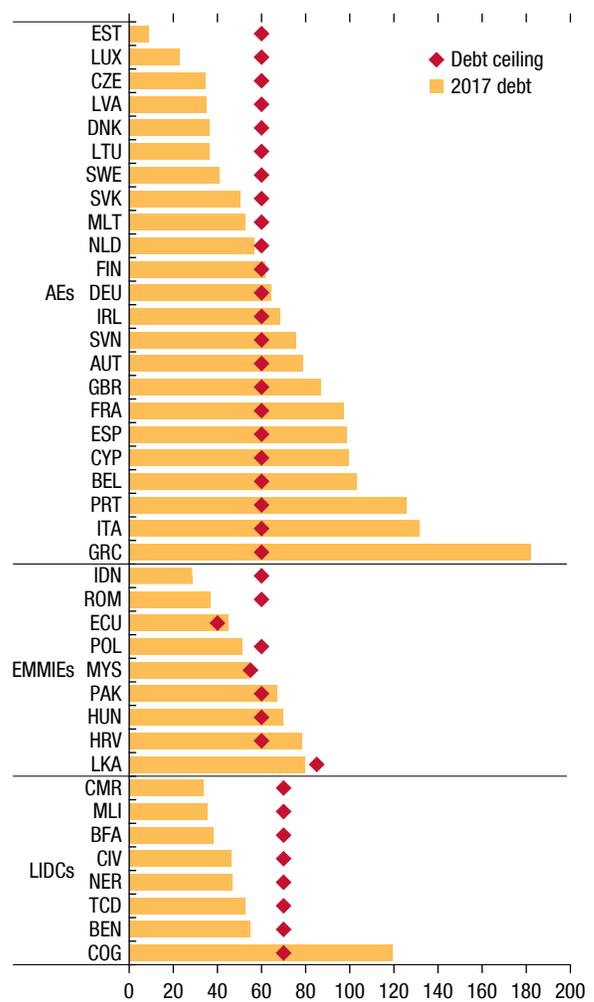
above levels at which fiscal crises occurred in the past.³ Figure 1.4 suggests that some countries may be beyond their comfort levels, as debt-to-GDP ratios in 2017 exceed the debt ceilings set under their fiscal rules.

- Second, countries can be subject to large unexpected 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 developing countries, Jaramillo, Mulas-Granados, and Kimani (2017) find that the biggest driver of public debt spikes is not primary deficits, output contractions, or higher interest payments, but rather a sudden increase in the stock of debt—arising from

³Gerling 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.

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.



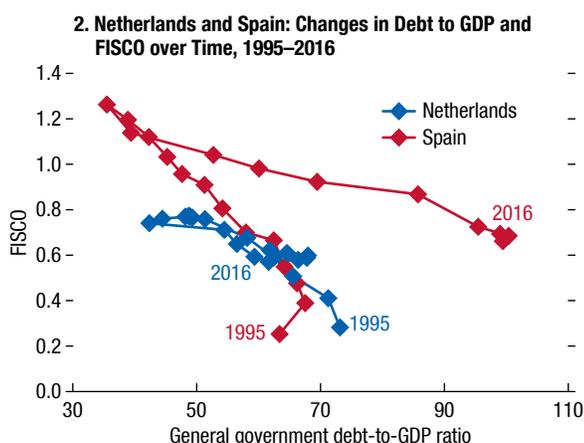
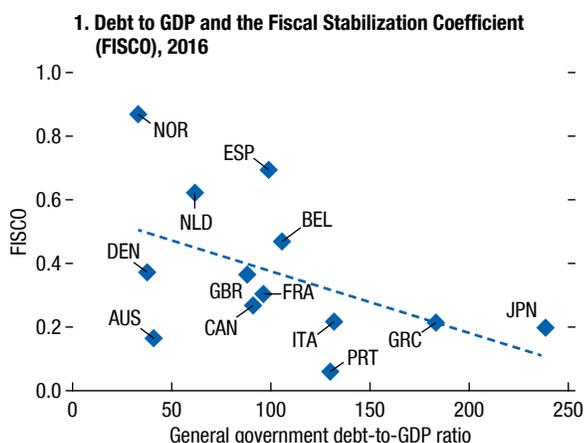
Sources: IMF, fiscal rules database; and IMF staff estimates.
 Note: Data labels in the figure use International Organization for Standardization (ISO) country codes. AEs = advanced economies; EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries.

the realization of contingent liabilities, quasi-fiscal spending, or the correction of previous underreporting of deficits, among others.⁴ Furthermore,

⁴While some of the factors contributing to debt shocks could be contained through enhanced transparency and more stringent financial 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.



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 economic slack (as measured by the output gap). If FISCO is equal to 1, it means that when output falls below potential by 1 percent of GDP, the overall balance worsens by the same percentage of GDP. 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

⁵IMF (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.

⁶Several 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.

⁷See 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 economic slack—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

⁸Fiscal 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*.

⁹For 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.

¹⁰Fiscal 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.

¹¹See 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.

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

¹³Fiscal 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

¹⁴See 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.

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).

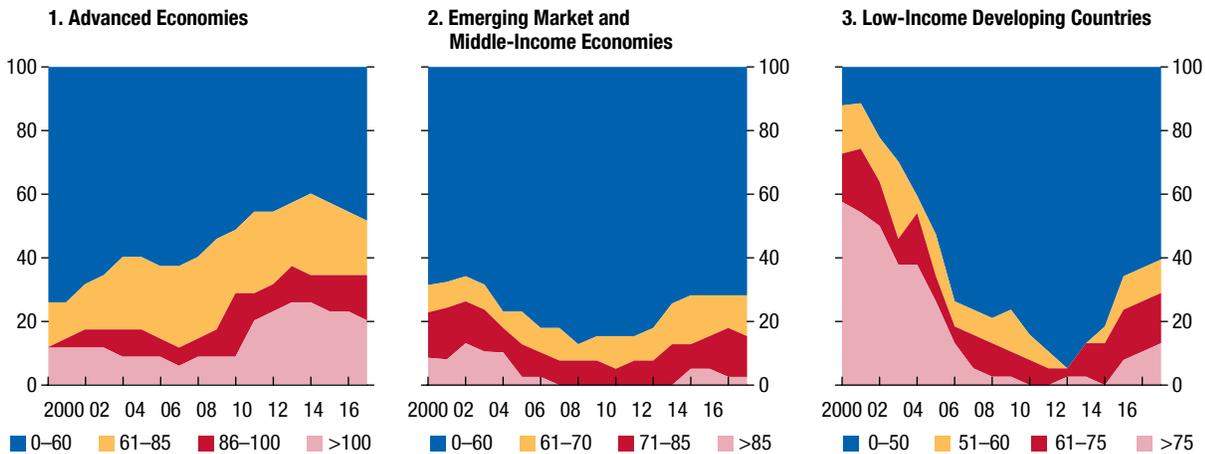
Debt ratios are considerably higher when including implicit liabilities linked to pension and health care spending. In this case, the average debt-to-GDP ratio doubles to 204 percent among advanced econ-

¹⁵The 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.

¹⁶Based 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.

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.

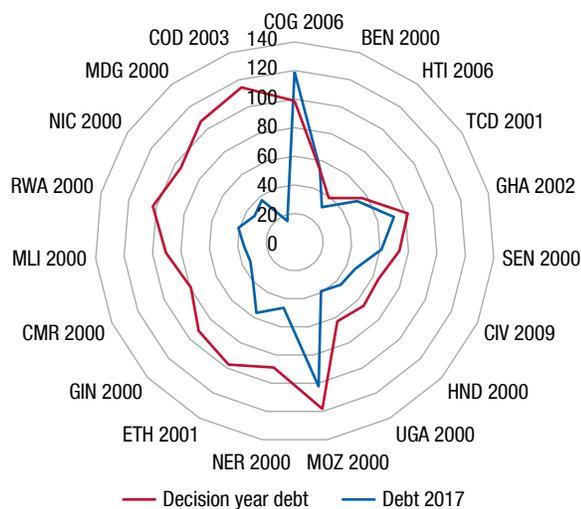


Source: IMF staff estimates.

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.



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).

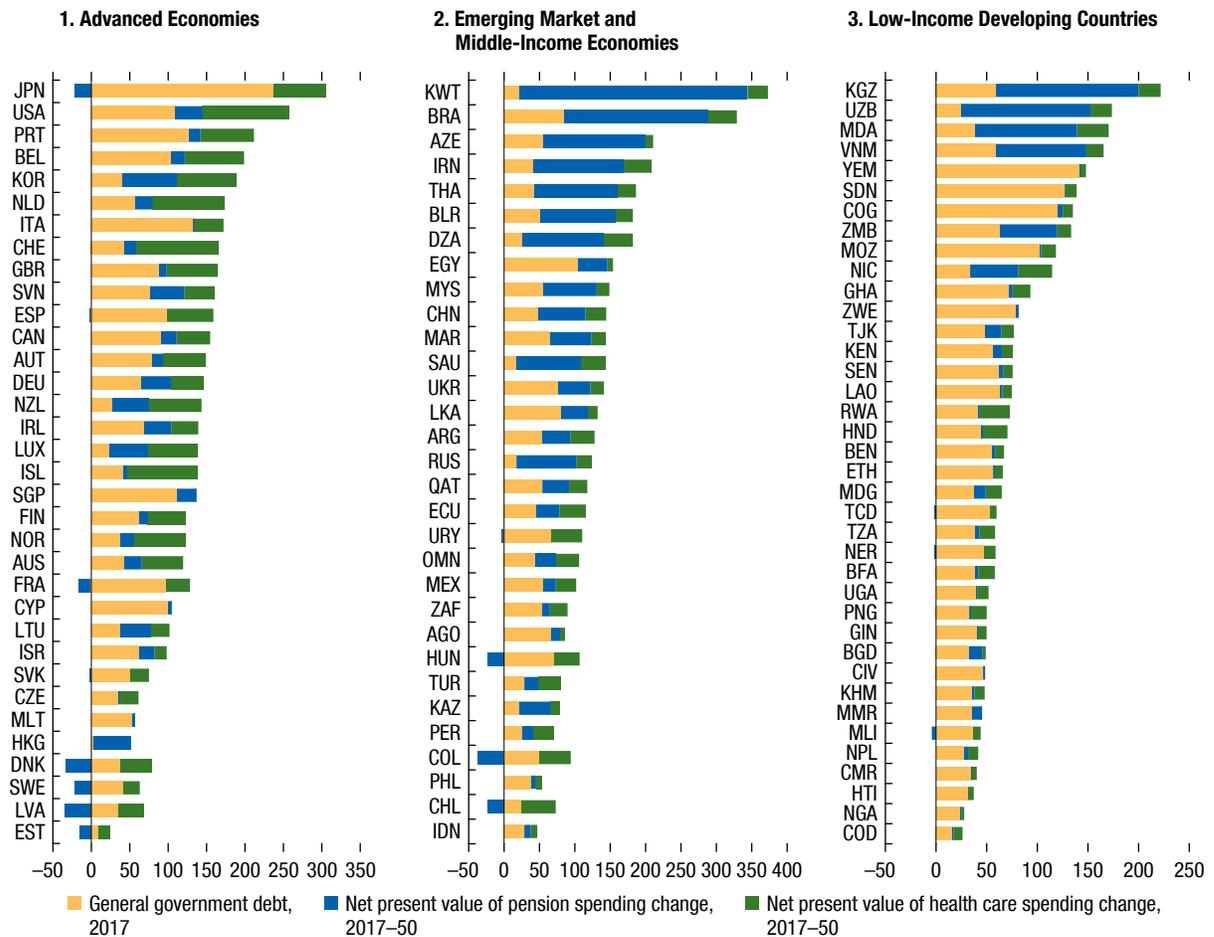
Even with favorable global financing conditions, higher debt ratios are pushing up the interest burden, especially among low-income developing countries. Figure 1.9 shows that interest payments in 2017 among this group of countries reached 18 percent of tax revenue and 9 percent of total expenditure, 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

¹⁷For 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.



Source: IMF staff calculations.

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

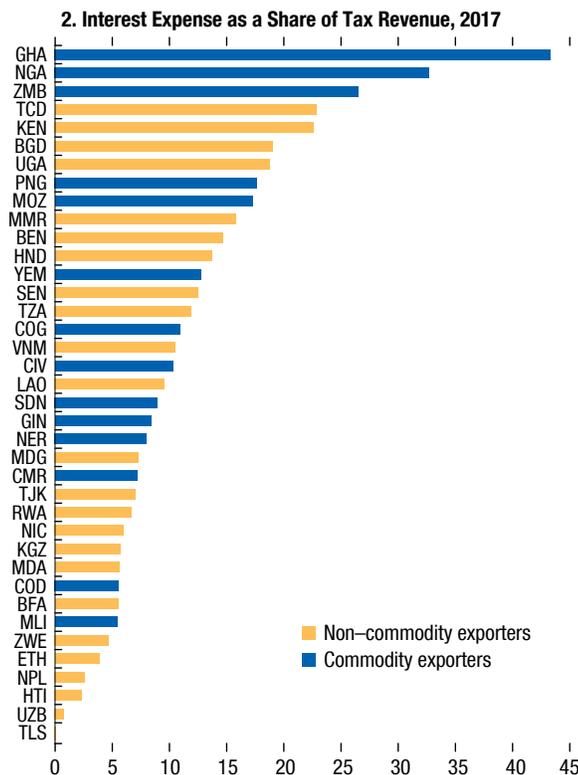
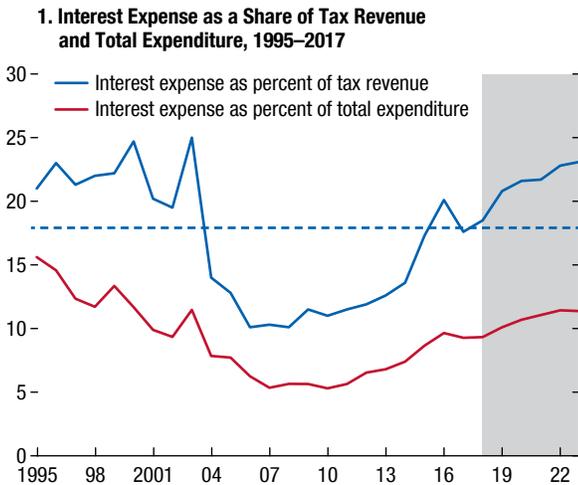
(Figure 1.10). In addition, external borrowing from commercial creditors (including commodity traders) has grown quickly from a low base, taking various forms, including Eurobonds and syndicated loans. As discussed in IMF (2018d), recent changes in the composition of creditors and debt instruments amplify 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)

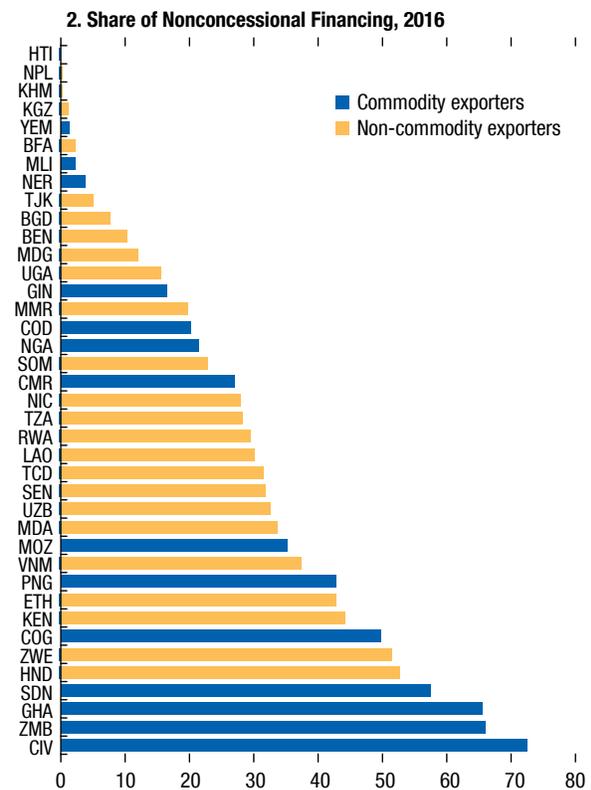
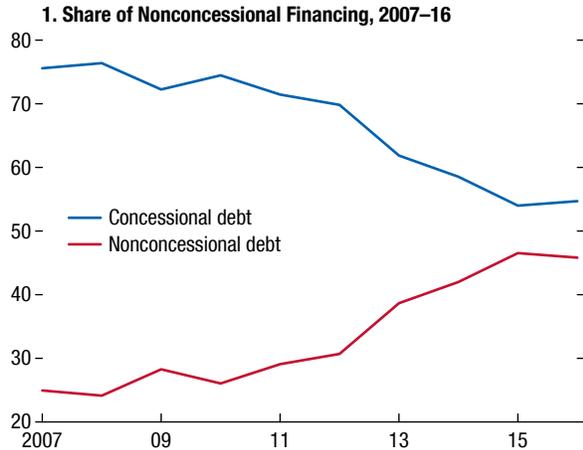
Interest payments as a share of tax revenues have doubled in the past 10 years and are close to historic highs.



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.



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,

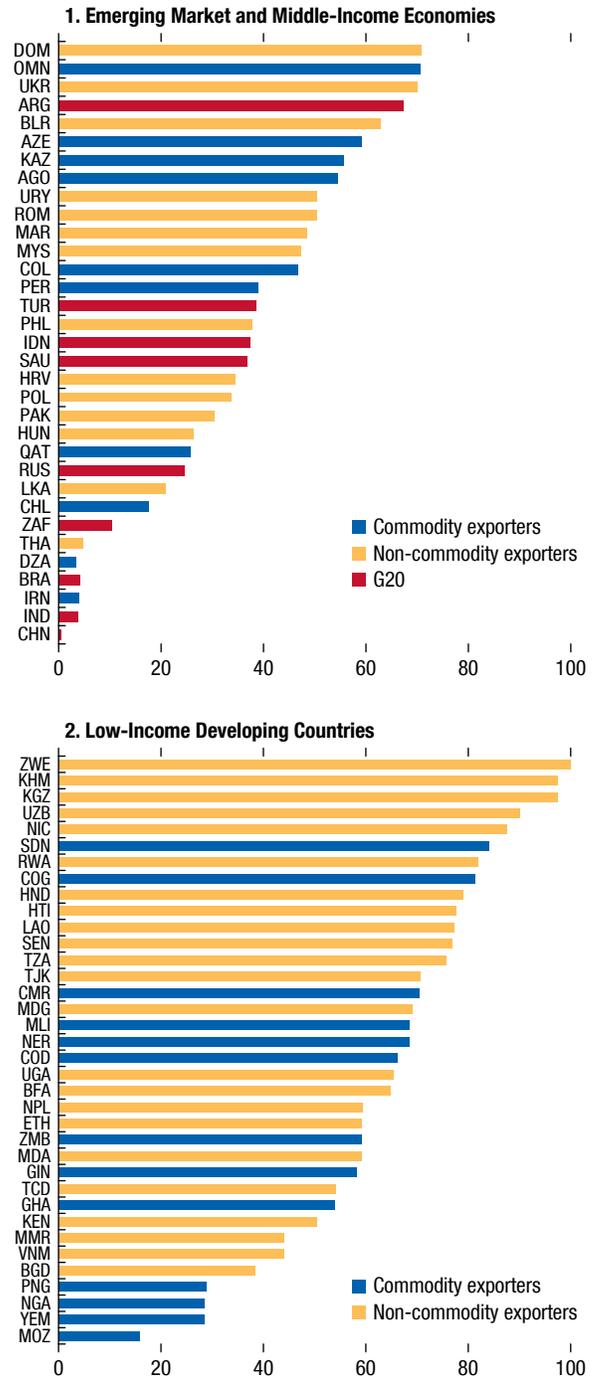
¹⁸For example, Mexico, Belgium, and Ireland have sold 100-year “century” bonds. As of December 2016, the outstanding stock of ultra-long bonds comprised 9 percent of central government marketable debt in OECD countries. See OECD 2017.

¹⁹The 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.

²⁰Throughout 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.



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.

¹Assumes 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 2017.²Data refer to the general government on a consolidated basis.³For 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.

¹Data 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.

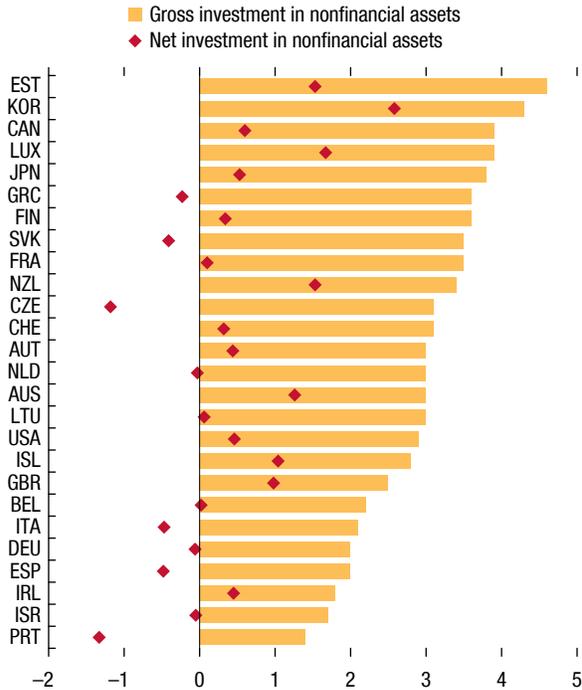
Note: All fiscal data country averages are weighted by nominal GDP converted to US dollars at average market exchange rates in the years indicated and based on data availability. Projections are based on IMF staff assessments of current policies. In many countries, 2017 data are still preliminary. For 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.

¹For 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.

²Including 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.



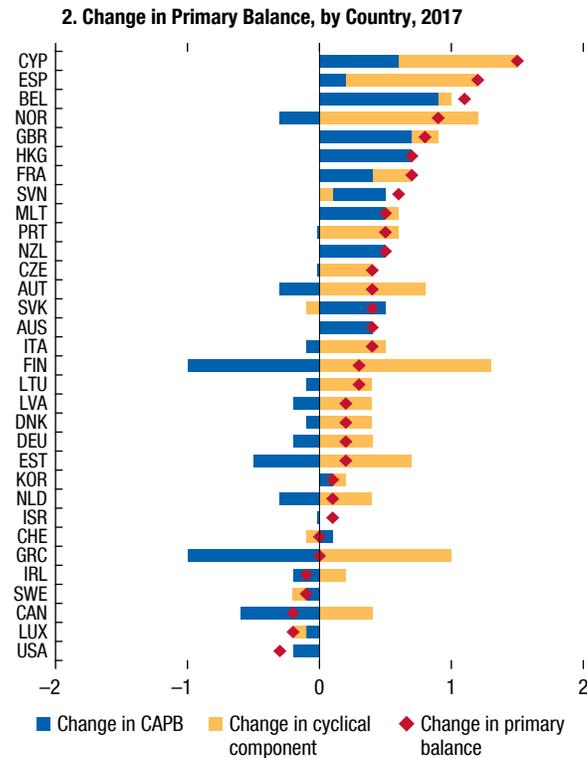
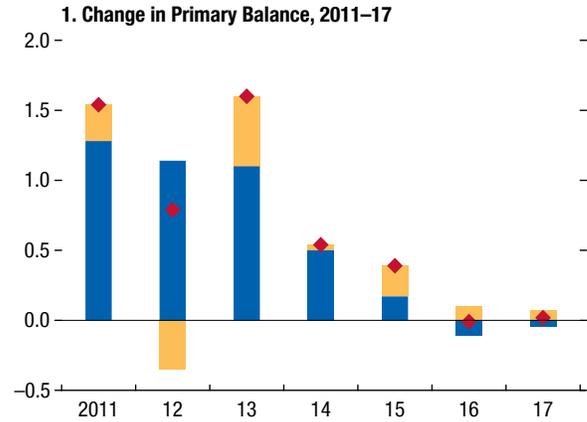
Sources: IMF, Government Finance Statistics; and IMF staff estimates. Note: Data labels in the figure use International Organization for Standardization (ISO) country codes. Net investment in nonfinancial assets = gross investment in nonfinancial assets minus depreciation.

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)

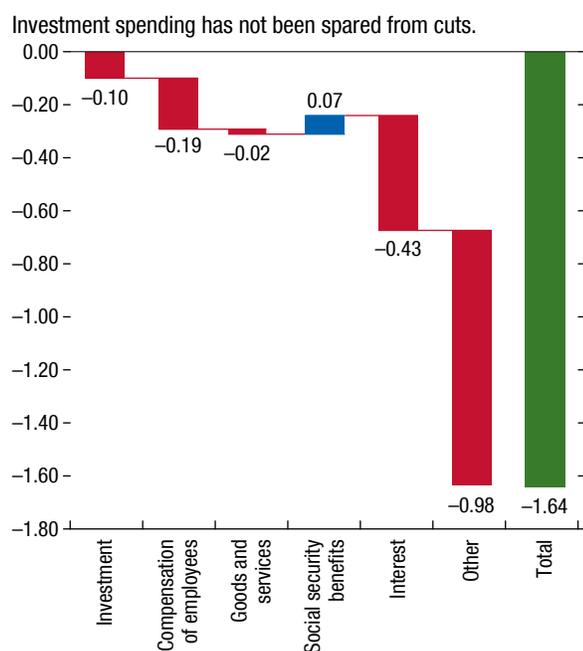
Figure 1.13. Advanced Economies: Change in Primary Balance (Percent of GDP)

Cyclical factors have helped countries contain their primary balances.



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)



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

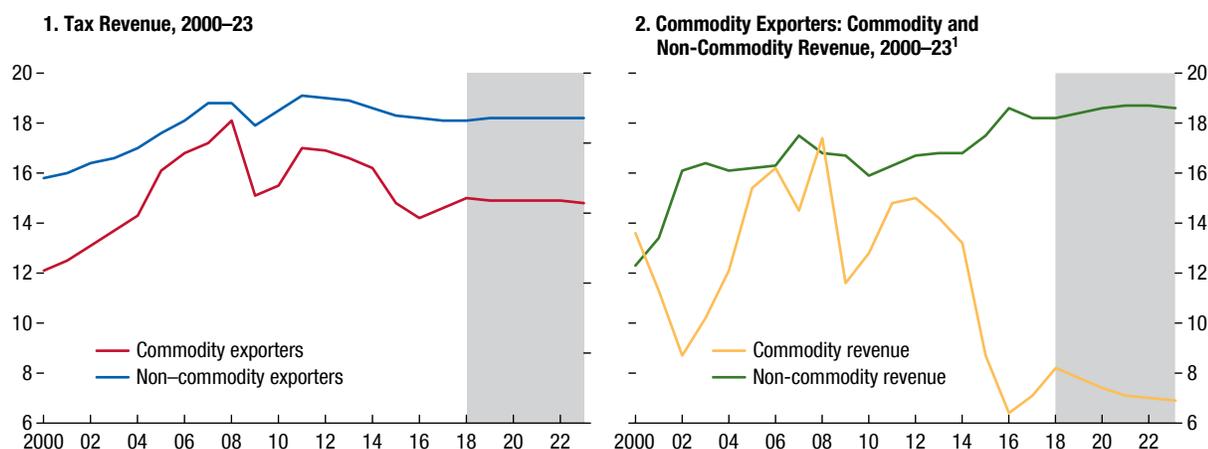
Overall fiscal deficits in emerging markets and middle-income economies fell marginally in 2017 for the first time after four years of steady increase, explained mainly by fiscal adjustment among commodity exporters. On average, the overall deficit declined from 4.8 percent of GDP in 2016 to 4.4 percent 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.

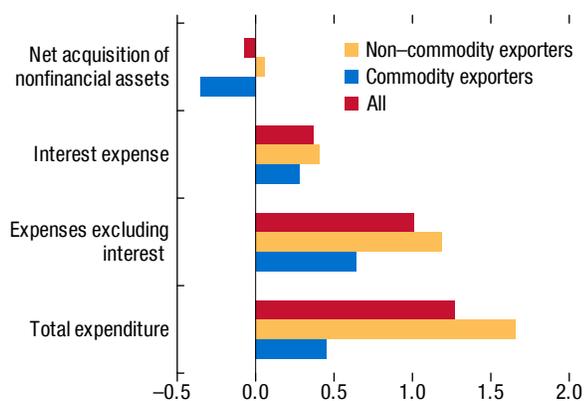


Source: IMF staff estimates.

¹Algeria, 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,

²¹Gaspar, 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.

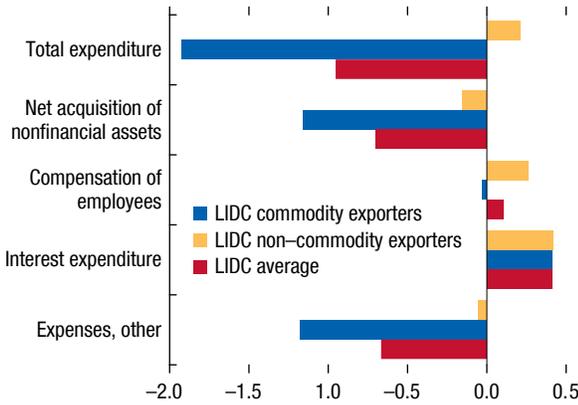
The deterioration in fiscal balances over the past five years does not reflect a scaling up of investment. Commodity exporters have not been able to fully compensate for the fall in commodity revenues. They

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)

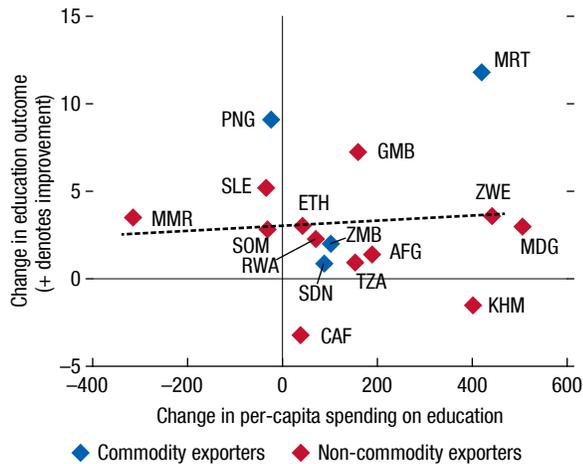
Investment has taken a hit as commodity exporters adjust to lower prices.



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.

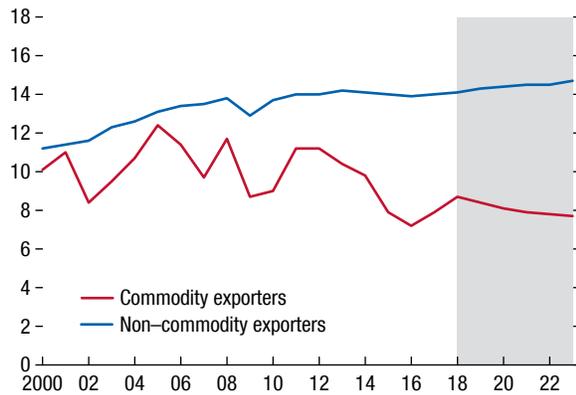


Sources: Garcia-Escribano and Liu 2017; and IMF, Fiscal Affairs Department Expenditure Assessment Tool.
Note: Change in education outcome refers to change in net secondary school enrollment. Data labels in the figure use International Organization for Standardization (ISO) country codes.

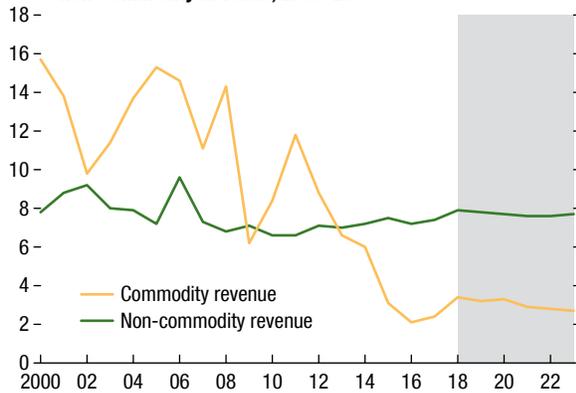
Figure 1.19. Low-Income Developing Countries: General Government Revenue (Percent of GDP)

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, 2000–23¹



Sources: IMF staff estimates and projections.
¹Includes 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).

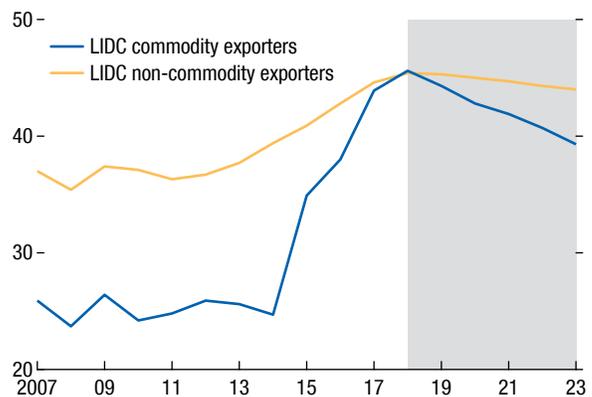
Risks to the Fiscal Outlook

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

²²The 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

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

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.

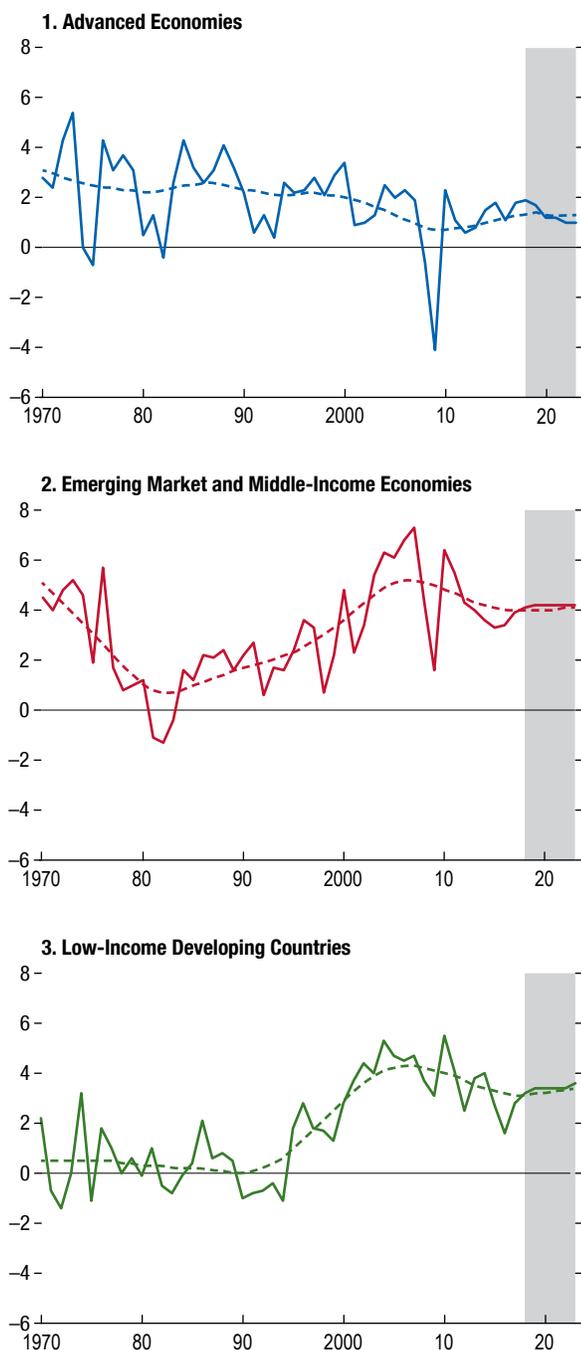
- In economies with smaller or already-closed output gaps and where debt has reached high levels, fiscal policy support should be withdrawn sooner. In the United States, where tax reform and the two-year budget agreement provide a procyclical stimulus and a less favorable debt outlook, fiscal policy 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-

²⁴Debt 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.



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.

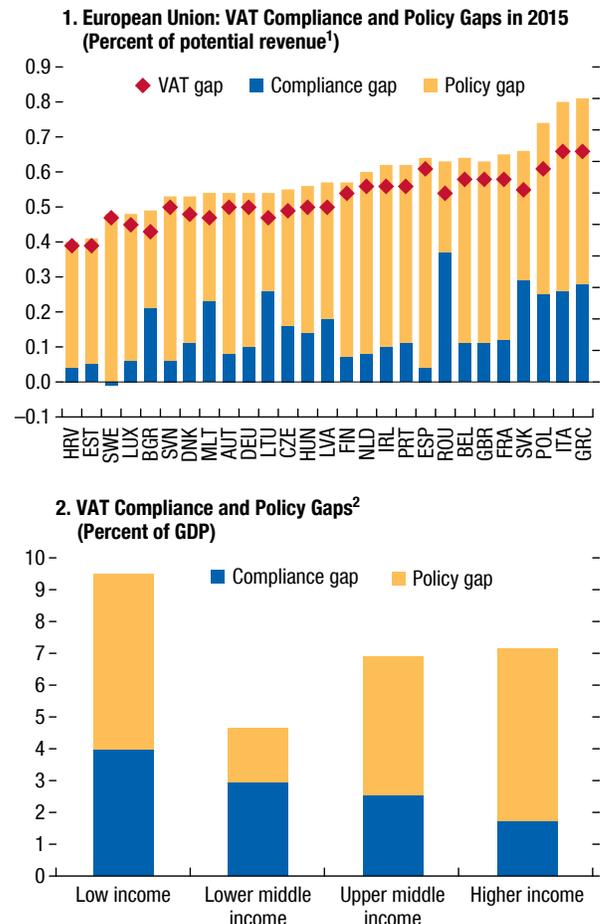
- Advanced economies have room to make their tax systems more growth friendly. The United States has several areas for reform not addressed with the recent tax legislation. For example, the eligibility and generosity of the earned income tax credit should be expanded to boost labor supply and sustain 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

²⁵This 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.

²⁶See 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.



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.

¹For 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.

²The 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

²⁷An 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>.

²⁸See Gaspar and Selassie 2017.

²⁹For 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>.

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

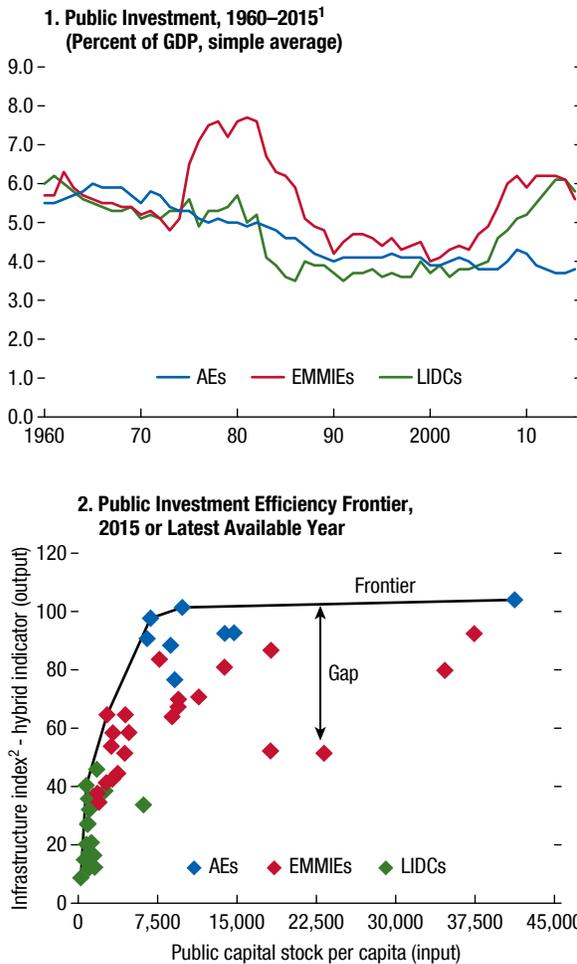
- Public investment can spur economic growth, but its efficiency hinges on the institutional setting and how it is managed. After three decades of decline, public investment remains at historical lows in advanced economies. It has begun to recover in emerging market and developing economies but efficiency 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.

³⁰For 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*.

³¹The 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.



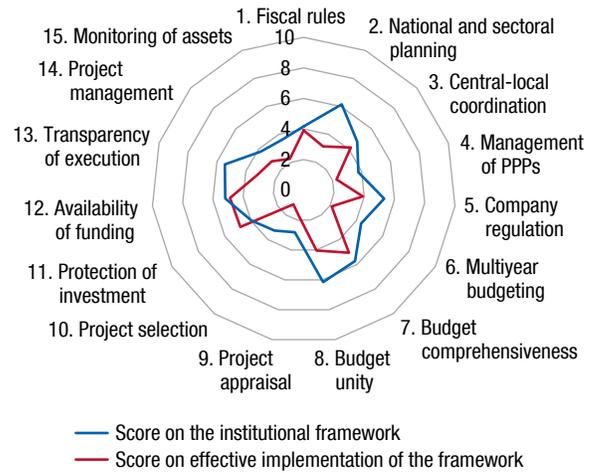
Sources: IMF, Investment and Capital Stock Dataset, 2017; IMF 2015c; and IMF staff estimates.
 Note: AEs = advanced economies; EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries.
 ¹Public investment refers to general government investment (gross fixed capital formation), in billions of constant 2011 international dollars.
 ²The 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

³²The 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.



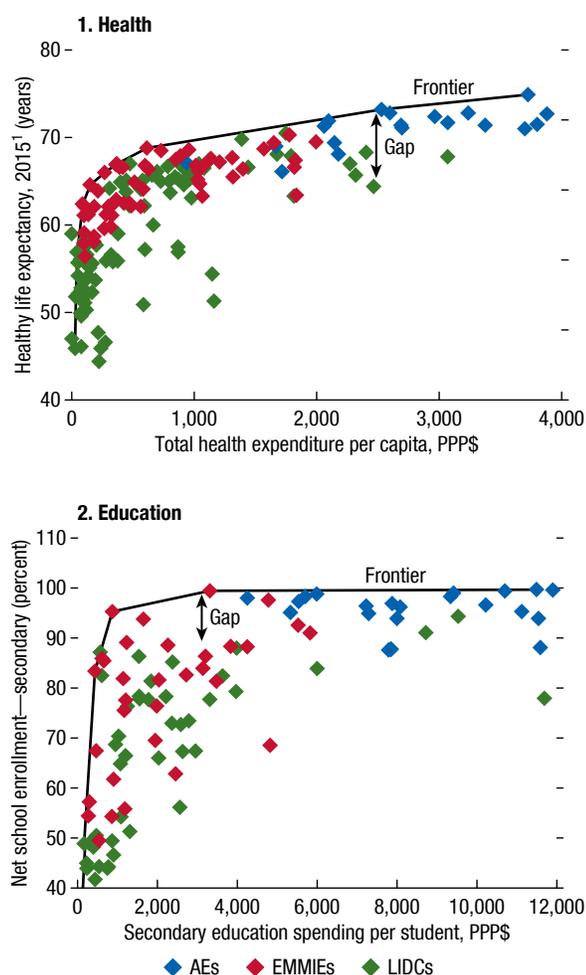
Sources: IMF, Public Investment Management Assessment (PIMA); IMF 2018e; and IMF staff estimates.
 Note: The PIMA evaluates 15 key institutions for planning, allocation, and implementation of public investment. For each of the 15 key institutions, three key design features are identified, each of which 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.



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.

¹Healthy 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

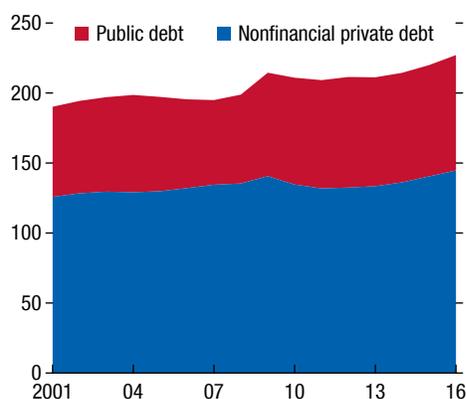
At \$164 trillion—equivalent to 225 percent of global GDP—global debt continues to hit new record highs almost a decade after the collapse of Lehman Brothers.¹ Compared with the previous peak in 2009, the world is now 12 percent of GDP deeper in debt, reflecting a pickup in both public and nonfinancial 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

¹This 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.

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.

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)

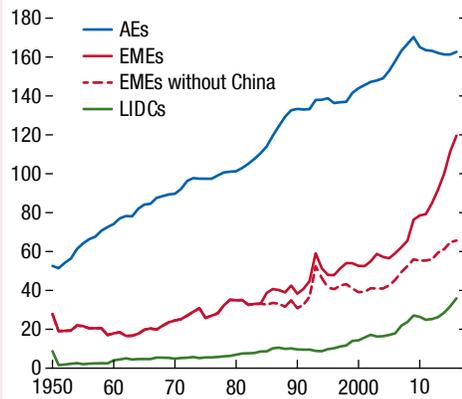
	2001	2007	2015	2016
Total	61.8	115.9	158.3	164.4
Advanced Economies	55.1	99.9	116.5	119.2
United States	20.3	33.6	46.0	48.1
Japan	13.2	15.7	17.1	18.2
France	2.7	6.2	6.7	6.7
Emerging Market Economies	6.4	15.6	40.6	43.9
China	1.7	4.9	23.6	25.5
Low-Income Developing Countries	0.3	0.5	1.2	1.3

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 assumptions²:

¹The 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).

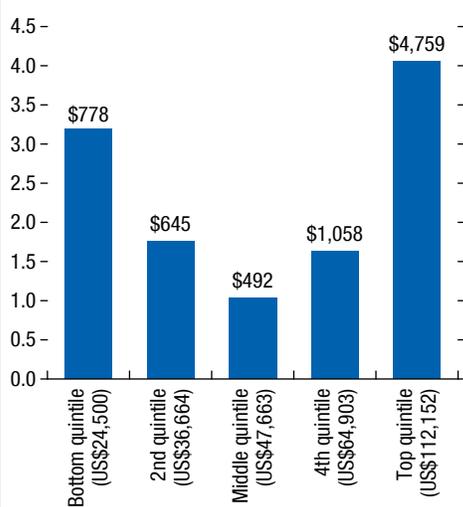
²This box does not provide a detailed distributional costing of the various provisions of the legislation, including the numerous features on the corporate income tax (CIT) side of the reform

- *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).

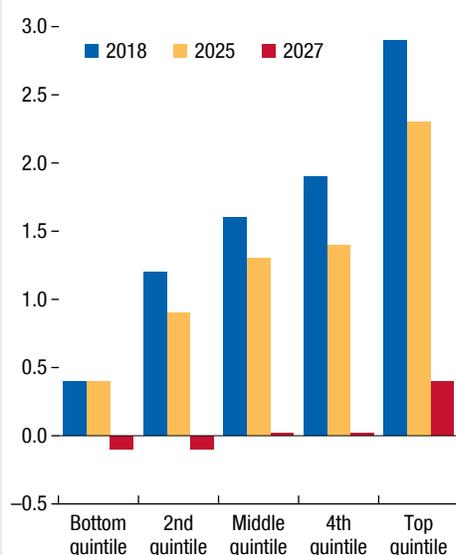
³For details, see <https://www.taxpolicycenter.org/simulations/individual-income-tax-provisions-tax-cuts-and-jobs-act-tcja-february-2018>.

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.

⁵See Autor and Dorn 2013 and Alich, Kantenga, and Solé 2016.

⁶Static 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.

⁴Staff 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

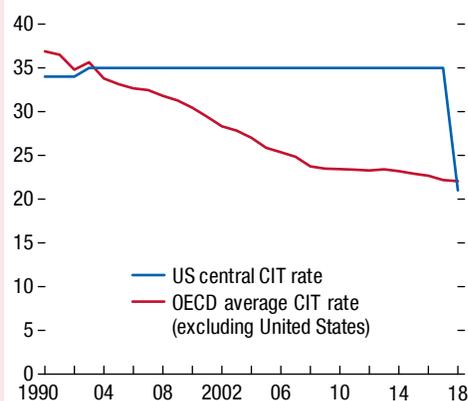
The US tax reform will affect not only the United States but also the rest of the world. Macroeconomic spillovers resulting from the fiscal stimulus will affect global demand (see the April 2018 WEO). Other spillovers will arise because the reform will affect the decisions of multinational companies 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 percent¹; 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

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

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.

²There 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 interest⁴ 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.

³This 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.

⁴Interest 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.

⁶See 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

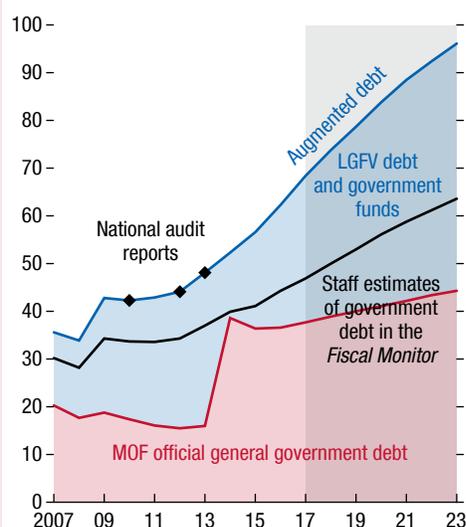
General government debt in China is projected to rise over the medium term, driven largely by sizable off-budget borrowing by local governments. The official debt concept points to a stable debt profile over the medium term at about 40 percent of GDP. However, a broader concept that includes borrowing 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

¹The 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.

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.

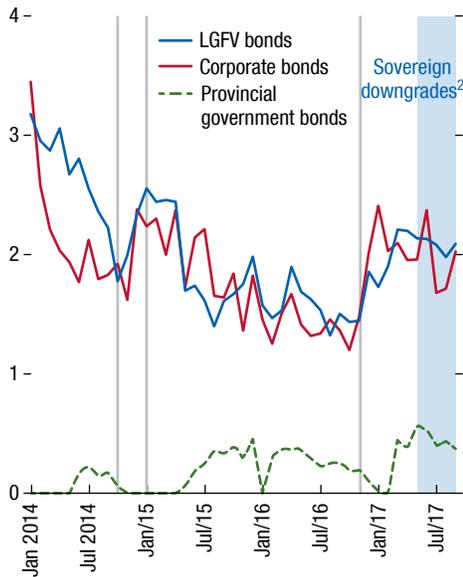
(Figure 1.4.2). However, there have been no LGFV defaults so far, despite weak and deteriorating interest rate coverage ratios and return on equity for LGFVs (see Figure 1.4.3), which suggests that there continues to be implicit local government support. Moreover, fiscal risks are arising from new borrowing 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

²Other 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.

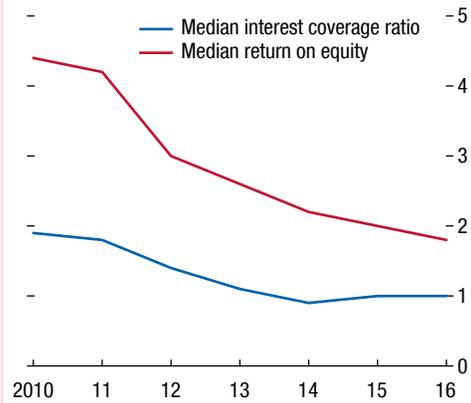
Box 1.4 (continued)

Figure 1.4.2. Local Government Financing Vehicle Spreads Rose Slightly in 2017 after a Series of Government Measures¹
(Percentage points above sovereign bond yields)



Source: WIND database.
 Note: LGFV = local government financing vehicles.
¹Bond 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).
²Sovereign 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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Digitalization presents both opportunities and risks for fiscal policy. It has the potential to improve the design and implementation of fiscal policy, but it also creates new challenges. This chapter first analyzes improvements in policy implementation with illustrative examples on tax compliance and spending efficiency. The analysis suggests that adopting digital tools could increase indirect tax collection at the border by up to 2 percent of GDP per year. In the future, digitalization could also help governments track down taxes on wealth sheltered in offshore financial centers, estimated at 10 percent of world GDP. On the spending side, country case studies show how digitalization can play a role in improving social protection and the delivery of public services. The chapter also discusses the design of future policy, focusing on the implications of the rapid expansion of digital firms whose business model—for example, sales with little physical presence and reliance on online customers to generate commercially valuable information—raises new questions about the allocation of international taxing rights. Finally, while digitalization offers many potential benefits, the chapter also discusses how it can create opportunities for fraud and increase government vulnerabilities—important challenges governments must address to reap its dividends.

Introduction

Digitalization—the integration in everyday life of digital technologies that facilitate the availability and processing of more reliable, timely, and accurate information—presents important opportunities and challenges for fiscal policy.

Expenditure and tax policies depend crucially on information about economic actors—their resources (such as income and wealth), their behavior (for example, labor force participation), and the transactions they make. This is true even after a policy is implemented because data on policy outcomes can inform future policy choices. However, relevant and reliable information is not always available or easy to use, constraining the design, implementation, and evalu-

ation of tax and spending policies. At the same time, economic actors may not be able to access relevant information when interacting with public administrations, making it difficult to pay taxes, access services, and take up benefits, thus reducing the effectiveness of fiscal policy. In the extreme, nontransparent public institutions generate distrust, which is detrimental to economic growth and welfare.

With better information, governments can build better systems and design and implement better policies. More specifically, by reducing the collection and processing costs of information, digitalization can do the following:

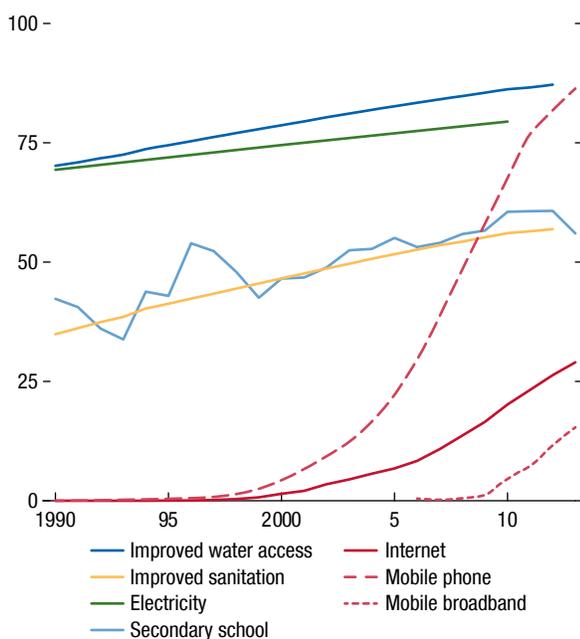
- *Improve the implementation of current policies.* Digitalization can reduce the private and public costs of tax compliance and improve spending efficiency. On the tax side, payments can be digitally facilitated and compliance could improve through greater access to taxpayer data. On the spending side, better identification and authentication systems, such as biometric technology, can reduce both leakages and the cost of reaching targeted populations. Digitalization can also enable improvements in governance and fiscal transparency, allowing better public awareness and scrutiny of the budget process.
- *Increase the range of policy options.* Greater access to information and enhanced digital capabilities open previously unavailable policy options to address new challenges. This includes, for example, the possibility of designing better domestic and international tax and spending policies for the digital economy.

However, although digitalization can reduce information barriers, it can also create challenges for the conduct of policy, requiring policymakers to:

- *Navigate unfamiliar territory.* Digitalization can pose a direct threat to tax collection and efficient spending by creating new fraud opportunities. Those intent on cheating can digitally tamper with information to hide or misrepresent themselves to the government. This includes the use of cryptocur-

Figure 2.1. Access to Public and Digital Services in Developing Countries
(Percent of population in developing countries with access to services)

The digital transformation is sometimes outpacing other services, such as secondary education.



Source: World Bank 2016.

rencies to accumulate wealth outside the reach of tax authorities or digital identity theft to illegally claim benefits. Privacy and cybersecurity can also become new sources of fiscal risks. Digital systems are vulnerable to cyberattacks, which can disrupt government functions and jeopardize citizens' digitally stored private information. Countries with weak administrative capacity or underfunded security systems will be particularly at risk. With new digital business models, firms with little physical presence in countries where they operate challenge the existing design of international taxation.

- *Overcome financing and capacity constraints.* Governments with limited fiscal space may find it difficult to mobilize resources to purchase digital tools and improve cybersecurity. Small businesses and vulnerable households can be left behind if they have little access to digital tools. Weak administrative and institutional capacity will be an obstacle to technological adoption.

This chapter examines both the opportunities and risks of digitalization. The next section describes recent trends in digitalization and documents how governments have used digital instruments for policy-making. The third section discusses how digitalization can improve the implementation of current policies, focusing on tax compliance and spending efficiency. The fourth section analyzes the design of future fiscal policies, highlighting the new challenges and opportunities of the fast-growing digital economy. The fifth section discusses what obstacles governments will need to overcome to mitigate the risks and reap the dividends of digitalization. This will require preventing new fraud opportunities, protecting privacy, ensuring digital inclusion, and building institutions and administrative capacity.

The chapter addresses the following questions:

- *How can digitalization help governments improve the implementation of current policy?* Can it help improve tax compliance in cross-border transactions and achieve greater spending efficiency through better coverage of income-support programs?
- *How can digitalization widen the range of policy options?* For instance, how can policy address corporate income tax and social insurance challenges posed by the (increasingly) digital business models?
- *What are the risks associated with digitalization?* What are the lessons from country experiences in addressing the challenges of digitalization?

The chapter uses various approaches to support the analysis, bringing together insights from existing literature, new analytical work, country case studies, and lessons from the IMF's capacity development work.

The Digital Transformation of Governments

Digital technologies have spread rapidly in much of the world. The number of Internet users worldwide has more than tripled in a decade—reaching 3.2 billion at the end of 2015—and is expected to rise further. More households in developing countries now have access to digital technology, such as the Internet and smart phones, than have access to secondary school or clean water (Figure 2.1).

This digital transformation has meant that individuals, firms, and governments are now more connected, making information more available and accessible than ever before. Vast improvements have occurred

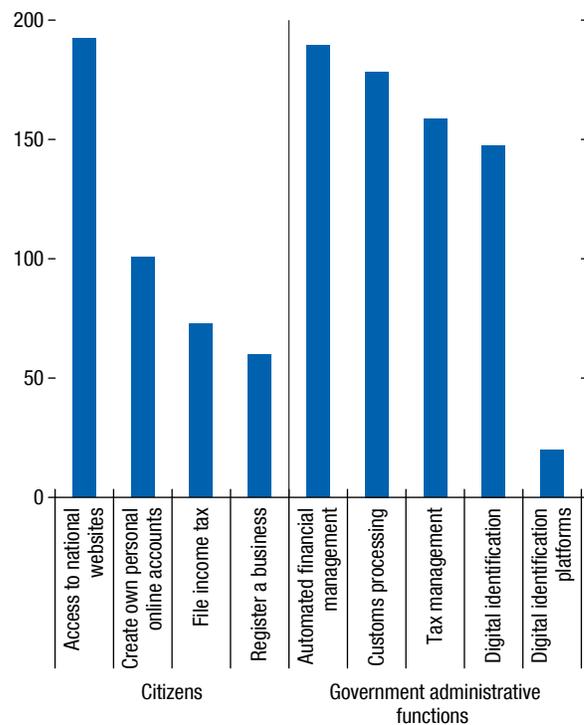
in collecting, processing, tracking, and disseminating information over the past two decades. At the turn of the century, only one-quarter of data were stored in digital form, and in less than a decade, the ratio rose to more than 95 percent in 2010 and has continued to rise (Ross 2016).

Governments are increasingly turning digital. Almost all country governments now have national websites and automated financial management systems (Figure 2.2). Greater availability and access to timely and reliable information are shaping how they conduct fiscal policy, affecting both revenues and expenditures:

- *Tax policy and administration.* Digitalization allows tax authorities to offer electronic tax filing, prepopulate tax returns, and verify customs and business activity (for example, through electronic invoicing). These advances could improve tax compliance and enforcement by reconciling payment differences, monitoring real-time revenue collection, performing audits, and using big data to assess taxpayer risks. At the same time, information from electronic transactions can be used to validate tax collections, for example, value-added tax (VAT). Electronic filing and payments have on average reduced tax-filing time by 25 percent in the five years after a digital system was introduced (World Bank 2016).
- Some countries have made substantial efforts to digitalize their tax administration. In South Africa, the use of electronic tax submissions, customs declarations, and payments has risen from below 20 percent to close to 100 percent over the past decade, following efforts to modernize and automate administrative processes in tax administration. In Estonia, tax administrators have used big data to identify high-risk and anomalous behavior of taxpayers to improve compliance (see Box 2.1 for a discussion of digitalization reforms in South Africa and Estonia). In China, the increasing use of electronic receipts has helped tax administrators authenticate and process tax rebates in the VAT (Fan and others 2017). Digitalization can also support the administration of property taxes. Distributed ledger technology can securely maintain databases for land registries (He and others 2017). Digital mapping technologies have been used successfully in Greece and the United States and offer promising avenues for property taxation in developing economies (see Box 2.2). Improve-

Figure 2.2 Government Digitalization
(Number of countries with selected digital services)

Governments are increasingly turning digital.



Sources: United Nations e-Government Survey 2016; and World Bank 2016.

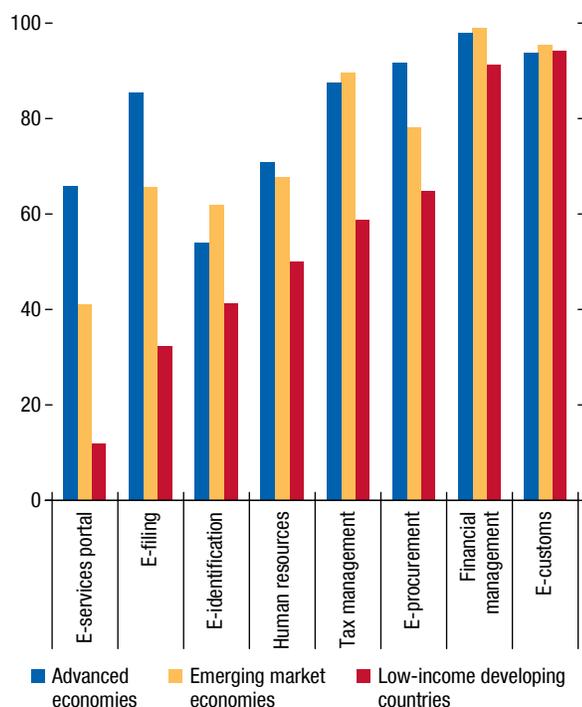
Note: The United Nations tracks 193 member countries for the adoption of digital services.

ments in digital technology have facilitated the global exchange of information, possibly reducing cross-border trade fraud and expanding the tax base. One notable example is that it may now be more difficult for those sheltering income and wealth in low-tax jurisdictions—a tax base previously out of reach for governments—to evade taxes (see the section “What governments can do now: Same policies, better implemented”).

- *Public spending and financial management.* Digitalization can improve financial management and ultimately the efficiency of public spending. Digital tools can improve the quality and delivery of public services, such as communicating with beneficiaries and monitoring public servants. Mobile technology and the associated lower communication costs have helped governments disseminate crucial information on health and

Figure 2.3. Selected Areas of Government Digitalization
(Percent of total number of countries)

Digitalization is on average less common in low-income developing countries.



Source: World Bank 2016.

agricultural practices.¹ In education, digital devices have been used to monitor teacher absenteeism.² In addition, electronic payment systems have helped reduce fraud and corruption and have facilitated the distribution of social benefits (for a discussion of savings from digitalizing government payments, see Box 2.3). Governments have also deployed technology to manage the public sector wage bill, for example, using mobile technology to pay public sector employees to reduce leakages associated with cash payments (Lund, White, and Lamb 2017).

¹See Aker (2010) and Aker and Blumenstock (2014) on the reduction in the costs of collecting and disseminating information with digital technology. Jiang and others (2014) and Flax and others (2014) provide evidence on the effect of using mobile technology to improve infant feeding practices, while Cole and Fernando (2016) find evidence on its effect on agricultural practices.

²Duflo, Hanna, and Ryan (2012) find evidence that digital monitoring can reduce teachers' absenteeism and increase student test scores.

Biometric technology to identify and authenticate individuals can help reduce leakages and improve coverage of social programs. With more than 1.2 billion registered citizens in India's biometric identification system, Aadhaar, the country stands out as a leader in this area.³ Moreover, digitalization can facilitate stronger governance and fiscal transparency, allowing better public awareness and scrutiny of the budget process and the design of fiscal policy. In Korea, the web-based participatory budget system, D-Brain, encourages public participation in the budget system; in Brazil, daily fiscal data are available on the government's Transparency Portal (Chambers, Dimitrova, and Pollock 2012). Beyond transparency goals, high-frequency fiscal aggregates can enable real-time macroeconomic analysis (see Box 2.4).

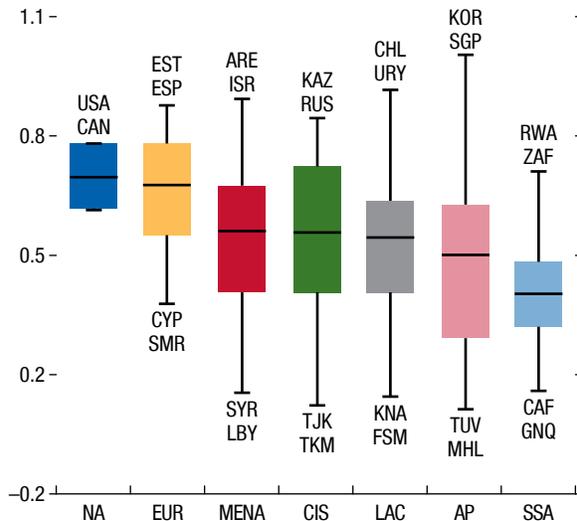
Economic size and the level of development do not perfectly predict digital progress. Developing countries on average score lower in government digital adoption than do advanced economies but stand on par in selected areas such as adoption of customs administration and financial management tools (see Figure 2.3). Governments in advanced economies have performed better on average in digital adoption, but many small or developing countries have taken the lead regionally, including Estonia in Europe, Chile in Latin America, Singapore in Asia, and Rwanda and South Africa in sub-Saharan Africa (Figure 2.4).

Country experiences demonstrate some challenges but also benefits of digital adoption. Greater potential benefits may be possible for developing countries. For example, biometric identification constitutes a technological leap over many paper-based systems; mobile devices save time given that they bypass the need for older technologies such as landlines and computers. Estonia, India, and Kenya have taken advantage of new technologies and pursued digital strategies that fundamentally affect the delivery of public services. India has applied digital tools in the distribution of social benefits, Estonia has demonstrated the benefits of an approach that affects its citizens' interactions with their government, and Kenya has leveraged the progress in financial inclusion to jump-start its digital government (see Annex 2.1 for

³The system provides citizens with a 12-digit unique identification number with demographic and biometric (fingerprint and iris scan) information.

Figure 2.4. Digital Government across Regions
(Digital Adoption Index for governments, latest available year)

Many small or developing countries have taken the lead regionally in digitalization.



Source: World Bank 2016.

Note: Data labels in the figure use International Organization for Standardization (ISO) country codes; see “Country Abbreviations” for definitions. The World Bank’s Digital Adoption Index measures the global spread of digital technologies for 171 countries. It provides a global picture of technology diffusion across businesses, people, and governments across countries. The government cluster is the average of three indices: core administrative systems, online public services, and digital identification. The countries listed are the top- and bottom-ranking countries in each region. AP = Asia and Pacific; CIS = Commonwealth of Independent States; EUR = Europe; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; NA = North America; SSA = sub-Saharan Africa.

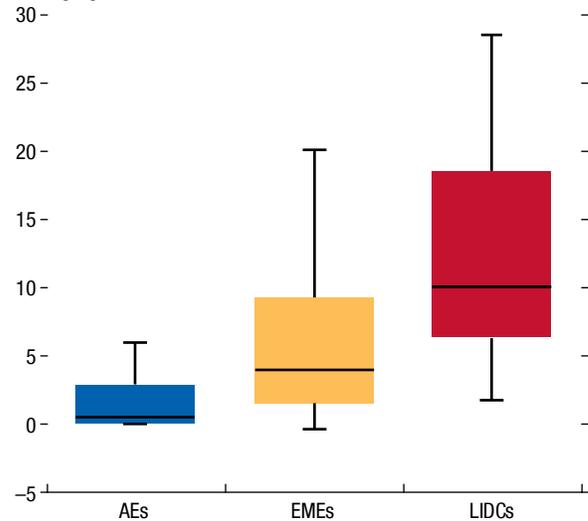
a discussion of these case studies). Their experiences suggest that countries can achieve significant benefits but only if the adoption of technology is well designed and implemented and accompanied by reforms to strengthen fiscal institutions.

What Governments Can Do Now: Same Policies, Better Implementation

Digitalization can improve how current policies are implemented. This section explores three examples. On the tax side, the analysis focuses on cross-border tax compliance problems—tax evasion associated with international trade and income and wealth sheltered in low-tax jurisdictions, issues that offer a useful perspective on digitalization. First, the digitalization of customs administration has been ongoing and offers the

Figure 2.5. Taxes on International Trade, 2015
(Percent of total revenue)

Trade-related taxes are an important source of revenue for emerging market and low-income countries.



Source: IMF, *World Economic Outlook*.

Note: AEs = advanced economies; EMEs = emerging market economies; LIDCs = low-income developing countries.

opportunity to analyze the cumulative impact of efforts that started some time ago. Second, serious efforts to collect tax on income sheltered in low-tax jurisdictions are relatively new but have gained momentum since the global financial crisis. On the spending side, this section discusses how digitalization can help improve access to entitlements and reduce leakages in income-support programs—key topics when considering public intervention to address poverty and equity concerns.

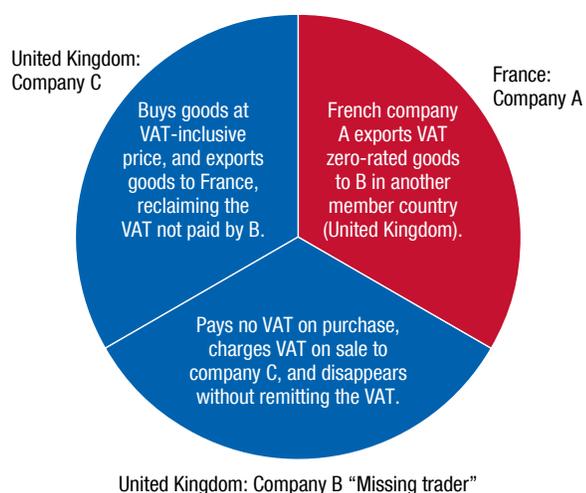
Improving Tax Compliance

Reducing Tax Evasion from Cross-Border Fraud

Could widespread use of novel electronic record technology eliminate trade fraud? Trade taxes still represent a nontrivial share of revenues—particularly in emerging market and developing economies where they constitute close to 10 percent of total revenues on average (Figure 2.5). Trade fraud can reduce customs, excise, and VAT collection at the border. Traders have clear incentives to underreport the value of goods to avoid tariffs, but VAT evasion can occur at the border as well. For example, missing

Figure 2.6. The Missing Trader and Carousel Fraud

These frauds exploit the VAT zero-rating of exports and deferral of tax on imports.



Source: Keen and Smith 2007.
Note: VAT = value-added tax.

trader intra-community fraud (also known as carousel fraud) exploits the zero-rating of export and deferral of tax on intra-EU imports that allows trading across member state borders to be VAT free. The fraud takes place when a company buys VAT-free goods from another EU Member State and sells the goods domestically, receiving the entire amount of the VAT, but then disappears without remitting this amount to the tax authority (Figure 2.6). As a result, this missing trader fraud incurs an estimated tax loss of EUR 45–60 billion to the EU annually (4–6 percent of VAT revenues).⁴

Digitalization can improve tax compliance by enhancing operational efficiency and the quality of information on trade transactions, particularly in customs unions that lack border controls. Information is crucial for collecting taxes and duties at the border—in particular, information about the product classification, volume, origin, and value of goods traded. This information is typically provided by importers and exporters, with a risk that they may misreport transactions to evade duties or taxes.

⁴See European Commission (2015) and <https://www.europol.europa.eu/crime-areas-and-trends/crime-areas/economic-crime/mtic-missing-trader-intra-community-fraud>.

To verify information provided by importers and exporters, customs officers need access to third-party information—such as the exporter’s commercial invoice, the shipping line’s cargo manifest, or the bill of lading from a commercial bank. Direct access to accurate third-party information is facilitated by digitalization—it can help improve authenticity, accuracy, and completeness of information. Digital information is more resilient against manipulation than are paper documents and can facilitate the submission of *authentic* documents—for example, the shipping company can provide an electronically signed cargo manifest; the exporter’s chamber of commerce can replace a paper submission with a direct electronic submission of the certificate of origin to the importing-country customs authorities. Blockchain technology could also help secure the authenticity of submitted information, given that all transactions are recorded—the initial submission, and all subsequent modifications.⁵ Digitalization can also help secure the *accuracy* of reporting at the border. The analysis of historical customs transactions data—big data analysis—can enable tax administrations to discriminate more effectively between high- and low-risk declarations and to allocate their resources to prevent evasion more efficiently. However, although digitalization can significantly reduce problems related to authenticity and accuracy, obstacles remain when it comes to *completeness* of information, particularly when the trade payment involves credit and where the financial flows linked to the transaction do not sum up to the value of the goods.

Countries are already taking advantage of these methods. French customs are testing data mining methods, using big data to detect fraudulent taxpayer behavior. The Estonia Tax and Customs Board is implementing big data analysis to create risk profiles of tax payment transactions so that high-risk transactions—those with characteristics previously associated with fraud, anomalous behavior, or attributes compared to population norms—are more closely monitored (Box 2.1).

⁵Blockchain is a list of secure, immutable records or blocks of electronic transactions stored cryptographically. The use of blockchain in customs administration remains limited so far. Some commercial banks that routinely issue trade documents are testing its application. Dubai Customs is exploring the use of blockchain for the import and re-export process of goods (Krishna, Fleming, and Assefa, 2017).

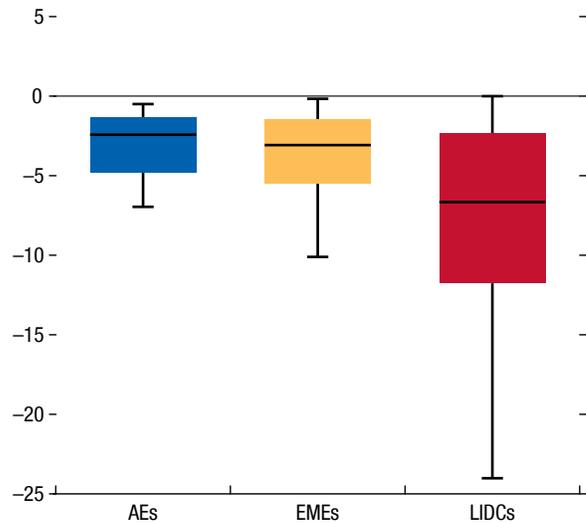
How large is cross-border trade fraud? Trade fraud leading to tax evasion can be proxied using discrepancies in trade statistics from the origin and destination countries.⁶ In practice, the value reported by importers includes cost, insurance, and freight, and—in principle—should exceed the value reported by exporters that is free-on-board. This trade gap—the difference between these two reported values—provides a crude indication of trade fraud when unexplained by other factors such as valuation changes and trade-related costs. The median trade gap ratios across countries are significantly different from zero, ranging between –2.4 percent of GDP for advanced economies and –6.6 percent of GDP for low-income developing countries (Figure 2.7).

If digitalization reduces trade misreporting, it may help improve revenue collection. The analysis in Annex 2.2 reveals a strong positive association between improved digitalization indices and the trade reporting gap, suggesting a lower incidence of trade fraud when governments enhance information collection and processing through digitalization. This relationship remains significant after controlling for other key determinants, including tariffs and tax rates, the level of development, and governance. The effect points to significant potential revenue gains of digitalization from reducing trade fraud. Simulation analysis indicates that reducing the distance to the digitalization frontier by 50 percent could raise the median VAT revenue by 1.7 percent of GDP for low-income developing countries, 1.0 percent of GDP for emerging market economies and advanced economies, and 0.5 percent for the EU (Figure 2.8, panel 1). Similarly, median tariff revenue could increase by 0.5 percent of GDP for low-income developing countries, 0.3 percent of GDP for emerging market economies, and 0.06 percent of GDP for advanced economies (Figure 2.8, panel 2). These results are only indicative of potential revenue gains because reducing the distance to the digitalization frontier is likely to require significant fiscal resources and the removal of institutional barriers.

⁶Existing studies in this area typically follow the approach suggested by Fisman and Wei (2004), identifying evasion based on a correlation between tax or tariff rates and reporting discrepancies between importers and exporters (see also Javorcik and Narciso 2008; Mishra, Subramanian, and Topalova 2008; Ferrantino, Liu, and Wang 2012; Kellenberg and Levinson 2016).

Figure 2.7. Trade Gap Ratios, 2016
(Difference between importer and exporter reported values in percent of GDP)

Trade misreporting is more prevalent among developing countries.



Sources: IMF, *Direction of Trade Statistics*; IMF, *World Economic Outlook*; and IMF staff calculations.

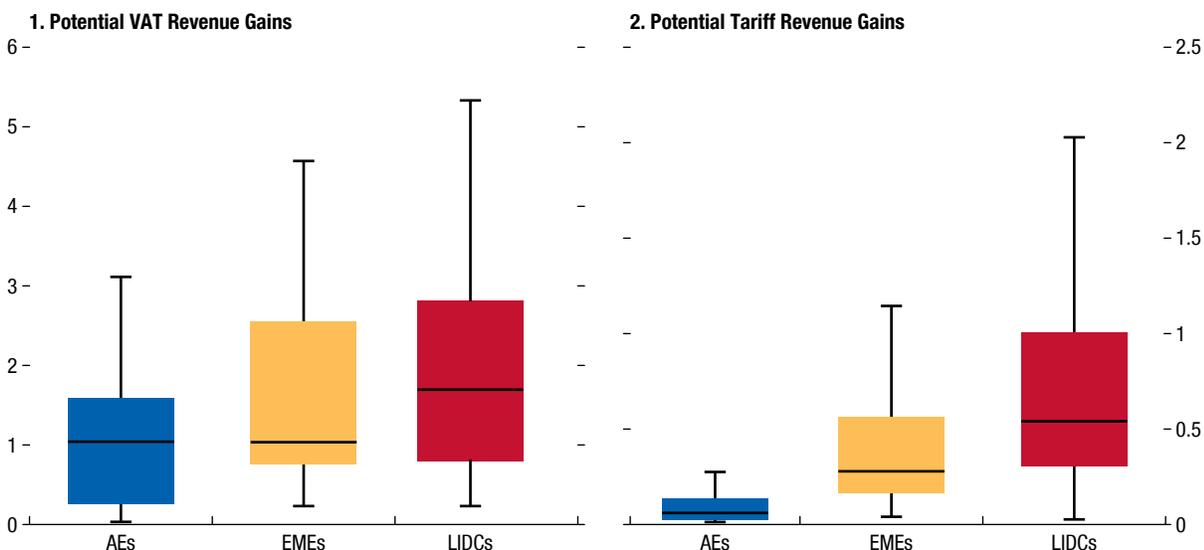
Note: The figure presents negative trade gaps as indicative proxies of trade misreporting. AEs = advanced economies; EMEs = emerging market economies; LIDCs = low-income developing countries.

Curbing Revenue Losses from Personal Income and Wealth Sheltered in Low-Tax Jurisdictions

In addition to increasing collection from existing tax bases, digitalization could also unlock revenues from new sources. Offshore financial wealth—as a share of overall financial wealth—has grown substantially over the course of the past century (Figure 2.9). Much of this growth occurred simultaneously with the introduction of personal income taxation in several advanced economies. However, in recent decades, digitalization has facilitated the expansion of financial transactions and capital flows through offshore financial centers for tax sheltering purposes. In addition, greater use of cryptocurrencies, as well as fintech—digital technology for the delivery of financial services—may enable new banking platforms that escape the conventional concept of domestic jurisdiction and spur further growth of financial transactions at the margins of traditionally regulated onshore financial systems. At the same time, financial opacity has increased with the complexity of available instruments and channels used to manage financial

Figure 2.8. Potential Revenue Gains from Closing Half the Distance to the Digitalization Frontier, 2016
(Percent of GDP)

Potential VAT and tariff revenue gains from digitalization are substantial, particularly for lower-income countries.



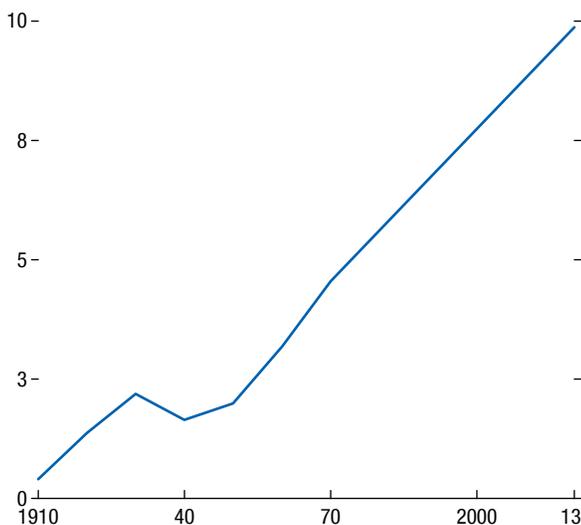
Source: IMF staff estimates.

Note: The panels in the figure show gains from reducing the distance to the digitalization frontier by 50 percent. AEs = advanced economies; EMEs = emerging market economies; LIDCs = low-income developing countries; VAT = value-added tax.

Figure 2.9. Estimated Wealth of Europeans in Low-Tax Jurisdictions

(Percent of the financial holdings of European households)

The share of European financial wealth held in low-tax offshore jurisdictions has grown dramatically over the course of the twentieth century.



Source: Zucman 2015.

Note: The figure includes 34 European countries.

portfolios (including, for instance, derivatives and shell corporations).

Tax authorities around the world have historically remained on the sidelines of this transformation, unable to capture this “buried treasure”—the large revenue potential these flows and asset holdings represent—largely because of the absence of information on ultimate taxpayers.⁷ To enforce existing tax legislation, national authorities need to know the owners, size, type, and location of offshore assets, information that ultimately requires bilateral exchanges across national borders. Until recently, a lack of comprehensive, timely, and standardized information about who owned what and where and the means to exchange this information internationally made tax collection on these assets practically impossible.

⁷Although corporations (especially multinationals) may and often do use foreign subsidiaries in offshore financial centers to engage in tax avoidance practices, associated international capital flows will generally be recorded in each relevant country’s balance of payments accounts. In contrast, this section restricts its focus to wealth and income flows sheltered by individuals in offshore financial centers for tax evasion purposes; it is in the latter case that tax authorities could most tangibly benefit from improved exchange of information.

However, unprecedented changes have occurred over the past few years. In 2014, the new global standard for automatic exchange of information was created by the Organisation for Economic Co-operation and Development (OECD) and the Group of Twenty (G20) to reduce the possibility of such tax evasion. Participating jurisdictions send and receive digital information on nonresident financial accounts without the need to send a specific request—a process whose viability has been enhanced by recent developments in information and communication technology (ICT), especially in the efficiency and security of data collection and its transmission. Automatic exchange of information on the financial accounts of nonresidents across countries requires standard digital formats for data recording, substantial computing power, and secure networks for the encryption of transmitted data and access protection.⁸ Taking advantage of these developments, as well as of renewed political will to combat tax evasion after the global financial crisis, the OECD's Global Forum on Tax Transparency and the G20 pushed for the creation of a Common Reporting Standard in 2014, which enables the automatic exchange of information.⁹

Could digitalization and the resulting improved exchange of information raise the potential revenue gains from personal income and wealth traditionally sheltered in low-tax jurisdictions? The existing literature suggests that a sizable portion of assets is held in low-tax jurisdictions—as much as 10 percent

of the world's GDP (Zucman 2015; Alstadsaeter, Johannesen, and Zucman 2017). This section draws on individual estimates of wealth sheltered in low-tax jurisdictions in 178 countries using anomalies in global investment statistics and information on non-bank sector deposits held in offshore financial centers in 2016 (for details, see Annex 2.3).¹⁰ The analysis suggests the following:

- *Assets held in low-tax jurisdictions are large across all country income groups.* Residents from countries across all income groups are estimated to have substantial offshore wealth, between a median of 7.6 and 10.7 percent of GDP (Figure 2.10, panel 1).
- *Current policy choices, administrative capacity, and political capture limit potential revenue gains.* Although the relevant taxable income base is potentially large, expected revenue gains are substantially lower and concentrated in advanced economies where applicable tax rates are higher on average. The estimated maximum potential tax revenue from offshore assets amounts to median tax revenue of a little more than 0.1 percent of GDP, compared with a median of 10 percent of GDP for the tax base (Figure 2.10, panel 2).¹¹ This is partly because of current policy choices—assuming a return on financial assets of 8 percent per year,¹² effective tax rates on wealth and the associated capital income flow from such a return average only 1.8 percent (see Annex 2.3).¹³

⁸The exchange of information usually takes place between two countries' portals over a secure network. Standard digital formats and strict data protection rules are essential for the efficient use of automatic exchange of information, and the OECD continues to develop standards for automatic exchange. High costs of ICT solutions have been frequently identified as one of the most challenging challenges for implementation of the automatic exchange of information (Global Forum on Transparency and Exchange of Information for Tax Purposes 2014).

⁹The international exchange of information network has expanded significantly to include many offshore financial centers. As of 2014, for example, the Cayman Islands, Jersey, and the British Virgin Islands had more than 200 exchange of information relationships, up from fewer than 20 in 2008. In 2017, the first exchanges under the Common Reporting Standard on Automatic Exchange of Information took place for nearly 50 jurisdictions, and with 50 more to follow in 2018. As of January 2018, there were more than 2,600 bilateral exchange relationships under the multilateral competent authority agreement. Furthermore, all major offshore financial centers have joined the Multilateral Convention on Mutual Administrative Assistance in Tax Matters, and committed to the Common Reporting Standard, starting at the latest in September 2018.

¹⁰Annex 2.3 presents alternative ways of estimating offshore wealth as robustness checks.

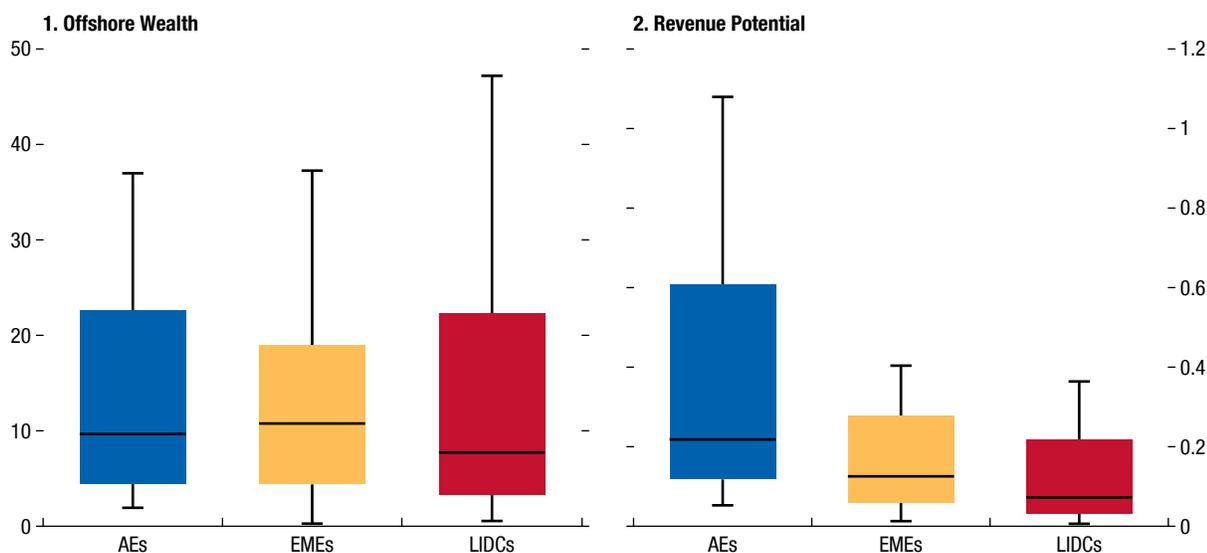
¹¹The Global Forum has compiled estimates of tax revenue collected because of exchange of information requests in a few countries, such as Sweden and Australia (OECD 2014). Such estimates are about 0.02 percent of GDP, lower than those presented here—necessarily so, given that exchange of information upon request relationships are a subset of the multilateral automatic exchange of information network now being implemented.

¹²The assumed rate of return is based on the 10-year returns on Vanguard diversified funds as in Zucman (2015). Halving this rate would reduce the effective tax rate from 1.8 percent to 1.2 percent.

¹³Although not explicitly modeled here, administrative and political constraints can also limit revenue potential. First, tax collectors and administrators can have the bargaining power to resist reform and can extract revenues from inefficient or even illicit tax practices for private gain. To these groups one can add politicians and officials involved in setting tax policy (Moore 2013). Second, many tax authorities still make insufficient use of advanced tax administration practices (Bräutigam, Fjeldstad, and Moore 2008; Okello 2014).

Figure 2.10. Offshore Wealth and Revenue Potential, 2016
(Percent of GDP)

Estimates of offshore financial wealth are substantial for countries across all income groups.



Source: IMF staff estimates.

Note: AEs = advanced economies; EMEs = emerging market economies; LIDCs = low-income developing countries.

Digitalization—and increased taxpayer information—is no silver bullet in collecting (more) taxes but could go beyond improved compliance by reformulating current policies. First, increased taxpayer information could enable countries to collect labor and capital income taxes at the source before such earnings are transferred to low-tax jurisdictions. At the current (sample) average labor income tax rates of 30 percent, for example, this could significantly affect revenues. Second, this “new” tax base could incentivize governments to consider strengthening residence-based international taxation of individual shareholders, that is, imposing capital income taxation directly on shareholders rather than using territorial corporate taxation as a withholding tax for ultimate capital owners (Toder and Viard 2016; Gupta and others 2017). Countries could thus use residence-based personal taxation (including dividends, wealth, and inheritance taxes) to maintain effective taxation of capital as source-based corporate income tax rates continue to decline. Doing so may also be equity enhancing, insofar as such a base is most likely coming from individuals with a high net worth.¹⁴

¹⁴Although early theoretical models have influentially argued for an optimal zero capital income tax rate (Atkinson and Stiglitz 1976;

Under current policies, estimated potential tax revenue from offshore financial wealth is comparatively small and concentrated in advanced economies.

The likelihood of such changes will depend crucially on the design of the exchange of information systems and nontrivial challenges remain.¹⁵ The current exchange of information network remains porous because not all countries comply and even for those that do, there are few credible or enforceable supranational sanctions in cases of noncompliance beyond reputational costs.¹⁶ In addition, current reporting

Judd 1985; Chamley 1986), this result has been shown to break down under realistic assumptions (for example, preference heterogeneity, preferences for wealth equality, and capital-labor substitutability). Recent literature has thus argued for higher capital income and wealth tax rates (Piketty and Saez 2013; Straub and Werning 2014; Saez and Stantcheva 2016).

¹⁵The importance of design is highlighted by the literature on the impact of other initiatives to curb tax evasion through disclosure of taxpayer information, including tax amnesties (Stella 1991; Le Borgne and Baer 2008), sanctions, and withholding taxes (Rixen and Schwarz 2012; Byrnes and Munro 2017).

¹⁶The exception is the United States’ Foreign Account Tax Compliance Act, which requires that foreign financial institutions and certain other nonfinancial foreign entities report foreign assets held by their US account holders or be subject to withholding penalties on US-source income; the unilateral penalty threat works because of the large amount of US securities held by the rest of the world, but it is more challenging to apply reciprocally. If not all jurisdictions participate, rather than repatriating funds away from all low-tax jurisdictions, tax evaders will shift deposits to jurisdictions not

standards do not fully identify the ultimate owners of securities unidentified by central depositories (which record only the names of the intermediaries through which securities are transferred). In 2012, the G20 developed a Global Legal Entity Identifier system to address this weakness. More than 1 million legal entities in 221 countries have registered identifiers, but currently individuals are eligible only for legal entity identifiers if acting in a business capacity, limiting the use of this system for identifying beneficial ownership. Last, concerns over the privacy and security of data exchanges remain, especially in countries with weak administrative capacity.

Without international cooperation, fiscal and regulatory competition between countries can systematically lead to loopholes. Although cooperation is necessary for a comprehensive, enforceable, and equitable system, other reforms are also needed.¹⁷ First, significant changes to domestic legal frameworks must take place—for example, comprehensive financial information should be shared between tax authorities and financial regulatory bodies.¹⁸ In addition, governments may need to consider making changes to tax policy rates—a crucial ingredient to the credibility of enforceability of any information exchange system.

In sum, digitalization alone is not sufficient to curb tax evasion to low-tax jurisdictions. At current tax rates, the potential revenue gains from improved digital information exchange on cross-border financial income and wealth holdings is limited and concentrated in advanced economies. A comprehensive and collaborative reform of domestic and international tax systems is necessary to capture the full potential of increased transparency.

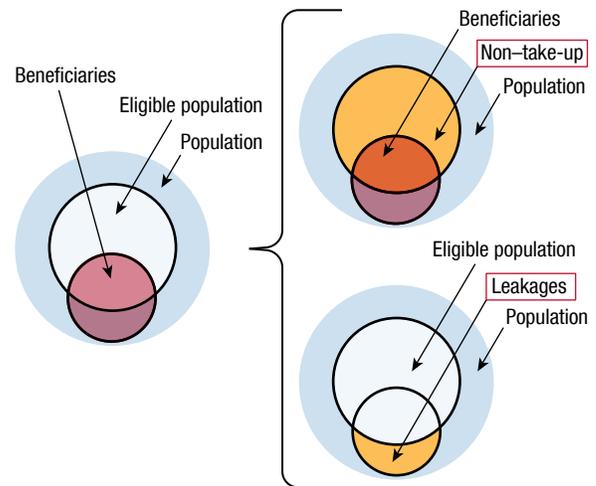
covered by an exchange of information relationship with their home country (Johannesen and Zucman 2014).

¹⁷Enforceability may require the introduction of noncompliance penalties in the form of withholding on resident-country-sourced payments or withholding taxes levied by host countries. Comprehensiveness requires the cross-validation of data between tax authorities and central security depositories around the world. Last, equity requires that reciprocity not be required for developing countries at an early stage if the costs of compliance are initially too high.

¹⁸Relatedly, offshore financial centers and those labeled as tax havens should protect their reputations by implementing strong governance, financial supervision, due diligence, and anti-money-laundering and combating the financing of terrorism (AML/CFT) systems. This should be done in addition to strengthening their frameworks for international cooperation and transparency through exchange of information. From an AML/CFT perspective, these jurisdictions are encouraged to make tax crimes a predicate offense to money laundering.

Figure 2.11. Non-Take-Up and Leakage—An Analytical Framework

Social benefits do not always reach intended beneficiaries because of non-take-up and leakage issues.



Source: IMF staff.

Strengthening Social Protection Coverage

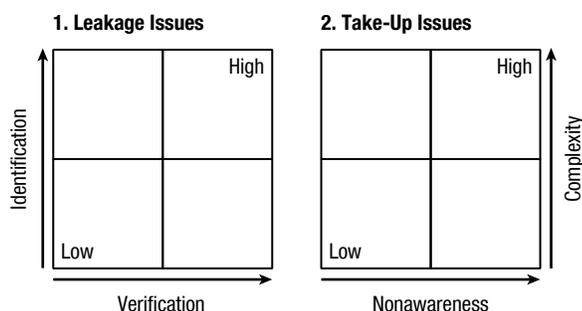
Leakage and Take-Up Problems in Social Protection

Turning to spending efficiency, this section focuses on leakages and take-up in social protection. Lack of information can lead to leakages as well as inefficient and untargeted spending through fraud, corruption, or errors in coverage.¹⁹ When designing income-support programs, governments first define eligibility criteria that balance policy objectives (for example, poverty and inequality reduction, fiscal space, mitigation of income volatility) and administrative capacity to effectively implement selected criteria. As illustrated in Figure 2.11, there may not be a perfect overlap between the eligible population and beneficiaries because two types of errors can occur: exclusion errors (when eligible individuals do not, or only partially, receive benefits to which they are entitled) leading to non-take-up; and inclusion errors (when, knowingly or not, individuals' appropriate social benefits or

¹⁹*Take-up* refers to the eligible population of individuals who receive income support, *coverage* refers to the population of individuals who receive income support regardless of whether they are eligible, and *leakage* refers to the noneligible population of individuals who receive income support.

Figure 2.12. Sources of Leakage and Non-Take-Up

Leakage and non-take-up result from a combination of identification and verification problems, and complexity and lack of awareness, respectively.



Source: IMF staff.

services to which they are not entitled). Because of the former, large shares of targeted populations may be left uncovered; because of the latter, considerable leakages are generated at high fiscal cost, possibly at the expense of targeted beneficiaries. Both types of error threaten the efficiency of social insurance and public service provision, but their relevance and magnitude differ across countries.

The existing literature points to important information asymmetries to explain leakages and non-take-up. Figure 2.12 presents a taxonomy of leakage and take-up issues:

- Leakages often stem from *identification* and *verification* problems (Figure 2.12, panel 1). First, social administrations may find it difficult to identify beneficiaries or to know whether they exist (that is, “ghost” beneficiaries; Barnwal 2016). Second, when social administrations are unable to fully verify whether the program’s eligibility criteria (for example, socioeconomic characteristics of beneficiaries) or objectives (benefit amount) are met, issues with fraud and misallocation of benefits arise (Brown, Ravallion, and van de Walle 2017).
- *Complexity* and *awareness* can also generate important barriers to take-up of income-support programs (Hernanz, Malherbet, and Pellizari 2004; Currie 2006; Figure 2.12, panel 2). Program complexity can take the form of high transaction costs to apply for or receive benefits such as lengthy and complicated forms, unclear links to other assistance programs, multiple administrative interlocutors, limited access to social administrations, and the absence of

a functional network to distribute benefits (Gupta 2017). Eligible households may not be aware of income-support programs, preventing them from applying (Ramnath and Tong 2017).

Leakage and take-up issues of income-support programs are nontrivial and macrocritical:

- *They are sizable.* In middle- and low-income countries, undercoverage of households at the bottom of the income distribution and coverage of households at the top of the income distribution are sizable (Figure 2.13, panel 1), which indicates that both leakage and non-take-up are considerable in developing countries.²⁰ These issues arise in advanced economies as well.²¹ One-third of total spending on *means-tested* assistance programs in the EU is given to the top six income deciles, a sign of leakages (Figure 2.13, panel 2). Analyzing recent estimates of non-take-up rates of monetary benefits in European countries, Dubois and Ludwinek (2015) find that most conservative estimates of non-take-up rates are greater than 40 percent, irrespective of benefit types.²²
- *They have important fiscal and economic effects.* Leakages in developing countries crowd out much-needed resources, to the detriment of both eligible beneficiaries and other growth-enhancing spending such as health and education. In 2012, an estimated 36 percent of total spending on the Indian Public Distribution System never reached intended households because of ghost beneficiaries and the illegal diversion of subsidized goods by

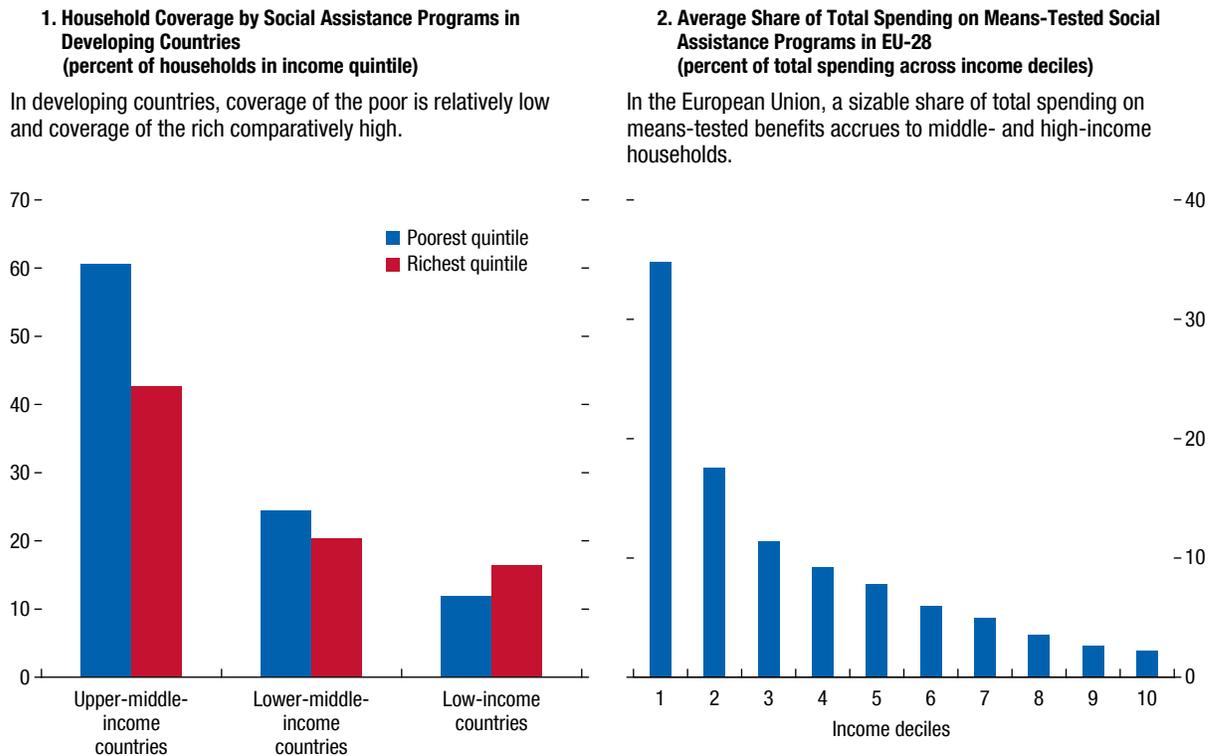
²⁰The data on undercoverage of the poor are scarce for middle- and low-income countries. Ideally, these charts would show data on *unintentional* undercoverage. Because most income-support programs are designed to cover households in the lower income decile, the data in Figure 2.13, panel 1, can be used as a first approximation of unintentional undercoverage. However, they also illustrate undercoverage of poorer households and coverage of richer households *by design*. For instance, if the program is universal, then by design, all households are entitled, irrespective of their income level; if the benefit is means-tested but conditioned on having a job, then poor unemployed individuals are excluded by design.

²¹Leakages and take-up problems are important concerns in many developing economies; in advanced economies, however, non-take-up is usually a more pressing problem than are leakages (Chantel and Collinet 2014; Auray, Fuller, and Lkhagvasuren 2017).

²²Anecdotal evidence is consistent with this broad picture. In India, only 40 percent of citizens apply for the benefits they need, with application costs and complexity reported as the main hurdles (Demirgüç-Kunt and others 2017). In the United Kingdom, take-up rates for entitlements vary between 55 and 95 percent (Gandy and others 2016).

Figure 2.13. Leakage and Take-Up in Social Income Support Programs

Leakage and non-take-up are sizable in both advanced economies and developing countries.



Sources: EUROMOD; World Bank, Atlas of Social Protection Indicators of Resilience and Equity (ASPIRE); and IMF staff calculations.

Note: EU-28 = European Union group of 28 countries (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Sweden, Spain, United Kingdom).

intermediating dealers (Ministry of Finance, Government of India 2017). High non-take-up rates reduce the probability of income-support programs reaching their intended goals, lead to treatment inequality among eligible individuals, and reduce the capacity to accurately anticipate the fiscal costs of policy reforms. High non-take-up rates also affect macroeconomic cycles. For example, Kettemann (2017) shows that non-take-up of unemployment benefits in Austria (about half of eligible unemployed workers) amplifies aggregate labor market fluctuations (leading to a 15 to 30 percent increase in volatility).

Digital Solutions: Case Studies

Governments have initiated actions to reduce leakages of income-support programs (by uniquely identifying eligible beneficiaries) and to increase take-up

(by identifying barriers to enrollment and implementing outreach programs).²³ This section analyzes four country cases (India, South Africa, France, Belgium) to illustrate how digital tools help solve leakage and take-up issues.

Reducing Leakages in India and South Africa

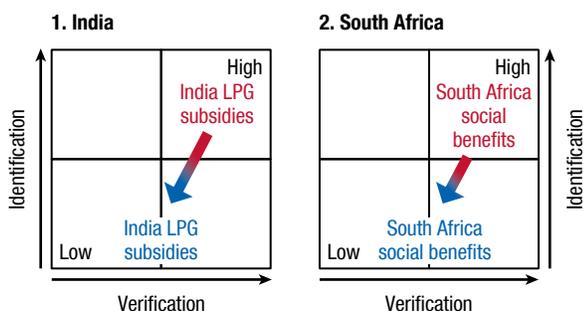
Before 2015, the subsidy on liquefied petroleum gas (LPG) in India was subject to substantial leakages because of corruption and fraud resulting from (1) a dual pricing system that allowed dealers to sell LPG cylinders to households at a subsidized price and to commercial users at market price and (2) the government's inability to authenticate program beneficiaries.

²³Governments have also established multiple "nudging" units to explore new tools to increase individual compliance and enrollment (OECD 2017a).

Figure 2.14. Digital Solutions and Leakage Issues

In India, biometric identification and electronic payments helped reduce leakages in LPG subsidies.

In South Africa, the biometric identification system has helped decrease ghost-recipients of social benefits.



Source: IMF staff.

Note: Arrows indicate the direction of improvements after the implementation of digital solutions. LPG = liquefied petroleum gas.

The dual pricing system encouraged LPG dealers to divert subsidized LPG cylinders to the open market where prices were higher, and limited authentication led to the proliferation of ghost beneficiaries and duplicate claims. The government was also unable to verify the reported number of LPG cylinders distributed to genuine beneficiaries by LPG dealers. Verification and identification issues were substantial.

Digitalization helped reduce leakages in two ways. First, starting in 2013, beneficiaries' Aadhaar numbers were linked to the LPG program to prevent claims of benefits for ghost beneficiaries or multiple claims of the same benefit. Second, the government eliminated the dual pricing system and made electronic transfers of the subsidy directly to the Aadhaar-linked bank account of beneficiaries, bypassing dealers. By improving identification and verification, these reforms have reduced leakages substantially (Figure 2.14, panel 1) but estimates vary. Depending on assumptions and how the reduction in leakage is expressed—that is, the reduction in total transfers or wrongful payments—estimated savings from digitalization range between 0.2 and 21 percent of cash transfers and 11 to 24 percent of wrongful payments.²⁴

In the early 2000s, the South African Social Security Agency also experienced high levels of fraud and cor-

ruption and an ineffective service delivery system. The burdensome paper-based proof-of-life requirements led to leakages. The administration offered social benefit payment options in the form of cash at specific pay points and as direct bank credits. Because of limited banking access for the poor and the high cost of banking, in practice most grants to these individuals were paid in cash, leading to high levels of fraud, locking beneficiaries to specific pay point and payment dates, and inflicting long waiting times.

Digital tools provided much-needed relief to the system. In 2012, the South African Social Security Agency re-registered all social grant beneficiaries and introduced a biometrically secured debit card as the payment platform for all social transfers and as the sole instrument used to identify beneficiaries. Once a month, all beneficiaries present their proof of life either by fingerprint or voice verification, thus reducing significant identification problems (Figure 2.14, panel 2). The new system eliminated 850,000 ghost beneficiary and duplicate accounts, reduced monthly per-beneficiary administrative costs by 50 percent (International Labour Organization 2016), and produced gross fiscal savings of R2 billion (US\$194 million) during 2013/14 (South African Social Security Agency 2014).

Increasing Take-Up in France and Belgium

In France, take-up rates for some social benefits are surprisingly low. For example, although 95 percent of social pensioners are eligible for an income-support program to purchase complementary health insurance (called Aide à la Complémentaire Santé or ACS), only 50 percent do so (Sireyjol 2016). Low take-up rates generate additional public health spending given that those who fail to take up their ACS benefits usually delay care, resulting in a health care bill that is ultimately higher by about 30 percent. Individuals most frequently cite the complex application process and the lack of awareness about the program as reasons for low take-up.

In 2013, the French authorities implemented digital solutions by setting up a new systematic data exchange between local health and old-age administrations. The old-age administration started providing the health administration with identifying information on social pensioners. In turn, the health administration targeted these designated potential beneficiaries, either with a simplified ACS applica-

²⁴For details, see Annex 2.1.

tion form, or with an ACS check ready to cash upon the purchase of complementary health insurance. As a result, the program saw an increase in take-up of 22 percent with the simplified application form and 50 percent with automatic enrollment (Figure 2.15, panel 1).

In Belgium, although low-income households were eligible for medical reimbursement topping-up the public insurance system (called OMNIO), the non-take-up rate was estimated at 60 percent in 2011 (Steenssens 2014). This was partly due to a complicated eligibility assessment that was means-tested and categorical (that is, based on characteristics such as age or disability), making the application process complex and scattered across different administrations. In 2014, the eligibility criteria and the application process were harmonized and simplified to enable data exchange between tax authorities, the national office for sickness and disability, and health insurance funds. Health insurance funds are now able to (1) automatically enroll households designated as already receiving a social benefit and (2) reach out proactively with a simplified application form to those whose income is potentially less than the eligibility threshold (Figure 2.15, panel 2).

Lessons from Country Experience

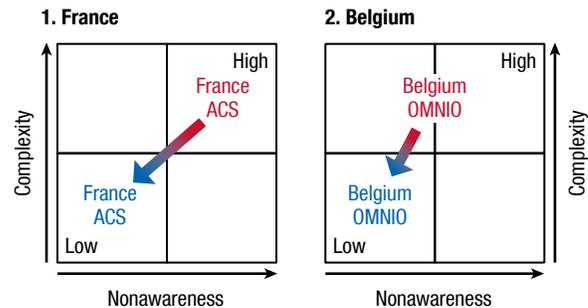
Although these case studies illustrate how digitalization can reduce information asymmetries, they also point to some challenges:

- It is difficult to disentangle the effect of digitalization from broader macroeconomic and policy developments. For example, the use of Aadhaar in the LPG subsidy scheme coincided with the termination of the LPG dual pricing system and the reduction in the world price of natural gas, both of which helped reduce the cost of LPG subsidies. Data limitations and lack of proper assessment frameworks constrain ex post evaluations.
- Governments should take the necessary steps to ensure privacy and security controls when implementing large identification programs. In South Africa, the lack of proper controls for the private intermediary in charge of distribution of welfare payments led to allegations of corruption and challenges to legality. The intermediary was accused of improperly using private beneficiary information and its network to sell various financial and insurance products to thousands of vulnerable beneficia-

Figure 2.15. Digital Solutions Can Help Address Take-Up Issues

In France, digital exchange of information between agencies and automatic enrollment helped increase take-up in a local experiment.

In Belgium, automatic enrollment and proactive outreach to low-income households increased uptake of a medical benefit.



Source: IMF staff.

Note: Arrows indicate the direction of improvements following the implementation of digital solutions. ACS = Aide à la Complémentaire Santé; OMNIO = medical reimbursement topping up the public health insurance system in Belgium.

ries. In India, privacy and security concerns led to alternating periods of mandatory and nonmandatory use of Aadhaar in social programs. A court decision is still pending on its compliance with the right to privacy. In a recent data breach in India, it has been reported that 135 million Aadhaar numbers were compromised, underscoring the importance of sound privacy measures.

- Digital outreach tools may not be sufficient to address coverage issues. In France, even after automatically receiving a benefit check, beneficiaries often fail to purchase complementary insurance (Michon 2014). This suggests that beneficiaries may need direct human intervention to address the lack of information about insurance plans, social isolation, and disability. In Belgium, technical and policy preconditions (that is, harmonization of rules across public agencies, creation and maintenance of high-quality data, setup of privacy rules) were crucial for the successful rollout of digital automatic enrollment. Governments also need to ensure digital inclusion to prevent the exclusion of genuine beneficiaries as was the case in India where faulty Internet connectivity led to nonpayment of benefits to eligible households (see Annex 2.1).

Addressing New Challenges

Although digitalization may help improve tax compliance and spending efficiency under current policies, there may be a case for policy change. This could be because lack of information previously prevented the implementation of better policies or because new challenges call into question policy-as-usual.

New economic trends—the emergence of digital businesses as a global force—may exacerbate challenges faced by current frameworks for international taxation as well as social protection. Digital businesses include giants, such as Amazon, Apple, and Google as well as peer-to-peer (P2P) platforms—typified by businesses such as Airbnb and Uber and their facsimiles—which have become an integral part of the global economy. This section explores the fiscal challenges associated with the growth in digital firms. First, the cross-border nature of digital activities may force new thinking on the international tax architecture.²⁵ Second, the expansion of digital platforms may call for a new fiscal policy approach to income insurance.²⁶

The section discusses some of the emerging challenges brought on by the rapid digitalization of the economy. But much more thinking will be needed before making definitive policy prescriptions.

International Taxation and Digitalization

How should governments tax the incomes of global companies such as Amazon, Apple, Facebook, and Google—and other lesser known firms—that serve so many citizens across the world using digital technology? This has proved an extremely contentious and urgent issue. Some countries have already taken action—in spring 2018, the OECD issued a report, and the European Commission proposed measures to address this issue.²⁷

²⁵Box 2.5 discusses challenges in domestic taxation associated with P2P platforms.

²⁶“Income insurance” refers here to both publicly provided income-support mechanisms (for example, unemployment benefits, guaranteed minimum income schemes) and individual schemes to insure oneself against negative income shocks such as independent contracting on digital platforms to complement a primary job’s earnings.

²⁷The OECD report is an interim report following OECD (2015a), with a final report due in 2020. The European Commission published a proposal for the introduction of a “digital services tax” in March 2018. This is a new approach which will require further analysis with special emphasis on the implications for the global tax system.

The first wave of expert reports argued against a special regime for digital companies (Gaspar and others 2014; OECD 2015a). Indeed, digitalization is transforming the whole economy. Even in so-called digital companies, business models vary. For example, search engines, social media networks, online retailers, P2P platforms, and on-demand subscription service companies all have very different business models, providing different types of products and services. In contrast, for companies that are not deemed as especially digital, new technologies are also integral to their operations, whether through an online presence or by collecting information on how their products are used and perform.

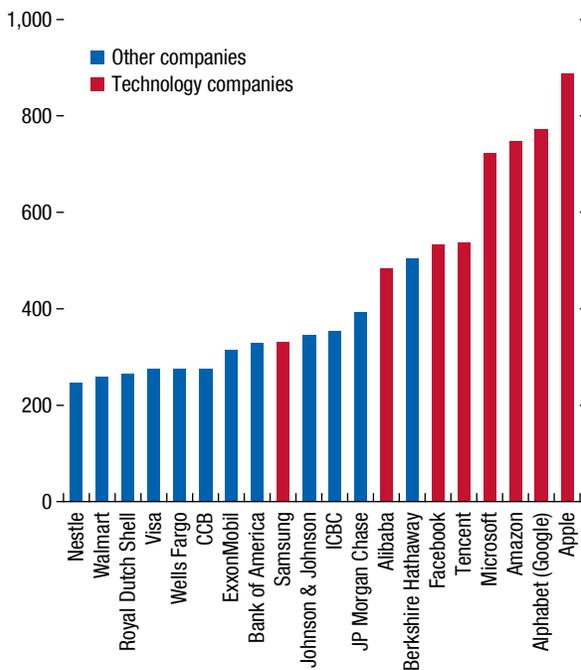
Recent highly contentious policy debates, however, instead raise the prospect of attempting to ring-fence specific business lines. This has become urgent in some countries, notably in Europe, and seems to reflect the public outcry over the presumed low taxation of these companies, as well as a perception that they enjoy unfair advantages over domestic competitors. However, this debate might also reflect more fundamental problems with existing international tax arrangements, which digital companies—like many other multinationals—have successfully navigated to minimize their tax burdens. The central question is thus not so much whether a special tax regime for specific digital businesses should be developed, but rather a more general one: Can the taxation of activities and businesses that are increasingly reliant on digital capabilities be accommodated within existing international arrangements? Or do they require modification of these arrangements? And if so, how?

To begin to answer these questions, consider four of the key features of archetypal digital companies and whether they might challenge current norms of international corporate taxation.

- *High profitability.* Some digital companies combine a first-mover advantage with strong network effects, giving rise to a natural monopoly. The resulting market distortions are best addressed through regulatory rather than tax measures. However, in their absence the high profit generated provides an attractive tax base, especially given that some technology giants are among the largest companies in the world (Figure 2.16). However, this point is neither new nor unique to “digital companies”: it points instead to the need for more effective taxation of rents, wherever they arise.

Figure 2.16. Global Top 20 Firms, by Stock Market Capitalization
(Billions of US dollars, March 7, 2018)

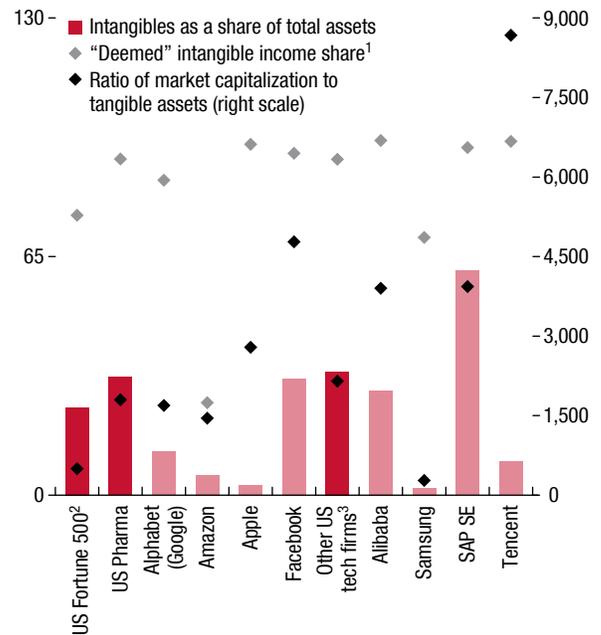
Technology firms are amongst the most highly valued in the world.



Sources: DataStream; and IMF staff calculations.
Note: Alphabet is the sum of market capitalization of Alphabet A and Alphabet C. Red bars highlight tech-related companies. CCB = China Construction Bank; ICBC = Industrial and Commercial Bank of China.

Figure 2.17. Indicators of Relative Intensity in the Use of Intangibles
(Medians; percent)

Digital companies are relatively intensive in the use of intangibles, but not uniquely so.



Sources: Bureau van Dijk Orbis; Fortune 500; and IMF staff calculations.
¹Median of excess of income over 10 percent of value of tangible assets.
²Median of Fortune 500 firms matched to ORBIS data.
³Includes companies from multiple NACE (Nomenclature of Economic Activities) sectors, for example, 2620 (manufacture of computers and peripheral equipment), 5829 (other software publishing), 6201 (computer programming activities), and 6209 (other information technology and computer service activities).

- *Heavy reliance on intangible assets.* Relevant intangibles used by digital companies include, for example, algorithms to process data and to generate value through personalized advertising. Tax problems associated with such intangibles are widely known, given the relative ease of locating them in low-tax jurisdictions and difficulties in their valuation. But this is not unique to digital companies. Some other sectors, such as pharmaceuticals, are also highly intensive in the use of intangibles (Figure 2.17). Recent attempts to address these problems include specific action items under the G20-OECD Base Erosion and Profit Shifting project and, in the recent US tax reform, the adoption of minimum taxation for foreign income deemed to derive from intangible assets (so-called Global Intangible Low-Taxed Income, see Box 1.3 in Chapter 1).
- *Sales with little or no physical presence.* Under current international tax rules, a company is liable for

corporate income tax in a country only if its physical presence there is sufficient (that is, a permanent establishment). This seems to have sparked concerns for many governments, because foreign digital companies often sell their services directly to their citizens with little or even no physical presence and, therefore, are not liable to pay income tax. Although foreign digital companies are in many cases highly visible to the public, selling without a physical presence in a country is no different from traditional exporting. The fact that digital sales do not in themselves create a tax liability under current rules opens a broader debate on the allocation of taxing rights and attribution of income to the destination country.

- *User-generated value.* When they use online services, users generate information of commercial value to

the provider and potentially many other businesses. Such information can even be generated passively, when a user simply searches for information. The information can enable the provider and those businesses it shares it with not only to better tailor their product but also, for example, to sell better targeted advertising. Again, this issue is not unique to some identifiably digital companies: many businesses, such as supermarkets and airlines, collect customer data through loyalty cards. Alternative views as to how user-generated value should affect taxing rights, however, are at the heart of the current debate.

Many, it seems, would agree that there is nothing intrinsically new or even distinctive about the first three of these features. Whether the same is true of user-generated value, however, remains controversial.

Irrespective of qualitative novelty, however, there is a question of sheer scale—whether these features, new or not, are putting so much pressure on current tax arrangements as to require fundamental changes in the international tax system to better ensure efficiency and fairness across countries in the allocation of taxing rights. Certainly, the pressures have reached the point where some countries already feel the need to respond by adopting specialized tax measures. Australia and the United Kingdom introduced special taxes on profits that are considered to be artificially diverted to other countries (called *diverted profit taxes*); India and Italy adopted levies on certain online transactions, such as advertising sales (labeled the *equalization levy* in India and the *web tax* in Italy), and India has very recently proposed an expansion to the definition of permanent establishment in its domestic tax laws.²⁸ These measures, however, are short-term solutions. If countries continue to pursue this route, measures should preferably be (1) internationally coordinated, at least in broad design, to limit complexity and unintended spillovers to other countries; and (2) consistent with a longer-term vision on the future state of the international tax architecture.

²⁸The diverted profit tax in the United Kingdom raised £138 million in 2016/17 (plus an estimated £143 million in ordinary corporate tax because of behavioral changes); the Italian web tax is estimated to yield EUR 190 million. For both, this is approximately 0.6 percent of corporate tax revenue. India has proposed amendments its 2018 Finance Bill to such that digital transactions—irrespective of whether the nonresident has a residence or place of business in India or renders services in India—constitute a “significant economic presence,” subject to application of treaties.

For this longer-term perspective, one crucial issue is how the principle of “taxing where value is created” that has been at the heart of the Base Erosion and Profit Shifting project should be applied to value generated by the users of digital services. In effect, this is a form of productive activity unlike that traditionally associated with the test of physical presence. Even if such activities have not given rise to taxable presence in the past, perhaps their sheer scale now warrants a change in approach. This view inherently admits the importance of an element of “destination-based” taxation in determining rights, meaning some element of taxation where the customer is located—although, in this case, the user generating the information can also be considered the source of the value being created.

If user-generated value were to be used as the basis of granting the destination or “market country” taxing rights, permanent establishment rules would need to be expanded. The question would then arise as to whether it is practically feasible to distinguish sales that involve user-generated value from those that do not—given that nearly all sales in any jurisdiction give rise to commercially valuable information. Some have argued that any type of sale is in itself a source of value: after all, a product or service has no value unless there is demand for it, and considerable rents can accrue from factors such as brand name loyalty or other market-specific demand-side factors. These issues surrounding a destination-based tax system remain highly controversial.

Beyond the question of whether a company is liable for corporate income tax in a jurisdiction is that of how much tax it should then pay. Significant implementation issues arise. For example, how much of its income should a globally operating social media platform assign to a particular country, based on the data it acquires from its users there? Current arrangements require that prices for goods and services transacted within the company’s subsidiaries should reflect market prices. Yet, market valuations for user-generated data do not typically exist. Specific problems arise where services are provided without an explicit price being charged—reflecting a form of barter in which the customer provides information, consciously or not, in return for the service from the digital company.²⁹ This is part of the wider debate on international corporate taxation, including the

²⁹This also raises issues in relation to the VAT, not taken up here.

use of formula apportionment (whereby taxable income is allocated according to a formula based on assets, employment, and sales, for example) or destination-based income taxation.³⁰

Whereas current discussions seem to be somewhat narrowly focused on the taxation of a limited group of digital companies, they exemplify a more fundamental debate about current international tax rules.

Social Insurance and Digital Platforms

Alternative work arrangements, which include temporary help agency workers, on-call workers, contract company workers, and independent contractors or freelancers, are often associated with greater income volatility and are on the rise. In the United States, alternative work arrangements increased by nearly 50 percent between 2005 and 2015, from more than 10 percent of the workforce to close to 16 percent, representing 94 percent of the net employment growth over the period (Katz and Krueger 2016).³¹ In the United Kingdom, between 2011 and 2017, alternative work arrangements have increased faster than full-time and wage-earning employment—about 30 percent for agency workers and 300 percent for zero-hour contracts (Coyle 2017).³² At the same time, the increase in alternative work arrangements tends to exacerbate the income volatility of many workers as they experience lower weekly pay, fewer and less predictable hours worked, and reduced social insurance coverage compared with full-time wage-earning jobs (Farrell and Greig 2016; European Parliament 2017).

Although the growth in alternative work arrangements precedes the emergence of the “gig” economy, it has been mirrored in the emergence of work on digital platforms. Digital platforms are ubiquitous and digitally intermediated P2P activities (that is, matching users on both sides of a market) have emerged as an increasingly popular way to orga-

nize activity and provide goods and services. What distinguishes recent P2P activity is the use of digital technology to significantly reduce transaction costs associated with running a business or supplying labor, allowing smaller-scale activity to proliferate. Positive network externalities have boosted the overall number of buyers and sellers transacting over platforms. Empirical evidence suggests that the number of participants on both sides of digital platforms (supplier and consumer sides) is growing rapidly.³³ Between 2015 and 2016, 8 percent of adults in the United States earned money on digital platforms (Smith 2016); in the United Kingdom, an estimated 3 percent of the workforce is providing services on digital platforms (Coyle 2016).

The emergence of P2P platforms has helped mitigate some of downsides of alternative work arrangements by facilitating income smoothing and work flexibility. Many of these workers supplement their primary job income through work on digital platforms (Farrell and Greig 2016). In a survey of online workers at Microworkers—an international platform for micro-tasks with many participants from developing countries—respondents list the ability to earn extra money and flexible work hours as the top reasons for platform work (World Bank 2016). The same is true for Uber drivers (Hall and Krueger 2016; Chen and others 2017).

Nonetheless, the growing importance of these platforms presents challenges for social insurance. If an increasing share of the labor force engages in platform work, this could exacerbate complications traditionally associated with self-employment. Social protection traditionally associated with wage-earning contracts is usually not available to self-employed digital workers. Moreover, the more dependent platform workers are on the platform as a primary source of income, the less likely they are to have access to social protection (European Parliament 2017). Private insurance markets do not function well in addressing this issue because of both adverse selection and moral hazard.

³⁰These options and the destination-based cash flow tax are discussed in IMF (2014c) and Box 1.1 in the April 2017 *Fiscal Monitor*, respectively.

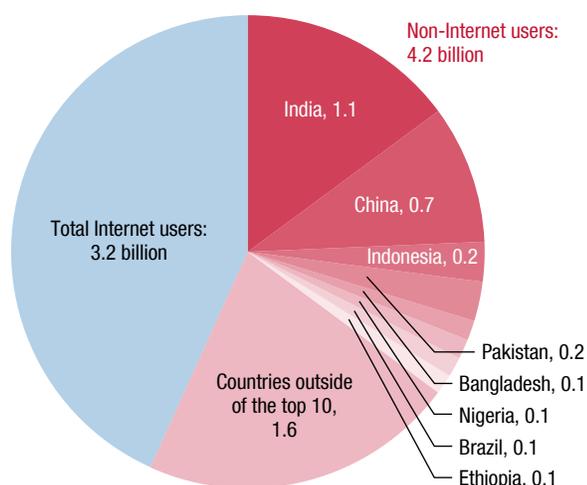
³¹For example, Hall and Krueger (2016) report that the number of Uber drivers has nearly doubled every six months from mid-2012 to the end of 2015.

³²In the United Kingdom, zero-hour contracts, or “casual contracts,” are for piecework or on-call (for example, interpreter) work. Workers are entitled to the minimum wage and statutory annual leave.

³³The rapid increase in suppliers is mirrored by the rise in final consumers on digital platforms. For example, the estimated number of US users of ride-sharing services has more than doubled from 8.2 million in 2014 to 20.4 million in 2020; Didi Chuang, the Chinese ridesharing company, claims to have 250 million users in 360 Chinese cities. The number of employers billing per quarter on Upwork (formerly oDesk)—the largest online marketplace for contract labor in terms of earnings—increased by more than 800 percent between 2009 and 2013 (Agrawal and others 2013).

Figure 2.18. The Digital Divide

A majority of the world's population still cannot access or afford the Internet.



Source: World Bank 2016.

Note: Numbers are in billions of people. Red colored areas refer to the population that cannot access or afford the Internet in the top eight countries.

How should policy address these challenges? Much of the debate has focused on labor regulation (Agrawal and others 2013; Berg 2016). Treating digital workers as employees under the law would force platforms—now considered employers—to provide some form of social insurance (for example, paid sick leave). However, introducing labor regulations and standards may be counterproductive if it reduces the flexibility in schedule and hours adjustment offered by digital platforms relative to more traditional employment contracts.

The trends in employment previously discussed may spur policymakers to proactively address these issues. Fiscal policy instruments may be needed to more directly address social insurance needs, such as unemployment benefits, access to health care, and pensions. Reducing or eliminating the minimum income thresholds for social insurance and introducing contributions based on a percentage of income could help provide social protection to these workers (European Parliament 2017). In addition, although it is usually more difficult to collect social contributions or taxes from self-employed workers, platforms provide an opportunity to gather more information about these workers. In many cases, they

collect information about transactions and wages as they charge workers a commission based on transactions. As discussed in Box 2.5, platforms can report earnings to the tax administration and potentially withhold taxes and contributions.

What Stands in the Way: Lessons from Country Experience

Although digitalization brings dividends for governments, it also comes with many challenges. Success is not guaranteed and governments must find ways to mitigate new risks, including the following:

Digital exclusion. Digitalization requires that a majority of individuals, firms, and governments have access to the digital world. New technology may impose a disproportionate burden on small businesses and vulnerable households who have limited access to or knowledge of new digital tools (Chaudhury and others 2006; Olken 2006). Although the use of smartphones and the Internet is increasingly common (Smith 2016), more than half of the world's population does not have access to the Internet, particularly in developing countries (Figure 2.18). Greater use of technology may create a “digital divide” in which a large portion of citizens could be excluded from access to digital public services. For example, fewer than half of the population of Africa subscribes to a mobile phone (GSMA 2017). New digital systems could mistakenly exclude eligible beneficiaries if they are denied payments because of technical reasons. Last, governments could also be left behind in the digitalization process. Private actors are quickly adopting digital tools—government failure to keep up may jeopardize the ability to collect taxes or spend efficiently.

Government digital initiatives will require new and smart investment to mitigate the risks of digital exclusion. First, boosting public investment in technological infrastructure and digital literacy is important to facilitate digital inclusion (World Economic Forum 2017). One smart budget strategy is to prioritize flexible digital platforms that are compatible with continuous upgrades and innovation to expand coverage of eligible entities. Some digital platforms, such as X-Road in Estonia and G-pay in Kenya, are flexible and compatible with multiple information systems enabling firms, households, and government agencies to access common digital information (see Annex 2.1). In con-

trast, without a flexible platform, digital solutions may quickly become obsolete and governments may need to unwind initial investment. Ghana faced difficulties when it expanded its coverage of digital platforms to more government agencies and services because its unique digital identification system was tied to a particular type of financial technology (Cangiano, Gelb, and Goodwin-Groen 2017).

Data quality and new fraud opportunities. Although governments can use technology to update and secure information, individuals and firms also take advantage of technology in finding loopholes to hide sensitive information, evade taxes, or qualify for government benefits for which they are not eligible. For example, the digitalization of Estonia's tax administration presented new risks (see Box 2.1): when registering and filing taxes online, individuals who engage in fraud created a large number of ghost entities to generate multiple small credit claims that fell below the threshold for audit. Retailers in many countries have also used software (for example, Zappers) at the point of sale to suppress electronic sales and evade taxes (OECD 2017b). Individuals also conduct business transactions in decentralized cryptocurrencies without leaving traceable footprints and criminals have proved to be remarkably adept in circumventing new rules (Krishna, Fleming, and Assefa 2017). Authorities in Korea recently raided the country's largest cryptocurrency exchanges for alleged tax evasion.³⁴

Governments should anticipate and prepare for fraudsters. In the United Kingdom, tax authorities have used digital methods to fight tax fraud. HM Revenue and Customs' Risk and Intelligence Service Connect software merges administration and third-party databases and runs automated sweeps to catch anomalous patterns and other risky behavior (for example, businesses using the same bank accounts). Greater use of biometric identification systems can help reduce fraud and illegitimate claims (Gelb and Clark 2013). For example, some relief payments in Indonesia and the national pension systems in Nigeria and Botswana have made use of biometric information to identify and authenticate eligible individuals. In the case of point-of-sale fraud, tax administration agencies in Canada and several countries in the EU (includ-

ing Belgium, Greece, and Sweden) have stepped up efforts in tackling electronic sales suppression (OECD 2017b).³⁵ But there is a limit to how quickly governments can respond and scale up resources to strengthen their capacity to mitigate such risks. As fraud opportunities evolve and become more complex, it will be more difficult for governments to stay ahead in the digital race.

Privacy, cybersecurity, and disruption of government functions. The real-time recording of digital information has raised concerns about how information should be regulated and protected. In many countries, citizens remain deeply conflicted about trusting their governments with private information. In a recent poll conducted in Germany, the United Kingdom, and the United States, 65 percent of respondents believed their governments abuse their power to access information on citizens.³⁶ In a 2015 survey conducted in the United States, less than a third of respondents were confident that the government could keep their records secure.³⁷ Moreover, massive data breaches and intrusions of privacy through hacking, leaks, and ransomware attacks have increased, highlighting the vulnerability of both public and private digital systems. In 2015, the Office of Personnel Management of the United States identified a cyber intrusion that potentially compromised the personal information of 4 million people. Also, in May 2017, the cyberattack on the National Health Service in the United Kingdom illustrated how privacy and cybersecurity can disrupt the provision of public health care services. Besides cyber intrusions, privacy violations may arise from inadequate safeguards in the digital design, as in the case in South Africa (see the section "What governments can do now: Same policies, better implementation"). Future attacks could be much more disruptive if they target critical infrastructure such as the power grid, taxation administration, or systemic financial entities. In 2015, coordinated attacks resulted in a blackout affecting 225,000 residents in Ukraine.³⁸

³⁵The OECD has established a Task Force on Tax Crimes and Other Crimes (TFTC) to combat the electronic sales suppression and the EU has set up project groups on cash registers and E-Audit.

³⁶See <https://www.venafi.com/blog/survey-results-consumers-skeptical-of-government-backdoors>.

³⁷See <http://www.pewinternet.org/2015/05/20/americans-attitudes-about-privacy-security-and-surveillance>.

³⁸See <http://www.bbc.com/news/technology-38573074>.

³⁴See <https://www.cnbc.com/2018/01/10/police-tax-authorities-raid-south-korea-cryptocurrency-exchanges-for-tax-evasion.html>.

The US Department of Energy recently warned that a cyberattack could cause widespread power outages and undermine defense infrastructure (US Department of Energy 2017).

Cybersecurity includes prevention and detection of security breaches. Building firewalls against attacks is a first step, and anticipating future threats can be facilitated by building a network of shared information about vulnerabilities across government agencies and private firms (Eggers 2016). The 2007 cyberattacks that paralyzed Estonia's online services prompted the country to strengthen its data security and implement an advanced digital identity system for user authentication. Its digital identification card uses blockchain technology for security and the government plans to house backup data in a virtual embassy. In Kenya, the digital tax system (iTax) restricted access by public sector users to protect confidentiality and system security. Australia's Cyber Security Centre has built a hub for information exchange on cyber threats across the private sector and central and local governments. Notwithstanding these efforts, the number of incidents involving data breaches and cybersecurity has also risen rapidly (more than five times in the past decade in the United States), posing an ongoing challenge for governments to guard against digital piracy.³⁹

Mobilizing adequate resources. Spending should also be consistent with the government's budget constraint and will require policymakers to create fiscal space for purchasing new technology, storing large amounts of data, and hiring cybersecurity experts. Cost estimates are rare and incomplete. In India, data from the Unique Identification Authority of India place the costs of Aadhaar implementation and maintenance at about US\$1.5 billion or \$1.25 per card between 2009 and 2017 but this compares favorably with the costs of other electronic identification systems of US\$3 to US\$6 per enrollee (for details, see Annex 2.1). Gelb and Diofasi Metz (2018) estimate that a low-income country would need to spend 0.6 percent of GDP to establish a national biometric identification system, with maintenance costs of 0.1 percent of GDP annually. Estonia spends approximately US\$67 million (0.3 percent of GDP) per year

on its digital platform.⁴⁰ In Korea, the cumulative budget spent on e-Government between 1996 and 2002 amounted to 1.3 percent of GDP (Kim and Choi 2016). Deloitte (2015) estimates that the 2015 present value cost of digitalizing customer transaction services for the Australian federal and state governments could reach US\$ 4.6 billion (0.4 percent of GDP).⁴¹ Many countries fund a government unit or structure to lead digitalization efforts—in OECD countries, their annual budget represents 0.04 percent of total public expenditure on average (OECD 2015b). However, these estimates do not include the full implementation and maintenance cost of a digital government. The costs of cybersecurity, for example, can be substantial—in the United States, some have estimated that the federal government spent at least US\$28 billion (0.2 percent of GDP) on cybersecurity in 2016.⁴² Last, excessive spending can also result from weak procurement procedures and the poor choice of vendors, which can lock countries into specific proprietary and inflexible technologies (Gelb and Clark 2013).

Administrative and institutional capacity. Political, institutional, and human capacity constraints could hinder governments' adoption of technology. Countries with severe institutional constraints will find it difficult to mobilize resources for digital solutions, even if digitalization can generate efficiency gains. Faced with different capacity constraints and data limitations, countries have absorbed new technology at differing paces—many countries have adopted small-scale digital initiatives and few governments have launched a foundational digital program that affects the entire public sector, in part because of capacity constraints or past failures in introducing integrated digital programs (Corydon, Ganesan, and Lundqvist 2016).

Country experience also points to a need for high-level political commitment to coordinate progress on digitalization, make a transparent assessment of its effect, and overcome political inertia. Even if

⁴⁰<https://www.bloomberg.com/view/articles/2015-03-04/envying-estonia-s-digital-government>.

⁴¹Customer transaction services include payments, applications and registrations, and complaints and resolution.

⁴²The budget watchdog Taxpayers for Common Sense estimates that *unclassified* federal cyber spending rose from US\$7.5 billion in 2007 to US\$28 billion in 2016. See <http://www.taxpayer.net/national-security/cyberspending-database/>.

³⁹See <https://digitalguardian.com/blog/history-data-breaches>.

digital solutions offer better outcomes, stakeholders who benefited from the status quo may have little incentive for adoption, and could attempt to delay its implementation (Muralidharan, Niehaus, and Sukhtankar 2016). Vested interests whose rents are threatened may also subvert the adoption and limit its effectiveness (Krusell and Rios-Rull 1996; Parente and Prescott 2000). As in other government initiatives, pursuing digitalization without strong political support could waste resources.

Parallel efforts in strengthening fiscal institutions could help. According to a recent study, stronger institutions are positively correlated with better outcomes on digital projects (World Bank 2016). Digitalization of payments should be an integral part of broader efforts to improve public financial management institutions (Cangiano, Gelb, and Goodwin-Groen 2017). In 2016, Mexico used electronic payments for revenues and expenditures as part of its public financial management modernization reforms. In Ghana, the e-Zwich biometric system was used to achieve public financial management objectives to resolve government payroll problems by consolidating salary payments digitally across various ministries and public agencies and strengthening tax administration.

International cooperation. Resolving some of these challenges may not be possible for individual governments and may require multilateral efforts. Digital markets facilitate the mobility of capital, which can enhance productivity but also make it easier for multinational corporations to shift or keep profits offshore in low-tax jurisdictions. This may intensify tax competition and international tax planning. New tax challenges from technology, such as the digital submission of fraudulent VAT refund claims in Europe (OECD 2017b), may each be too small or too difficult for individual tax administrations to tackle, despite the significance of fraud in the aggregate. Thus, there may be room for international efforts to overcome these fraud opportunities.

Policy Implications and Conclusions

Digitalization can bridge information gaps between governments and economic actors, improving the efficiency of policy and the lives of citizens. Greater information can enable governments to better enforce

tax compliance, improve the delivery of public services, ensure participation in the social safety net, and design policies that are more consistent with individual circumstances and behavior.

Even if digitalization broadens options for governments to better design and implement policies, how viable these policies are ultimately depends on political resolve. The challenge is to adopt digital tools to enhance government policies, while mitigating the risks associated with digitalization. This will require action on several fronts:

- *A comprehensive reform agenda.* Digitalization is not a substitute for administrative capacity, institution building, or structural reform. For example, the case studies in this chapter suggest that although digitalization can help improve tax compliance and the efficiency of social protection spending, its success hinges on the implementation of parallel reforms, that is, an overall reform strategy is needed. In South Africa, the digitalization of tax administration was accompanied by initiatives to improve tax compliance. In India, reductions in leakages in the distribution of LPG subsidies were achieved not only with digital tools but also with a reform of the pricing mechanism.
- *Risk mitigation.* Governments will need to address the multiple sources of digital risks. Failure to deal with privacy issues and cybersecurity could compromise digitalization efforts. Lack of trust could erode the desire to participate in e-government or undermine policy objectives. In South Africa and India, lack of attention to privacy issues initially posed some important challenges to the digital programs for social protection.
- *Adequate resources.* Digitalization will not come without cost. Participation in digital governments requires substantial investments in capacity building and digital infrastructure, as well as resources to finance recurring costs to account for regular maintenance and cybersecurity. Governments need to create fiscal space to undertake these crucial investments.
- *International cooperation.* Greater exchange of information across countries can help governments uncover and tax hidden wealth and income, but the success of these exchanges in practice requires international cooperation to ensure enforceability and security of data exchanges. Furthermore,

the increase in the scale of cross-border activities associated with digitalization may call into question the very architecture of international taxation when it comes to the allocation of taxing rights. Such changes in corporate taxation will require coordina-

tion of policies to avoid unintended spillovers, tax competition, and double taxation. With digitalization, more efficient alternatives to source-based taxation—destination-based taxation—have become more viable.

Box 2.1. Digitalization Advances in Revenue Administration in South Africa and Estonia

South Africa and Estonia have made substantial efforts to digitalize their tax administrations. This box summarizes their efforts, drawing from the IMF's Fiscal Affairs Department technical assistance provided to these countries under the Revenue Administration Gap Analysis Program (IMF 2014a, 2014b).

South Africa

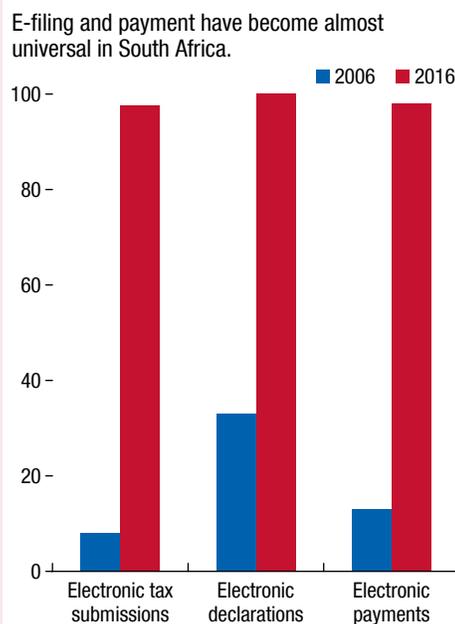
Reforms. The South African Revenue Service (SARS) implemented various initiatives to improve compliance risk management during 2001–06. These programs made extensive use of information technology (IT)–led automation and centralization. Starting in 2006, SARS modernized and automated administrative processes to achieve efficiency savings and reduce compliance costs. A national compliance analysis was introduced providing key performance indicators, and automated risk profiles were used for all taxpayers, while larger taxpayers were subject to additional checks.

*Impact.*¹ The VAT compliance gap trend from 2002 to 2012 shows the effects of these changes.² From 2002 to 2012, the VAT gap decreased from 30 percent of potential VAT to 5 percent, a substantial improvement. SARS's evaluation of individual digitalization projects and campaigns found improved service times, with automated risk processes leading to better audit results, and greater data efficiency reducing time spent by auditors on routine checks. Beyond improvements in compliance, digitalization efforts were also followed by improved revenue growth, improved service levels, and reduced costs. By 2016, service levels had measurably improved: 95 percent of personal income tax refunds were paid within 72 hours; 55 percent of value-added tax refunds were paid within 48 hours, up from 3 percent in 2006. In addition, 95 percent of personal income tax assessments were made within 3 seconds (down from 180 days in 2006), and more than 90 percent of customs transactions were processed in less than 22 minutes. The use of electronic tax submissions, customs declarations, and payments also improved substantially (Figure 2.1.1).

¹The effects noted here relate to the period 2002 to 2016. There have been several subsequent changes in SARS management and tax administration, which may have affected revenue performance.

²The compliance gap is the difference between the tax that should be paid under existing law, assuming perfect compliance and no changes to economic activity, and that is actually paid.

Figure 2.1.1. Use of Electronic Transactions
(Percent of total taxpayers)



Source: South African Revenue Service and IMF staff estimates.

Moving forward, enhanced data collection should also lead to further improvements. The National Treasury and SARS have built a panel database of administration data for use by external researchers. The database merges administration data on companies and employees' earnings supplied by employers, as well as VAT and customs records from registered firms and traders. The database should enable rigorous studies of tax policy, economic analysis, compliance risks, and taxpayer behavior.

Challenges. Digitalization efforts were integral to the implementation of broader tax administration reforms. However, without sound supporting measures, leadership, and a strong commitment to improving service and reducing fraud and evasion, digitalization by itself will not produce such improvements. As a result, it is not possible to ascribe the progress observed during 2002–16 to the increased use of digital tools alone. In addition, digital inclusion remains a challenge. According to the International Telecommunications Union,

Box 2.1 (continued)

almost half of South Africans do not use the Internet.³ A high VAT threshold has reduced the VAT tax base to a set of more professional taxpayers with sophisticated digital skills, a situation that cannot be replicated with broader tax bases without an adverse effect on tax revenues.⁴

Estonia

Reforms. The Estonia Tax and Customs Board (ETCB) has moved all tax processes online and made analysis of tax administration data an integral part of its operations. Micro-data from taxpayer returns and payments, merged with data from other government departments, are used to produce risk profiles and target lists. Micro-data are also used to identify emerging risks in missing trader intra-community (MITC) fraud—a type of cross-border VAT fraud and an endemic risk for Estonia as an EU member (see the section “What governments can do now: Same policies, better implementation”). In addition to more conventional methods, the ETCB Intelligence Department uses taxpayers’ data to identify risks in VAT credit claims and anomalous taxpayer subpopulations. Tax officials also use longitudinal analysis of the data to identify high-risk and anomalous behavior over time (for example, rapidly repeated online adjustments by taxpayers that systematically reduce or reverse their

liabilities). This more open approach to risk analysis allows the ETCB to identify and counter emerging MTIC threats more quickly.

Impact. In 2014, the ETCB introduced mandatory transaction-level e-filing for VAT and automated data matching to combat MTIC fraud. The measure made it mandatory for taxpayers to e-file purchase and sales invoices with their VAT returns. This allowed the ETCB to automatically match input tax credit claims against output tax payments, and investigate mismatches and nonmatching items. This is potentially a strong anti-MTIC measure, although it carries potentially high administrative burdens. The ETCB mitigated these by risk profiling the transactions before the data-matching stage so that only higher-risk invoices are checked. Since the measure was introduced, the compliance gap in Estonia fell from 14 percent of potential VAT in 2013 to 9 percent in 2014 and 5 percent in 2015 (one of the lowest gaps in the EU; see Center for Social and Economic Research 2017).

Challenges. The increased automation of tax administration also presents new risks. Online registration and filing allows tax fraudsters to efficiently create large numbers of entities and declarations at very low cost and rapidly generate online declarations without needing a physical presence or appearance of business. Fraudsters then react quickly to ETCB action, for example, by switching between sectors or commodities used in the fraud. It also allows fraudsters to generate multiple small credit claims with a low individual risk of detection but a high collective yield. Multiple claims of varying values and other characteristics are also submitted to test the parameters of ETCB’s risk profiles, allowing the fraudsters to lower the risks of triggering an investigation or audit.

³The statistics may overstate the *effective* use of electronic tax filing given that although almost all personal income tax returns enter the system electronically, many are not entered by the taxpayer but rather by a SARS official in a branch office.

⁴The introduction of South Africa’s high registration threshold increased net VAT revenues, as a result of the reduction in input tax credits claimed by micro businesses. Such an effect is largely unique to a VAT, and not found in other taxes.

Box 2.2. Digitalization and Property Taxation in Developing Economies

In many developing countries, property taxes are underused as a means to mobilize domestic revenues. They are only a small fraction as a percentage of GDP compared with revenues from this source in advanced economies (Figure 2.2.1), and there is widespread recognition that the revenue potential of urban property taxation in developing countries is significant (Franzsen and McCluskey 2017). Thus, these taxes could help finance infrastructure and service delivery in densely populated municipalities.

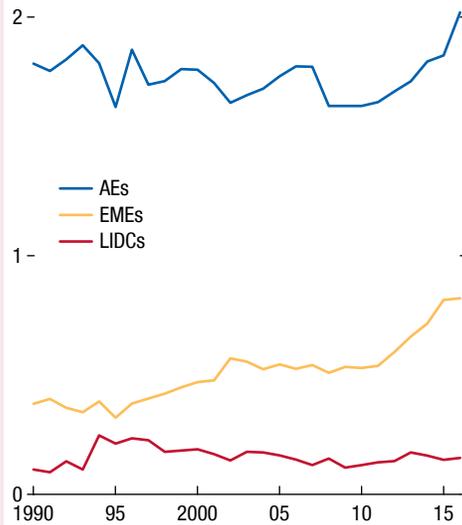
Why is collection so low? Property taxation faces many challenges in developing economies: the coverage of taxable properties is low; tax assessors inaccurately assess the value of property assets and the associated tax bill; tax administration is weak; and paper-based record-keeping facilitates the falsification of data. These combined factors contribute to poor revenue collection. Catching up with best practices in advanced economies requires an improved ability to identify property parcels and buildings, register their ownership, and map their geographic location in a central fiscal cadaster.

Advances in digital mapping technologies offer possible solutions. Before a jurisdiction can impose a property tax, it needs to identify and map all the taxable properties within its jurisdictional boundaries. Satellite imagery can be a highly effective tool to develop a powerful geographic information system (GIS)—a framework of technologies, policies, and institutional arrangements that together facilitate the creation, exchange, and use of geospatial data and related information resources across an information-sharing community of property tax designers and administrators. This can support tax administration in a cost-effective manner as the “eye from the sky” will not easily miss any expansion in capital improvements for a given property parcel. Geo-referencing can complement door-to-door field surveys on the nature, usage, type of construction, number of floors, and age of the buildings. This information can then be incorporated on a digitized map with GPS coordinates and be compared with current data on the property register, often revealing substantial information gaps. Thus, accelerated property tax collection becomes possible, even if a central (legal) cadaster of all registered properties has not yet been established.

Country experiences already validate the use of digitalization and big data manipulation to improve

Figure 2.2.1. Average Property Tax Revenue
(Percent of GDP)

Property tax collection is relatively low in low-income developing countries.



Source: IMF, Fiscal Affairs Department World Revenue Longitudinal Dataset.

Note: AEs = advanced economies; EMEs = emerging market economies; LIDCs = low-income developing countries.

property tax compliance. Indian municipalities have recently made major strides in using satellite imagery to map properties and integrate this into a GIS (Kumar 2012). Recent work indicates that greater use of technology can detect pervasive property tax fraud (OECD 2017b; Ministry of Finance, Government of India 2017). In 2010, the effectiveness of satellite imagery to depict parcel characteristics proved its mettle in Greece. Taxpayers in the upmarket suburbs of Athens had to tick a box to indicate whether they owned pools. Reported pool ownership was significantly lower than the final tally, which was revealed after tax investigators perused satellite photos. This illustrates the value of applying technology against tax evasion.¹ In the United States, big data is used to identify residency and multiple property ownership

¹The *New York Times*, May 2, 2010, “Greek Wealth Is Everywhere but Tax Forms.” <https://blogs.thomsonreuters.com/answeron/big-data-tax-assessors-office/>.

Box 2.2 (continued)

to prevent fraudulent or improper tax payments.² By combining these data with aerial imagery and a GIS, tax authorities have detected irregularities and inconsistencies in property tax filings.³ For example, in Anne Arundel County, Maryland, in the United States, budget constraints and rapid urban sprawl led to a situation where property appraisers could assess only a fraction of the properties under their jurisdiction. With a pilot program combining aerial imagery and property tax data, the county appraisers doubled the number of inspected properties. In the state of Louisiana, appraisers could analyze property changes using aerial images in relation to property tax records,

²<https://blogs.thomsonreuters.com/answeron/big-data-tax-assessors-office/>.

³Under an area-based property tax, annual value is assigned based on the size of the property, and other property attributes such as location, age, nonresidential use, and occupancy.

and determine whether a field inspection was necessary. In 2014, this effort for only one parish revealed 6,000 property improvements that were not on the tax rolls, raising a further US\$18.1 million in tax.

Importantly, going forward, the digitalization of property taxation opens exciting possibilities. First, the creation of a fiscal cadaster could be facilitated with satellite imagery or aerial photography by drones linked to a GIS. In addition, where valuation capacity for tax assessment is weak, digitalization could facilitate the application of area-based property taxes. The latter allows for a simplified formula approach that assigns values based on physical attributes to avoid the complexities of a value-based property tax based on annual rental value. This may provide a short- to medium-term response in countries with poorly developed property markets or limited valuation capacity.

Box 2.3. Digitalizing Government Payments in Developing Economies

In many developing economies, many government payments are transacted in cash. This includes transactions with individuals and firms, as well as between government entities. For a sample of seven emerging market economies in Asia, Africa, and Latin America,¹ representing 61 percent of developing-country GDP, Lund, White, and Lamb (2017) estimate that on average, the share of digital payments is 55 percent of the volume of government expenditures and 41 percent of the volume of government receipts. This compares to averages of 95 percent and 70 percent, respectively, in advanced economies. This suggests considerable scope to reap dividends from digitalizing government payments. In many countries, this has helped cut bureaucratic inefficiencies, reduce fraud and corruption, generate fiscal savings, and facilitate the delivery of benefits. This box summarizes the findings from Lund, White, and Lamb (2017), who provide estimates of the savings from the use of electronic payment systems for government transactions.

Lund, White, and Lamb (2017) identify three main sources of savings: reducing leakages, limiting fraudulent payments and tax evasion, and reducing the costs of processing payments within the government

¹The seven countries are Brazil, China, India, Indonesia, Mexico, Nigeria, and South Africa.

(Table 2.3.1). Based on existing literature, the authors estimate that 15–25 percent of the total value of payments is lost to leakage and fraud for government payments to individuals. For government payments to businesses, the leakage rate is lower, between 5 and 15 percent. For payments from individuals and firms to government, Lund, White, and Lamb (2017) assume that 5 percent of payments are lost to bribery. Savings from reductions in processing costs are estimated at \$0.50 to \$1.20 per transaction.

Based on these assumptions, the authors' calculations show that digitalizing government payments in developing countries could save roughly 1 percent of GDP, or about \$220 billion to \$320 billion in value each year. This is equivalent to 1.5 percent of the value of all government payment transactions. Of this total, roughly half would accrue directly to governments and help improve fiscal balances, reduce debt, or finance priority expenditures, and the remainder would benefit individuals and firms as government spending would reach its intended targets (Figure 2.3.1). These estimates may underestimate the value of going from cash to digital because they exclude potentially significant benefits from improvements in public service delivery, including more widespread use of digital finance in the private sector and the reduction of the informal sector.

Table 2.3.1. Sources of Savings from Digitalizing Government Payments

		Potential Sources of Savings		
		Leakage	Fraud and Tax Evasion	Processing Costs
Payments	To public employees	Salaries stolen by government employees	Payments to “ghost” workers	
	To individuals	Transfers stolen by government employees	Transfers to ineligible individuals	
	To businesses	Transfers or payments for procurement contracts stolen by government employees	Overbilling for goods and services	
Receipts	From individuals	Tax payments stolen by government collectors	Tax evasion by individuals	Savings from automated payments
	From businesses	Tax payments stolen by government collectors	Value-added tax collected by business but not paid to government Tax evasion by businesses	
Intragovernmental payments	Between government entities	Entities do not receive full transfers Unreported payments for public goods and services		

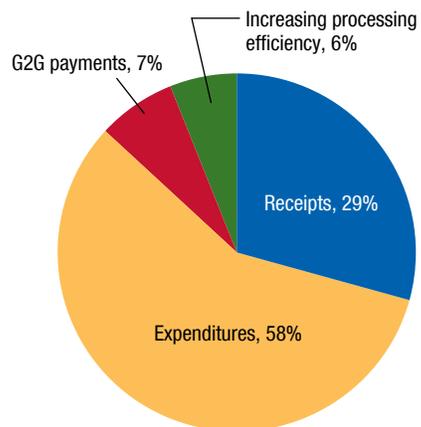
Source: Gupta and others 2017.

Box 2.3 (continued)

Figure 2.3.1. Savings from Digitalizing Government Payments

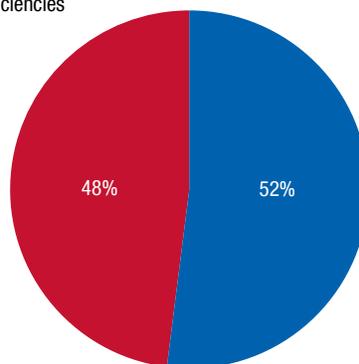
Digitalizing government payments in developing countries could save roughly 1 percent of GDP, or about \$220 billion to \$320 billion annually, shared equally between the private and public sectors.

1. By Source



2. By Recipient

To government from reducing leakage through fraudulent payments, leakage in G2G payments, and processing inefficiencies



To households and firms from reducing leakage in subsidies and payments

Source: Lund, White, and Lamb 2017.
 Note: G2G = government to government.

Box 2.4. Using Real-Time Fiscal Data to Upgrade Macroeconomic Surveillance Systems

Traditionally, fiscal data for macroeconomic policy analysis are derived from periodic official reports, often published with significant time lags. However, countries at all levels of income are increasingly consolidating their government banking arrangements and implementing information technology systems designed to automate the management of the public finances. The digitalization of government payments and accounting systems mean that real-time daily fiscal data exist in many countries.

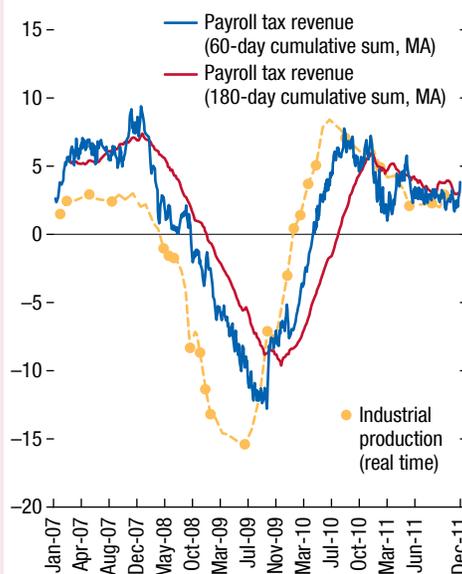
Such data can be useful to enhance macroeconomic surveillance, given their timeliness, ease of access (the infrastructure to provide high-frequency fiscal data is already in place), and relatively high reliability (they tend to have small ex post revisions, at least in cash terms). To date, this data source has largely been underexplored and underexploited, despite the seemingly obvious value that it can provide.

There are two main uses. First, real-time fiscal data can enhance the monitoring of revenue and expenditure aggregates in the context of fiscal surveillance and management. For example, they considerably improve the quality, accuracy, and timeliness of tax revenue trend and end-of-year forecast analysis (Misch and others 2017). Second, real-time fiscal data can enhance the forecasting of economic activity—the practice of nowcasting. Trends in daily tax data can mirror a large array of macroeconomic developments in real time. This is especially useful in countries where daily fiscal data are available but national accounts statistics are poor—that is, quarterly or monthly GDP data or monthly indicators of economic activity are either unavailable, unreliable, or significantly delayed.

Figure 2.4.1 illustrates that various indicators reflecting payroll tax revenue constructed from daily data from the United States mirror key features of the US business cycle (proxied by a seasonally adjusted indicator of industrial production) relatively accurately before, during, and after the global financial crisis. Importantly, the peak of the recession in 2009 is picked up by the payroll tax indicators with a lag of only a few weeks relative to the industrial production benchmark.

Figure 2.4.1. United States: Nowcasting Economic Activity
(Year-over-year change; percent)

Daily data on payroll tax revenue mirror key features of the US business cycle.



Sources: Misch and others 2017; Federal Reserve Economic Data St. Louis Fed; and United States Treasury Department.

Note: Payroll tax revenue series reflect year-over-year growth rates of cumulative payroll tax revenues. Both series have been smoothed using a moving average filter and differ in the length of the rolling window considered for the construction of cumulative sums (60 and 180 days, respectively). MA = moving average.

There are certainly drawbacks to nowcasting. The data also reflect noise and seasonality. In addition, they are largely unaudited and mostly reflect cash-based transactions only. However, taken together, there is a strong business case for much wider use of real-time fiscal data in governments and multilateral institutions alike. This will most likely disrupt the way surveillance operations are conducted, in part because the use of high-frequency real-time data requires some degree of automation to update macroeconomic analyses.

Box 2.5. Small Business Taxation and the P2P Economy

Peer-to-peer (P2P) platforms and their users have come under increasing scrutiny from governments and the public because of the perception that they are far less regulated than are traditional businesses operating in the same sectors. With increasing numbers of participants and a growing number of markets in which the P2P provision of goods and services can thrive, interest in the scale, scope, and taxation of the P2P economy is inevitable.

Some have argued that putting beneficial competitive pressure on restrictive practices is enhancing efficiency. P2P platforms could also help to formalize activities—in sectors such as household cleaning services—bringing them within reach of the regulatory and tax authorities. Others instead view a light government touch as distorting competition and giving individuals and businesses in the P2P economy an unfair advantage. If platform-based activities have tax advantages compared with traditional businesses, this violates the principle of tax neutrality. If P2P sellers/workers are indeed subject to lower taxation—because of preferential rates or simply underreporting of income—government tax revenues may also be at risk, especially if other, more tax-rich activities are being displaced. At the same time, issues such as the employment status of digital workers—employee versus self-employed—could also have important tax and expenditure implications.

If the fundamental economic activity in these new P2P businesses is different from that in traditional businesses in the same sector, are current tax policies sufficient to deal with them?

Small Is Bigger

A definitive approach for the taxation of P2P businesses depends on whether the government wants to minimize differences in tax treatment between traditional and P2P businesses, if any, or differentiate between them through the tax system. In this sense, the emergence of P2P activities does not seem to be driving a radical rethink of the tax system or the principles upon which it is based. Several of the issues in how to tax small businesses in the P2P economy are familiar.

With the growth in P2P workers/sellers, the number of unincorporated small businesses is increasing

This box is based on Aslam and Shah 2017.

at the lower end of the income distribution (Hathaway and Muro 2013). These businesses may displace larger firms and reinforce existing well-known challenges for taxing large numbers of small businesses. Taxes are usually not only more difficult to collect from small businesses, but can be more distortionary since compliance costs are often relatively higher than for larger businesses. Moreover, tax revenues raised directly from small businesses in general remain modest. Although countries define their small business segments differently, findings suggest that they commonly account for less than 15 percent of domestic tax collections and often much less in low-income countries (IMF 2015).

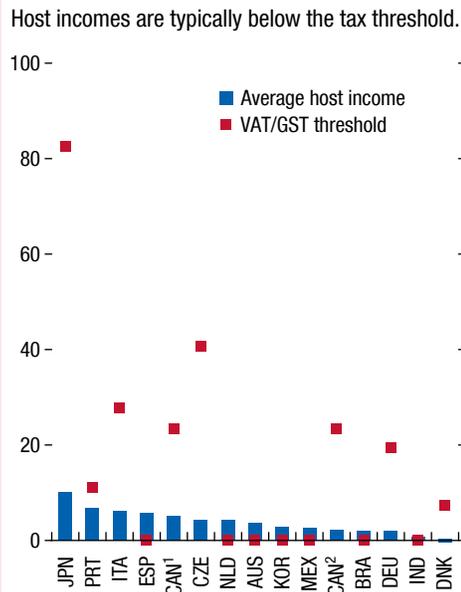
The presence of more small businesses is therefore altering the revenue-compliance trade-off that has determined the choice of tax thresholds in the past: governments could consider lowering direct and indirect thresholds to bring a larger portion of small-business activity into the tax system. If so, this choice needs to be weighed against the risks of evasion, noncompliance, and higher administrative costs. For example, Figure 2.5.1 illustrates how low average annual gross incomes are in P2P accommodation rental, and subsequently fall below current indirect tax thresholds. However, lower tax thresholds come with the risk of increasing not only the implementation costs for both governments and small businesses, but also the noncompliance (legal and illegal) of the latter. Of course, if P2P sellers are recategorized as employees, these issues would become less relevant. Special tax rules for small businesses can also help, but the nature of P2P activity could amplify distortions. It is unclear how to balance the need for revenue with the distortionary impact of any special tax treatment, and, in time, the P2P economy could grow to such an extent that these special rules might become redundant—or even the norm.

A Role for Digital Platforms

The P2P platforms present an important opportunity for tax policy and administration. As online intermediaries, they record data on the myriad of online market transactions that they oversee. Governments can cooperate with them to access these data, which would alleviate information constraints, strengthen enforcement, and allow better quantification of activity that had previously been misreported

Box 2.5 (continued)

Figure 2.5.1. Average Income from Airbnb, by Country versus Indirect Tax Thresholds
(Thousands of US dollars)



Sources: Airbnb Inc.; and International Bureau of Fiscal Documentation.

Note: Data for each country can be either a national average or for a major city. VAT/GST = value-added tax/goods and services tax. Data labels in the figure use International Organization for Standardization (ISO) country codes.

¹Vancouver.

²Montreal.

or undocumented—take, for example, the precedent set by Estonia, where P2P sellers on certain platforms can opt to have their incomes automatically reported directly to the tax authority.

Platforms can also act as custodians for the tax administration by withholding tax on behalf of sellers, something that is already taking place for single-stage indirect taxes—Airbnb’s role in withholding and remitting hotel taxes in several countries is a case in point. Such arrangements could help ease compliance and administration while raising revenue, particularly in low-capacity countries, and again, allow tax authorities to revisit the revenue-compliance trade-off, and also ensure a level playing field between P2P sellers and traditional businesses operating in the same sector. However, attempting to levy direct (income) taxes through such withholding arrangements is more difficult, given that P2P sellers rarely use one platform exclusively and are likely to be earning multiple streams of income from different activities, for example, income earned both on- and off-platform, from either self-employment or employment. An end-of-the-year reconciliation based on a seller’s reported income and costs might provide some solution, although at the expense of the desired simplification and lower administrative burden.

The tax treatment of the P2P economy ultimately depends on each government’s preferences and capacity, and likely varies by country. Some governments may wish to minimize tax policy differences between P2P sellers and traditional businesses. Others may instead see the rise of the P2P economy as positive and choose to provide tax incentives to encourage it—for example, the United Kingdom introduced an allowance for income earned from online trading and property. Although the P2P economy has potentially exacerbated the administrative and revenue-mobilization challenges associated with small-business taxation, the technology of P2P platforms presents a valuable opportunity to eventually solve them.

Annex 2.1. The Digitalization of Public Finances: Country Case Studies

This annex summarizes digitalization efforts in Estonia, India, and Kenya that illustrate the experiences with digitalization across different income country groups.

Estonia

Reform Efforts

Estonia is one of the most digitalized countries in the world, with 99 percent of state services provided online.⁴³ This includes identification, signatures, tax filing, health records and prescriptions, school records, and voting. The most crucial components of Estonian e-government are digital identification of citizens and a digital data exchange system associated with a system of applications developed by different public and private institutions:

- *Digital identification.* The digital identification card, mandatory for all citizens, is an electronic chip with two pin codes for authentication and signing of online transactions, providing digital access to all of Estonia's secure e-services. The identification card is used for multiple purposes, including as a national health insurance card, proof of identification for banking services and digital signatures, to check medical records, for e-prescriptions, and for submitting tax claims.
- *Digital data exchange.* X-Road is the foundation of the e-government system of Estonia and is based on blockchain technology. It is a secure Internet-based data exchange layer that enables different information systems—public and private—to communicate and exchange data. An institution that wants to develop an online application can apply to join X-Road and obtain access to services such as client authentication, authorization, registry services, query design services to state-managed data repositories and registries, and secure data exchange. In addition to citizen-state interaction, X-Road is suitable for queries involving multiple agencies and information sources. An agency does not have to go through different databases to obtain information from various sources. Similarly, a parent wanting to apply for child benefits can use the X-Road system and gain access to all relevant data repositories (Vassil 2016).

⁴³<https://e-estonia.com/solutions/interoperability-services/x-road/>.

The Estonian Tax and Customs Board (ETCB) was the first government body to introduce e-services (Sprackland 2017). All tax and customs declarations can be filed online. Using an identification card, a taxpayer can log online and retrieve tax forms. The system prepopulates the forms using data integrated through X-Road. The taxpayer can review the form, calculate required entries, and confirm the declaration. In addition to corporate income tax, companies can also declare social contributions.

Advances have also been made in public service delivery. In 2010, Estonia introduced electronic health records and prescriptions. The electronic health record system enables citizens to access their complete medical history from all health care providers in a national database in a standardized format. Doctors can view patients' records and review test results. E-prescriptions are also managed using a centralized database. Patients can pick up their prescriptions by using their digital identification cards.

E-school, introduced in 2003, is an online communication system among parents, teachers, and children. The purpose is to engage with parents more actively through a wide range of uses including the ability to share grades and attendance information in the system; the content of lessons, homework, and student evaluations for the teachers; access to grades and assigned homework for the students; the ability to review data entered by teachers and follow school work for parents; and access to the latest statistical reports for administrators.

Impact

Most of the services raise efficiency by saving money and time for the users as well as public officials. X-Road serves 52,000 organizations as indirect users and handles about 500 million queries each year⁴⁴ The government estimates that, in 2017, the use of digital technology and e-services saved more than 1,172 years of working time.⁴⁵ Two-thirds of the population uses the digital identification card regularly and digital signatures save five days per year.⁴⁶ About 95 percent of taxes are filed online and each filing takes on average

⁴⁴<https://e-estonia.com/solutions/interoperability-services/x-road/>.

⁴⁵This estimate assumes that every request saves 15 minutes and 5 percent of requests submitted via X-Road involve communication between people; therefore, using e-services helped save 7,182,262 working hours in the previous year. <https://www.ria.ee/x-tee/fact/#eng>.

⁴⁶Government of Estonia, <https://e-estonia.com/solutions/>.

about three minutes. In addition to saving time, the digitalization has significantly strengthened Estonian revenue administration. The ETCB's collection efficiency was ranked among the best in the OECD, spending 40 cents to collect EUR 100 in taxes (OECD 2015c). Online services in health care and education are broadly adopted and heavily used. The e-health record receives 800,000 queries per year by doctors and patients; 97 percent of patients have digital records, and 99 percent of all prescriptions are digital. E-school is used by 85 percent of schools and has more than 200,000 active users—15 percent of the population.⁴⁷

Risks and Challenges

A digital government provides new opportunities for fraud—in Estonia, such risks have materialized in tax administration. Cybersecurity has also been a source of concern. After its experience with the 2007 cyberattacks, Estonia developed protection against cyber vulnerabilities of a digitalized government. The country established scalable blockchain technology to mitigate risks concerning the security of data repositories and cyberattacks.⁴⁸ The blockchain technology ensures that the government and citizens have an immutable record of all data and transactions secured against manipulation by insiders or attackers. Moreover, the government plans to establish a data embassy housed in Luxembourg to provide a disaster recovery system capable of rebooting the country in the event of a cyberattack. In addition to technical infrastructure, Estonia's e-government is strongly regulated by legal acts that provide the basis for security and privacy protection of data stored in government repositories. For instance, the Personal Data Act (1996) protects the fundamental rights and freedoms of citizens.

India

Reform Efforts

Social Spending

India's central government has implemented several digital platforms to overcome leakages in its subsidy scheme.⁴⁹ The so-called “JAM trinity” has three pillars:

1. *Jan Dhan* promotes financial inclusion, targeting universal access to banking facilities and facilitating the delivery of social benefits directly to bank accounts.
2. *Aadhaar*, the country's biometric identification system, provides each citizen with a 12-digit unique identification number with demographic and biometric information (fingerprint and iris scan). With 1.2 billion residents enrolled, this is the largest biometric program in the world.
3. A *mobile network* covering more than 1.16 billion phones⁵⁰ serves as an effective service delivery platform, especially in rural areas.

Under the Jan Dhan, bank accounts have been linked to Aadhaar cards. This has enabled the delivery of social benefits through direct electronic payments to eligible bank account holders. Programs linked to Aadhaar include the Direct Benefit Transfer scheme for LPG subsidies, the Public Distribution System for rice and wheat, and the Mahatma Gandhi National Rural Employment Guarantee Act program, which provides 100 days of work for unemployed workers in a year. In 2008, the government digitalized the program's wage payments and job applicants by linking their job cards to Aadhaar.

Public Procurement

The Indian government has also used digital technologies to enhance transparency in public procurement. E-procurement ensures secure online bid submission and access to bid opening events to all procuring entities, increases transparency of the bidding process, and reduces the corruption that was possible under offline tenders (Panduranga 2016). In October 2012, the government launched the online Central Public Procurement Portal, mandating ministries to channel all procurements above a certain threshold through the portal.⁵¹ All ministries (and agencies under their administrative control) are required to use e-procurement (Roy and Rai 2017).

⁴⁷<https://e-estonia.com/>.

⁴⁸Estonia claims to have scaled a blockchain solution that meets higher demands in transaction volume and number of users.

⁴⁹This annex discusses digitalization efforts of the central government. Several state governments have undertaken reforms as well.

⁵⁰Telephone Regulatory Authority of India, Press Release No. 05/2018, January 11, 2018.

⁵¹The threshold was set at a value of Rs 1 million (US\$58,000) in 2012 and lowered to Rs 0.2 million (US\$11,600) in 2016.

Tax Collection

To prevent tax evasion, the Indian government introduced e-filing in 2007. The government made it mandatory for all firms requiring statutory audit and individuals with an income above a certain threshold to file taxes electronically.⁵² At present, most taxes the central government collects are filed and deposited electronically. In 2017, the government required the Permanent Account Number—the taxpayer identification number—to be linked to Aadhaar for the processing of income tax returns. In fiscal year 2017/18, the government introduced the goods and services tax and maintained a single portal through the Goods and Services Tax Network, a nonprofit organization. The portal helps to reduce tax evasion because the central government can trace transactions and match invoices of taxable goods sold against all the taxable supplies bought by companies (Roy and Rai 2017).

Impact

Assessing the effect of digitalization is challenging. First, much of the discussion on the effect of digitalization has focused on the reduction leakages in the distribution of subsidies—the subject of some controversy. Digitalization can reduce leakages because of the elimination of ghost and duplicate beneficiaries and the reduction of corruption. Second, it is difficult to disentangle the effect of standalone digital measures. It is debatable whether Aadhaar was the sole source of savings or whether other parallel (digital) reforms contributed as well. Complicating matters, Aadhaar did not become mandatory immediately after its introduction. Various estimates have been put forward:

- Estimates of reductions in leakages through digitalization of LPG subsidies vary and are not always comparable. The Prime Minister (2015)⁵³ and the Ministry of Petroleum and Natural Gas (2016/17) report savings from the reform about Rs 150 billion (US\$ 2.54 billion; 22 percent of major cash transfers) for 2014/15⁵⁴ whereas the Comptroller and

⁵²Rs 0.5 million (US\$29,000), about five times per capita income.

⁵³http://www.pmindia.gov.in/en/news_updates/english-rendering-of-pms-address-to-the-nation-from-the-ramparts-of-the-red-fort-on-the-69th-independence-day/?comment=disable.

⁵⁴Based on Banerjee's (2015) estimates of the value of major cash transfers in India of about US\$11.3 billion. The major cash transfers are the LPG subsidy, National Rural Employment Guarantee Act (a cash-for-work-program), National Social Security Pensions, Janani Surakshana Yojana (maternal and girl child health-related incentives), and scholarships for higher education for selected communities.

Auditor General of India (2016) estimates savings about US\$ 270 million (2 percent of major cash transfers) and Clarke (2015) around US\$22 million (0.2 percent of major cash transfers). The Indian Ministry of Finance's Economic Survey estimates a reduction in leakages of 24 percent (Ministry of Finance, Government of India 2016) while Barnwal (2016) estimates a reduction in fuel diversion of 11–14 percent.

- By 2016, the Indian government reports Rs. 140 billion (US\$ 2.1 billion) savings in the Public Distribution System (18 percent of major cash transfers in India)⁵⁵ as a result of the deletion of ineligible beneficiaries (23 million ration cards) and better targeting (Ministry of Petroleum and Natural Gas, Government of India 2016). Others (Khera, 2017) have questioned these savings by noting that deletions were related to beneficiaries who were not eligible for the Public Distribution System and that Aadhaar did not play a role in verifying eligibility criteria.
- Estimates of the impact of the digitalization of the Mahatma Gandhi National Rural Employment Guarantee Act program also vary considerably. The Ministry of Finance, Government of India (2017) reports that Rs 76 billion (US\$1.2 billion and 11 percent of cash transfers) had been saved by 2015/16 because of Aadhaar integration and the digitalization of payments. In 2016/17, 9.3 million fake job cards were deleted.⁵⁶ However, Khera (2017) reports that about 13 percent of these cards were deleted for reasons such as erroneous identification, suggesting that a significant portion of deleted cards were not due to Aadhaar. In addition, Khera (2017) notes that the separation of implementing agency and payment agency (for example, banks and post offices) also helped in reducing fraud. Using a large-scale experiment that randomized the rollout of biometrically authenticated payments in the Mahatma Gandhi National Rural Employment Guarantee Act program for 19 million people in the state of Andhra Pradesh, Muralidharan, Niehaus, and Sukhtankar (2016) find that leakages were reduced by 41 percent relative to the control mean.

⁵⁵Based on Banerjee's (2015) estimates of the value of major cash transfers in India of about US\$11.3 billion.

⁵⁶"Fund Leakage: Nearly a Crore Fake 'Job Cards' Struck off from MGNREGA Scheme." *Hindustan Times*, April 9, 2017.

- The costs of Aadhaar implementation have been contained. Between 2009 and 2017, the Unique Identification Authority of India—responsible for Aadhaar enrollment and authentication—reports cumulative expenditures of Rs 87.9 billion (about US\$1.5 billion) including operation and management of all its stages.⁵⁷ This implies a cost of US\$1.25 per generated Aadhaar card. This compares favorably to the costs of other electronic identification systems of US\$3 to US\$6 (Gelb and Diofasi Metz 2018).

Beyond the controversy over the effect of Aadhaar on leakages, many authors have discussed its limits. Household surveys suggest that the experience of users depends positively on Internet availability. A survey of households in Rajasthan reveals problems related to authentication, with 4 percent of the respondents reporting that they could not authenticate themselves in a timely manner or at all (Gelb and others 2017). Based on a household survey in Jharkhand on the integration of Aadhaar in the Public Distribution System, Dreze and others (2017) find that exclusion errors occurred mainly because of fingerprint recognition problems and limited Internet connectivity. These surveys show the importance of establishing the appropriate digital infrastructure, including power, Internet and mobile connectivity, accurate links to Aadhaar, and alternative methods of verification (such as passwords) when biometric verifications fail. Considering these factors, the Supreme Court has recently ruled that Aadhaar can only be mandatory when citizens owe funds to the government (such as tax payments) but not in the distribution of social benefits.

Risks and Challenges

Privacy and security concerns for Aadhaar resurfaced in a landmark ruling by the Supreme Court of India in mid-2017.^{58,59} The court ruled that privacy is a fundamental right, leading to uncertainty regarding the future use of Aadhaar identification. Given its broad coverage, however, it may be a challenge to phase it

⁵⁷<https://uidai.gov.in/about-uidai/about-uidai/financials.html>.

⁵⁸“Right to Privacy Verdict Highlights: Govt Welcomes SC Judgment, Says It’s a Fundamental Right, not Absolute.” *Hindustan Times*, August 24, 2017.

⁵⁹“Aadhaar Data Breaches Affected 135 Million Indians: Petitioners Tell SC.” *LiveLaw.in*, January 7, 2018. <http://www.livelaw.in/aadhaar-data-breaches-affected-135-million-indians-petitioners-tell-sc-read-rejoinder-affidavit/>.

out. Advocates of the system assert that Aadhaar is compatible with the right to privacy because the captured biometric traits are encrypted, making it difficult for anyone who intercepts these images to access the actual content. However, the lack of sufficient security controls makes the system vulnerable to unauthorized access. In a recent data breach, it has been reported that Aadhaar numbers and the corresponding identities of 135 million Indian citizens were compromised when service providers used their access to steal identity information; privacy and security controls are therefore key when implementing large identification programs.

Kenya

Reform Efforts

Kenya stands out in sub-Saharan Africa for its success in pursuing and using digitalization. The introduction in 2007 of M-Pesa, a mobile-phone based money transfer service, has established the foundations for the use of digitalization in areas such as tax and customs administration and public financial management. M-Pesa allows users to make transfers, deposits, and withdrawals; pay bills; save and invest in small amounts; and pay taxes. M-Pesa has also spurred financial inclusion among the entire population and formal inclusion among women.⁶⁰

Tax Administration

The Kenya Revenue Authority has implemented comprehensive reforms in revenue administration in recent times relying heavily on new technology as a key enabler. In 2013, the Kenya Revenue Authority introduced iTax, an online tax system that provides integrated and automated administration of all domestic taxes. It is a user-friendly system that allows access to multiple tax administration services. Taxpayers can register using a unique personal identification number, file and pay taxes, and monitor their tax status. Commercial banks and M-Pesa are integrated into the iTax system. In addition, several of its components help tax administration functions such as compliance, monitoring, tax return processing, enforcement of tax credits, debt management, management statistics, and reporting.

⁶⁰Adult population served by financial services increased from 27.4 percent in 2006 to 75.3 percent in 2016 (Ndung’u 2017).

In response to the declining revenues from excises in 2013, the Kenya Revenue Authority moved to a new system to strengthen the enforcement of excise duties on all excisable products except motor vehicles. Key to the system was the rollout of the excisable goods management system, which enables the Kenya Revenue Authority to track and trace stamped and unstamped products throughout the supply chain to prevent smuggling and misreporting of volumes. The system also helps in managing stock and inventory and preventing theft of stamps (African Tax Administration Forum 2016).

Customs Administration

Since 2017, the Kenya Revenue Authority has embarked on several reforms to strengthen customs compliance and reduce revenue leakages from cargo undervaluation. In 2017, the Kenya Revenue Authority started the rollout of the Integrated Customs Management System to replace the aging web-based SIMBA system that was exploited for tax evasion (Gitaru 2017). The Integrated Customs Management System aims to consolidate all customs cargo clearance processes and includes components for functions such as automated valuation benchmarking, automated release of green-channel cargo, importer validation and declaration. In addition, the system has two-way iTax integration, which enables data sharing on importers to monitor domestic tax declarations. Another key digital initiative for customs administration is the Regional Electronic Cargo Tracking System launched in early 2017, which monitors transit cargo along the north, connecting Kenya with Uganda and Rwanda, and is expected to reduce or eliminate customs revenue leakage.

Public Financial Management

In 2014, the Kenyan government launched e-Procurement, an online system for submitting and evaluating procurement applications. The aim was to increase efficiency, strengthen governance, and reduce processing time. The system is currently only being used on simpler, more straightforward types of procurement. The government is working with the Kenyan ICT Authority to extend the coverage of the system to include all government entities (such as state-owned enterprises).

To facilitate project monitoring, the Ministry of Finance introduced the Electronic Project Monitoring

Information System (e-Promis) in 2009. e-Promis aimed to coordinate and align development efforts, harmonize project delivery, measure project performance, strengthen accountability, and manage project resources and was designed to provide physical and financial project information to users throughout the government.

Impact

Through digital automation, iTax has strengthened coverage and reduced the costs of tax collection, simplified the tax-filing process, increased customer satisfaction, and reduced compliance costs. Since its introduction, the expanded tax base and administrative reforms enabled through enhanced digitalization have increased tax collection (Ndung'u 2017). iTax increased tax compliance levels while reducing human error and fraud vulnerabilities through comprehensive automation. For example, the number of steps for corporate income tax filing decreased from 59 to 16 (African Tax Administration Forum 2016).

Risks and Challenges

There are also risks and vulnerabilities in the new administrative process. System vulnerabilities arise from cybercrime, data theft, and performance challenges. It will be important to build a workforce with adequate skills and to ensure proper network coverage. Another challenge is to increase, in a population with relatively low computer literacy, the number of users who adopt digital platforms.

Annex 2.2. Estimating the Impact of Digitalization on Tax Evasion from Cross-Border Fraud

Estimating the Effect of Digitalization

Cross-border trade fraud resulting from customs duty, excise, and value-added tax (VAT) evasion has important public revenue implications. Previous empirical literature has mainly focused on documenting the extent of tariff evasion, typically relying on disaggregated industry-by-industry measures of misreporting (Fisman and Wei 2004; Mishra, Subramanian, and Topalova 2008; Jean and Mitaritonna 2010). Much less attention has been given to the implications of trade fraud on excise and VAT revenue even though the latter accounts for a large portion of the estimated

VAT gaps in the European Union (EU) (for an exception, see Gradeva 2014).⁶¹

This annex builds on the work of Kellenberg and Levinson (2016) to link aggregate trade misreporting to indicators of digital government and other cross-country controls. More specifically, we estimate the following:

$$\frac{V_{xmt}^m - V_{xmt}^x}{(V_{xmt}^m + V_{xmt}^x)/2} = \beta_0 + \beta_1 Z_{xmt}^\sigma + \beta_2 Z_{xmt}^m + \beta_3 Z_{xmt}^x + a_t + a_{xm} + \varepsilon_{xmt} \quad (2.2.1)$$

where V_{xmt}^m is the annual total trade shipped from exporting country x to importing country m as reported by the importer; V_{xmt}^x is the same value as reported by the exporter. The dependent variable is defined as the difference between these two values and proxies trade misreporting. This difference is subsequently normalized by the average reported trade flow to form the so-called trade gap.⁶² In general, the trade gap between two countries tends to increase with the distance between the two trading partners, since in practical terms, the value reported by exporters is free-on-board while the value reported by importers includes cost, insurance, and freight. Thus, the set of independent variables considered includes a matrix of bilateral proxies for cost, insurance and freight Z_{xm}^σ (including distance, common borders and languages as in typical gravity-type models of international trade), as well as dummies to capture year-specific (a_t) and country-pair specific fixed effects (a_{xm}) that may drive those costs.

To assess which underlying factors—including the potential role played by digitalization—determine the size of the trade gap, a gravity model approach is used. Recognizing that the trade gap could be driven by both importer and exporter characteristics, matrices of observable country characteristics (Z_{xm}^m and Z_{xm}^x for importers and exporters, respectively) such as VAT rates and weighted average tariff rates are included that may be related to incentives to misreport trade flows. In addition, typical trade gravity models include

variables such as GDP and GDP per capita to proxy for the size and development level, respectively, of each partner, while inflation and exchange rates are also included here as they may affect the value of the transacted goods while in transit. Controlling for trade-related variables, including whether a country participates in regional trade agreements, or whether it is a member of the General Agreement on Tariffs and Trade or the World Trade Organization, is also useful in proxying for unobserved customs collaboration. Last, country-pair specific time-invariant characteristics—such as distance between two countries and dummies denoting the existence of a common language, a common currency, and a common border—are taken into account.⁶³

The main regressor of interest is digitalization as proxied by the United Nation's Online Service Index. This variable assesses the scope and quality of public sector online services, including online services for tax submission and registration of businesses. The index is normalized between 0 and 1 and it is available since 2003. There are some drawbacks to this index—for example, assessments can be subjective and surveys of government sites may not be comprehensive. However, the index is significantly correlated to other digitalization indices available and was chosen because of its broader sample coverage across countries and over time compared to the World Bank's Digital Adoption Index and World Economic Forum's Government Success in ICT Promotion (see Annex Table 2.2.1).⁶⁴

The bilateral trade data are obtained from the IMF's Direction of Trade Statistics, which reports the values of imports and exports in US dollars. The macro-variables were obtained from the *World Economic Outlook*, the World Development Indicators, and the IMF's Fiscal Affairs Department Tax Database. CEPII's Gravity Dataset was used for trade agreement participation and distance. Governance indicators on the control of corruption, the implementation of the rule of law, and effective governance were retrieved from the World Governance Indicators database (see Annex Table 2.2.2 for the variables and data sources used). Controlling for such indices prevents confound-

⁶¹The share of the missing trader intra-community fraud in the VAT gap has been estimated to average 24 percent, with the remainder of the VAT gap attributed to losses of revenue arising from other factors such as domestic fraud and evasion (see European Commission 2017, p. 20).

⁶²The trade gap as defined can have a maximum value of 2 and a minimum value of -2 . The estimation below is robust to the exclusion of such extreme values.

⁶³The effect of some of these time-invariant regressors is absorbed by the country-pair fixed effects a_{xm} .

⁶⁴The index has been combined with human capital and telecommunication technology indicators to form alternative composite digitalization indices, such as the United Nation's e-government index and the World Bank's Digital Adoption Index.

Annex Table 2.2.1. Pairwise Correlations of Digitalization Indices

		Online Service Index	E-Government Index	Digital Adoption Index	Government Success in ICT Promotion
Online Service Index	Correlation	1			
	Observations	1,488			
E-Government Index	Correlation	0.89***	1		
	Observations	1,488	1,488		
Digital Adoption Index	Correlation	0.85***	0.75***	1	
	Observations	186	186	186	
Government Success in ICT Promotion	Correlation	0.46***	0.44***	0.49***	1
	Observations	282	282	144	566

Source: IMF staff calculations.

Note: *** Statistical significance at the 1 percent level. ICT = information and communication technology.

ing the estimate of digitalization with the effect of broader governance factors.

Annex Table 2.2.3 shows the main results of estimating the gravity equation (2.2.1) on the set of determinants of bilateral trade gaps described earlier. The first three columns refer to the sample of 28 EU countries over the period 2003–16. A distinct advantage of using the EU subsample is to stress that trade misreporting may occur even within customs unions, where misreporting incentives lie on incentives to evade VAT

and excises rather than customs duties.⁶⁵ Column (1) estimates the gravity equation (2.2.1) via ordinary least squares (OLS), and point estimates suggest a positive association between digitalization indices and the trade gap, implying less underreporting of imports relative to

⁶⁵Missing trader fraud is not specific to the EU. However, the European Commission has recognized this problem to be an important one, and has incorporated estimates of VAT fraud in its VAT gap analysis.

Annex Table 2.2.2. Data Sources

Variable	Data Source
Bilateral exports	IMF: Direction of Trade Statistics
Bilateral imports	IMF: Direction of Trade Statistics
Common currency	CEPII: Gravity Dataset
Common official/primary language	CEPII: Gravity Dataset
Common religion	CEPII: Gravity Dataset
Contiguity	CEPII: Gravity Dataset
Control of corruption	WB: World Governance Indicators
Digital Adoption Index	WB: World Development Report 2016
E-Government Index	UN: E-Government Survey 2016
Exchange rate	WB: World Development Indicators
GDP	IMF: World Economic Outlook
GDP per capita	IMF: World Economic Outlook
Government effectiveness	WB: World Governance Indicators
Government success in ICT promotion	WEF: The Global Information Technology Report 2016
Inflation rate	WB: World Development Indicators
Online Service Index	UN: E-Government Survey 2016
Origin is GATT/WTO member	CEPII: Gravity Dataset
Patents filed by residents	WB: World Development Indicators
Population-weighted distance	CEPII: Gravity Dataset
R&D expenditure (percent of GDP)	WB: World Development Indicators
Regional trade agreement	CEPII: Gravity Dataset
Rule of law	WB: World Governance Indicators
Tariff rate (weighted mean)	WB: World Development Indicators
VAT rate	IMF: Tax Rate Database

Note: CEPII = Centre d'Etudes Prospectives et d'Informations Internationales; GATT/WTO = General Agreement in Tariffs and Trade/World Trade Organization; ICT = information and communication technology; R&D = research and development; UN = United Nations; VAT = value-added tax; WB = World Bank; WEF = World Economic Forum.

exports when trade partners make progress in terms of digitalization.⁶⁶

Columns (2) and (3) replicate the previous exercise via two-stage least squares (TSLS), which aims to address potential problems related to omitted variable bias and reverse causality. Such concerns could arise if, for example, a higher incidence of import misreporting mobilized public authorities of the importing country to foster digitalization efforts so as to reduce tax evasion. In such a case the estimated effect of digitalization is biased downward, given that the policy decision to improve digitalization is negatively correlated with the trade gap and positively correlated with the digitalization index. Thus, in this setting the digitalization index is treated as endogenous and two variables are used as instruments. The first is the country level of research and development (R&D) intensity (R&D expenditure in percent of GDP; Method 1). The second instrument is a measure of R&D efficiency—the ratio of patents to R&D intensity (Method 2). The exclusion restriction relies on the assumption that the trade gap itself is not correlated with differences in the instruments once macro-variables such as GDP and GDP per capita are explicitly controlled for. The last row in Annex Table 2.2.3 reports the first-stage Kleibergen-Paap F statistics, which exceed the Stock and Yogo (2005) critical values for weak instrument diagnostics, suggesting strong instruments.⁶⁷

Results highlight a coefficient estimate for the importer's digitalization that is higher in magnitude (and equally statistically significant) than the OLS estimate. This is consistent with possible endogeneity. The negative coefficient on the importer's VAT rate is in line with the assumption that the incentive to underreport imports rises with the VAT rate.

Columns (5) and (6) broaden the sample to include all trading partners available in the Directions of Trade Statistics database, that is, a sample of 86 countries. The resulting estimates confirm the previous EU subsample conclusion that importer's digitalization index is positively associated with the reporting of imports

in the TSLS estimation. The estimation includes an index to control for corruption.⁶⁸ Columns (4) to (6) show that the exporter's control of corruption is also positively associated with the trade gap, in line with the assumption that collusion with exporters and the misreporting of imports are less likely as the control of corruption is strengthened. The coefficient estimate on importer's digitalization will be used in the simulation exercise that follows, which aims to assess governments' revenue gains from advancing on digitalization.

Estimating Revenue Gains

A back-of-the-envelope calculation of the potential revenue gains accrued from reducing trade fraud exploits the regression specification (2.2.1) holding other factors constant and using column (5) or (6)'s estimated coefficient on the digitalization index (1.181 or 1.733). Denote $V_{Total}^m = \sum_x (V_{xm}^m)$ and $V_{Total}^x = \sum_x (V_{xm}^x)$ the aggregated bilateral trade value flows at the importing-country level. Assuming that the importer's digitalization advancements increase reported imports V_{Total}^m without affecting V_{Total}^x , one can proxy the potential revenue gain from the corresponding increase in reported imports relative to exports as follows:

$$\text{Revenue Gain}_\tau = \tau_{\text{rate}} \times \Delta(V_{Total}^m - V_{Total}^x) \quad (2.2.2)$$

where τ_{rate} refers to the tax rate of interest (that is, VAT or tariff rate).

Specification (2.2.1) could be rearranged to alternatively express the right-hand-side term of equation (2.2.2) in terms of the change in the digitalization index of the importer, Δz^m , and its estimated impact β_{digit}^m .⁶⁹

$$\text{Revenue Gain}_\tau = \tau_{\text{rate}} \times \frac{1}{2} (V_{Total}^m + V_{Total}^x) \beta_{\text{digit}}^m \times \Delta z^m \quad (2.2.3)$$

Reducing the distance to the digitalization frontier for each importer by 50 percent suggests advancing digitalization from its current value z^m by $\Delta z^m = 0.5 \times (1 - z^m)$, as the maximum value the

⁶⁶The underreporting of imports can occur both when the gap is positive and when the gap is negative. The main channel at work is that improved digitalization of the importing country is positively correlated with the recording of imports, and therefore with the revenue resulting from imported goods.

⁶⁷The standard errors reported in the regressions are robust to allow for different variance across country pairs. The results are robust to clustering standard errors at the country-pair level to account for bilateral trade correlation across time.

⁶⁸Results are robust to the inclusion of alternative governance quality indicators, such as the rule of law or government effectiveness indices provided by the World Governance Indicators database.

⁶⁹Rearranging specification (2.2.1) to obtain equation (2.2.3) assumes that, except for the digitalization index, the remaining set of determinants and imports in the denominator of the trade gap are held constant. Holding constant imports in the denominator effectively biases our estimate downward, allowing for a conservative estimate of the gains from reaching the digitalization frontier.

Annex Table 2.2.3. Trade Gap Regressions Using Intra-EU and All Partners Trade Data

Specification	(1)	(2)	(3)	(4)	(5)	(6)
Regressors/estimator/sample	OLS (EU)	TSLs-1 (EU)	TSLs-2 (EU)	OLS (All)	TSLs-1 (All)	TSLs-2 (All)
Im.Digitalization Index	0.186* (0.107)	1.284** (0.505)	0.841* (0.436)	-0.069* (0.036)	1.181** (0.575)	1.733* (0.937)
Ex.Digitalization Index	0.383*** (0.13)	0.703 (0.53)	0.304 (0.44)	0.066* (0.038)	0.054 (0.701)	-0.982 (0.927)
log Im.GDP	0.385 (0.61)	1.570* (0.827)	1.227* (0.721)	-0.370*** (0.114)	-0.831*** (0.191)	-0.861*** (0.221)
log Ex.GDP	-1.385** (0.647)	-1.03 (0.829)	-1.599** (0.788)	0.947*** (0.107)	1.475*** (0.194)	1.436*** (0.225)
log Im.GDP per capita	-0.597 (0.499)	-1.817** (0.753)	-1.427** (0.659)	0.334*** (0.12)	0.671*** (0.194)	0.643*** (0.241)
log Ex.GDP per capita	0.889* (0.534)	0.537 (0.756)	1.094 (0.712)	-0.824*** (0.111)	-1.380*** (0.203)	-1.243*** (0.25)
log Im.inflation rate	0.624 (0.562)	0.299 (0.629)	0.316 (0.565)	0.189* (0.112)	-0.770** (0.313)	-1.108** (0.56)
log Ex.inflation rate	1.177** (0.539)	1.060* (0.603)	1.242** (0.556)	-0.157 (0.098)	-0.104 (0.343)	0.502 (0.525)
log Im.exchange rate	-0.076 (0.113)	-0.04 (0.142)	-0.002 (0.121)	0.077** (0.035)	0.184* (0.094)	0.339* (0.177)
log Ex.exchange rate	0.201 (0.152)	0.215 (0.163)	0.113 (0.146)	-0.004 (0.033)	-0.052 (0.103)	-0.251 (0.168)
Importer VAT rate	-0.004 (0.008)	-0.029** (0.014)	-0.02 (0.013)	0.005 (0.004)	0.003 (0.007)	0.004 (0.009)
Exporter VAT rate	-0.015 (0.009)	-0.022 (0.016)	-0.012 (0.014)	-0.011*** (0.004)	-0.001 (0.008)	-0.012 (0.009)
Importer tariff rate				-0.005** (0.002)	0.003 (0.004)	0.005 (0.006)
Exporter tariff rate				-0.011*** (0.002)	-0.013*** (0.004)	-0.010* (0.005)
Importer corruption control				-0.063** (0.03)	-0.103* (0.056)	-0.141* (0.075)
Exporter corruption control				0.121*** (0.029)	0.155*** (0.059)	0.166** (0.071)
Im.Rule of Law				0.070* (0.036)	0.162** (0.077)	0.224** (0.114)
Ex.Rule of Law				-0.107*** (0.033)	-0.127 (0.081)	-0.249** (0.104)
Im.GATT/WTO Member				-0.158*** (0.04)	-0.419** (0.163)	-0.548** (0.248)
Ex.GATT/WTO Member				-0.019 (0.036)	0.066 (0.178)	0.269 (0.232)
Number of observations	716	716	670	36,626	13,318	10,944
R ²	0.060			0.013		
F-stat (first stage)		13.05	26.45		16.34	17.24

Source: IMF staff calculations.

Note: Robust standard errors in parentheses, *, **, *** denote statistical significance at the 10, 5, and 1 percent levels, respectively. Controls include country fixed effects, year fixed effects, and time trends (linear and quadratic) omitted for reasons of parsimony. "Im." refers to importer and "Ex." refers to exporter. TSLs-1 and TSLs-2 use as instrumental variables R&D in percent of GDP and the logarithm of patents over R&D intensity, respectively. EU = European Union; GATT/WTO = General Agreement on Tariffs and Trade/World Trade Organization; OLS = ordinary least squares; R&D = research and development; TSLs = two-stage least squares; VAT = value-added tax.

Annex Table 2.2.4. Median Revenue Gains per Country Group from Closing Half the Distance to the Digitalization Frontier, 2016
(Percent of GDP)

	VAT Revenue Gains	Tariff Revenue Gains
Advanced Economies	(0.7 – 1.0)	(0.04 – 0.06)
Emerging Market Economies	(0.7 – 1.0)	(0.2 – 0.3)
Low-Income Developing Countries	(1.2 – 1.7)	(0.4 – 0.5)
EU-28	(0.3 – 0.5)	

Source: IMF staff calculations.

Note: Latest available VAT rates were used to compute the revenue gains. EU-28 = European Union group of 28 countries (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Ireland, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Sweden, Spain, United Kingdom); VAT = value-added tax.

digitalization index can attain is one. The revenue gains reported in the main text correspond to equation (2.2.3) applying the latest country-specific VAT and weighted tariff rates, along with the average trade flow ($V_{Total}^m - V_{Total}^x$) reported in 2016, and assuming $\beta_{digit}^m = 1.181$ or 1.733.

The results are reported in Annex Table 2.2.4.

Annex 2.3. Estimating the Distribution of Tax Revenue Collection from Offshore Income and Wealth following Improved Cross-Country Information Exchange

Estimating Potential Tax Revenues from Low-Tax Jurisdictions

Recent studies of offshore income and wealth tax evasion (for example, Zucman 2013, 2015; Alstadsaeter, Johannesen, and Zucman 2017) have relied on either cross-border portfolio securities data from national banks or anomalies in global investment statistics to estimate the value of assets held by individuals in low-tax jurisdictions. These estimates provide an upper bound on the potential tax revenue gain from taxing offshore asset holdings, under perfect enforcement and 100 percent effective tax rates.⁷⁰ The analysis presented in this chapter estimates the size of potential revenue gains from income and wealth sheltered in low-tax jurisdictions as follows:

⁷⁰Implicitly, these estimates also assume none of the estimated wealth and dividend income is being declared to the proper tax authorities. Furthermore, the estimates exclude potential revenue from taxation of interest payments and capital gains—the direction of the bias introduced by such assumptions on the figures above is unclear ex ante (because it depends, for example, on whether the average interest rate applicable to the share of assets held as debt securities is higher or lower than the assumed rate of return on equity). The estimates are a first approximation of potential revenue and do not account for all specific characteristics of domestic tax systems, such as thresholds for wealth taxes, whenever applicable.

Estimating the potential tax base and revenue gains.

The potential tax base lying offshore is estimated by country. Zucman (2015) constructs such explicit estimates for 14 countries using Swiss National Bank data, and shows only aggregate regional estimates for Gulf countries, Africa, Latin America, and Asia. In this chapter country-by-country estimates of potential revenue are estimated as follows:

$$R_{it}^p = \tau_{it}^{ef} \times \text{Country Share}_{it} \times \text{Global Offshore Wealth}_t \quad (1)$$

where

R_{it}^p represents potential revenue for country i at year t ,

$$\tau_{it}^{ef} = \tau_{it}^{div} \times r(\text{nominal}) + \tau_{it}^{inh} \times m + \tau_{it}^w \quad (2)$$

where $r(\text{nominal})$ is a nominal rate of return on offshore assets (set at 8 percent based on 10-year returns on Vanguard diversified funds as in Zucman (2015), and m represents the mortality rate (the so-called economic flow of inheritance) of offshore account holders (set at 3 percent as Zucman (2015) and constant across countries).⁷¹ Moreover, τ_{it}^{div} stands for the country's standard dividend income tax rate, τ_{it}^{inh} the standard estate or inheritance tax rate, and τ_{it}^w the country's wealth tax rate, if any. Tax rates are taken from the International Bureau of Fiscal Documentation's Country Key Features Comparison Table.

- $\text{Country Share}_{it}$ is country i 's share of Bank for International Settlements (BIS) deposits in offshore financial centers (from the locational banking statistics database) at time t .⁷² This share approximates

⁷¹See tables and figures included here: <http://gabriel-zucman.eu/hidden-wealth/>. Underlying assumptions are explained in the footnote of Table Data-Fig4_Tabl.

⁷²These data provide bilateral cross-border deposits by nonbank nonfinancial counterparties for more than 200 saving countries in 20 offshore financial centers that have been taken to approximate

Annex Table 2.3.1. Median Offshore Wealth and Revenue Potential, 2016
(Percent of GDP)

	Advanced Economies	Emerging Market Economies	Low Income Developing Countries	Full Sample
Offshore Wealth	11.48	12.42	6.49	10.29
Revenue Potential	0.24	0.13	0.07	0.13
Number of Countries	34	83	61	178

Sources: Bank for International Settlements; Zucman 2015; and IMF staff estimates.

Note: The number of observations corresponds to the sample with available data for offshore wealth; the samples used in estimating revenue potential are smaller because of data constraints.

the share of total savings by residents of country i at year t in low-tax jurisdictions. These data have been more recently used by Alstadsaeter, Johannesen, and Zucman (2017) to estimate several large countries' offshore wealth.⁷³ The resulting median shares by income country group are robust to the inclusion and exclusion of individual low-tax jurisdictions from the sample. However, this distribution is sensitive to using a country's share of bank deposits as a proxy for its share of financial wealth (*Country Share_{it}*). An alternative is to use data on portfolio securities. Using the Coordinated Portfolio Investment Survey's share of portfolio investment assets issued by offshore financial centers and held by residents of several of the countries with the largest BIS deposit shares across income groups suggests the distribution presented here may slightly overestimate the financial wealth allocated to residents of emerging market economies and low-income developing countries, and may underestimate the share allocated to residents of advanced economies—with the only substantially significant difference being observed for one country. Note that although the distribution of wealth across countries varies, the results on median wealth and potential revenue estimates by income country group remain.

- *Global Offshore Wealth_t* is Zucman (2015)'s global offshore wealth estimate of \$7.6 trillion.

The results are reported in Annex Table 2.3.1.

low-tax jurisdictions. BIS data report only direct bilateral banking relationships, so a country with a resident "depositor" is not necessarily the country of residence of the ultimate beneficiary. In addition, because BIS deposit data excludes portfolio securities holdings, the allocation described implicitly assumes the cross-country distribution of overall financial wealth mirrors that of banking deposits reported to the BIS.

⁷³<https://gabriel-zucman.eu/files/AJZ2017b.pdf>.

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COUNTRY ABBREVIATIONS

Code	Country name	Code	Country name
AFG	Afghanistan	DOM	Dominican Republic
AGO	Angola	DZA	Algeria
ALB	Albania	ECU	Ecuador
ARE	United Arab Emirates	EGY	Egypt
ARG	Argentina	ERI	Eritrea
ARM	Armenia	ESP	Spain
ATG	Antigua and Barbuda	EST	Estonia
AUS	Australia	ETH	Ethiopia
AUT	Austria	FIN	Finland
AZE	Azerbaijan	FJI	Fiji
BDI	Burundi	FRA	France
BEL	Belgium	FSM	Micronesia, Federated States of
BEN	Benin	GAB	Gabon
BFA	Burkina Faso	GBR	United Kingdom
BGD	Bangladesh	GEO	Georgia
BGR	Bulgaria	GHA	Ghana
BHR	Bahrain	GIN	Guinea
BHS	Bahamas, The	GMB	Gambia, The
BIH	Bosnia and Herzegovina	GNB	Guinea-Bissau
BLR	Belarus	GNQ	Equatorial Guinea
BLZ	Belize	GRC	Greece
BOL	Bolivia	GRD	Grenada
BRA	Brazil	GTM	Guatemala
BRB	Barbados	GUY	Guyana
BRN	Brunei Darussalam	HKG	Hong Kong SAR
BTN	Bhutan	HND	Honduras
BWA	Botswana	HRV	Croatia
CAF	Central African Republic	HTI	Haiti
CAN	Canada	HUN	Hungary
CHE	Switzerland	IDN	Indonesia
CHL	Chile	IND	India
CHN	China	IRL	Ireland
CIV	Côte d'Ivoire	IRN	Iran
CMR	Cameroon	IRQ	Iraq
COD	Congo, Democratic Republic of the	ISL	Iceland
COG	Congo, Republic of	ISR	Israel
COL	Colombia	ITA	Italy
COM	Comoros	JAM	Jamaica
CPV	Cabo Verde	JOR	Jordan
CRI	Costa Rica	JPN	Japan
CYP	Cyprus	KAZ	Kazakhstan
CZE	Czech Republic	KEN	Kenya
DEU	Germany	KGZ	Kyrgyz Republic
DJI	Djibouti	KHM	Cambodia
DMA	Dominica	KIR	Kiribati
DNK	Denmark	KNA	St. Kitts and Nevis

Code	Country name	Code	Country name
KOR	Korea	ROU	Romania
KWT	Kuwait	RUS	Russia
LAO	Lao P.D.R.	RWA	Rwanda
LBN	Lebanon	SAU	Saudi Arabia
LBR	Liberia	SDN	Sudan
LBY	Libya	SEN	Senegal
LCA	St. Lucia	SGP	Singapore
LKA	Sri Lanka	SLB	Solomon Islands
LSO	Lesotho	SLE	Sierra Leone
LTU	Lithuania	SLV	El Salvador
LUX	Luxembourg	SMR	San Marino
LVA	Latvia	SOM	Somalia
MAR	Morocco	SRB	Serbia
MDA	Moldova	STP	São Tomé and Príncipe
MDG	Madagascar	SUR	Suriname
MDV	Maldives	SVK	Slovak Republic
MEX	Mexico	SVN	Slovenia
MHL	Marshall Islands	SWE	Sweden
MKD	Macedonia, former Yugoslav Republic of	SWZ	Swaziland
MLI	Mali	SYC	Seychelles
MLT	Malta	SYR	Syria
MMR	Myanmar	TCD	Chad
MNE	Montenegro	TGO	Togo
MNG	Mongolia	THA	Thailand
MOZ	Mozambique	TJK	Tajikistan
MRT	Mauritania	TKM	Turkmenistan
MUS	Mauritius	TLS	Timor-Leste
MWI	Malawi	TON	Tonga
MYS	Malaysia	TTO	Trinidad and Tobago
NAM	Namibia	TUN	Tunisia
NER	Niger	TUR	Turkey
NGA	Nigeria	TUV	Tuvalu
NIC	Nicaragua	TWN	Taiwan Province of China
NLD	Netherlands, The	TZA	Tanzania
NOR	Norway	UGA	Uganda
NPL	Nepal	UKR	Ukraine
NZL	New Zealand	URY	Uruguay
OMN	Oman	USA	United States
PAK	Pakistan	UZB	Uzbekistan
PAN	Panama	VCT	St. Vincent and the Grenadines
PER	Peru	VEN	Venezuela
PHL	Philippines	VNM	Vietnam
PLW	Palau	VUT	Vanuatu
PNG	Papua New Guinea	WSM	Samoa
POL	Poland	YEM	Yemen
PRT	Portugal	ZAF	South Africa
PRY	Paraguay	ZMB	Zambia
QAT	Qatar	ZWE	Zimbabwe

GLOSSARY

Automatic stabilizers Revenue and some expenditure items that adjust automatically to cyclical changes in the economy—for example, as output falls, revenue collections decline and unemployment benefits increase, which “automatically” provides demand support.

Contingent liabilities Obligations that are not explicitly recorded on government balance sheets and that arise only in the event of a particular discrete situation, such as a crisis.

Countercyclical fiscal policy Active changes in expenditure and tax policies to smooth the economic cycle (by contrast with the operation of automatic stabilizers); for instance, by cutting taxes or raising expenditures during an economic downturn.

Coverage of public benefits Share of individuals or households of a particular socioeconomic group who receive a public benefit.

Cyclically adjusted balance (CAB) Difference between the overall balance and the automatic stabilizers; equivalently, an estimate of the fiscal balance that would apply under current policies if output were equal to potential.

Cyclically adjusted primary balance (CAPB) Cyclically adjusted balance excluding net interest payments (interest expenditure minus interest revenue).

Fiscal buffer Fiscal space created by saving budgetary resources and reducing public debt in good times.

Fiscal multiplier Measures the short-term impact of discretionary fiscal policy on output. Usually defined as the ratio of a change in output to an exogenous change in the fiscal deficit with respect to their respective baselines.

Fiscal space The room to raise spending or lower taxes relative to a preexisting baseline, without endangering market access and debt sustainability.

Fiscal stabilization Contribution of fiscal policy to output stability through its impact on aggregate demand.

Fiscal stabilization coefficient (FISCO) FISCO measures how much a country’s overall budget balance changes in response to a change in economic slack (as measured by the output gap). If FISCO is equal to 1, it means that when output falls below potential by 1 percent of GDP, the overall balance worsens by the same percentage of GDP. The higher the FISCO, the more countercyclical the conduct of fiscal policy. Technical details on FISCO estimation are in Annex 2.1 of the April 2015 *Fiscal Monitor* and Furceri and Jalles (2018).

General government All government units and all nonmarket, nonprofit institutions that are controlled and mainly financed by government units comprising the central, state, and local governments; includes social security funds and does not include public corporations or quasicorporations.

Gini index Measures the extent to which the distribution of income among individuals or households within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 1 implies perfect inequality.

Gross debt All liabilities that require future payment of interest and/or principal by the debtor to the creditor. This includes debt liabilities in the form of special drawing rights, currency, and deposits; debt securities; loans; insurance, pension, and standardized guarantee programs; and other accounts payable. (See the IMF’s 2001 *Government Finance Statistics Manual* and *Public Sector Debt Statistics Manual*.) The term “public debt” is used in the *Fiscal Monitor*, for simplicity, as synonymous with gross debt of the general government, unless specified otherwise. (Strictly speaking, public debt refers to the debt of the public sector as a whole, which includes financial and nonfinancial public enterprises and the central bank.)

Income insurance Publicly provided income-support mechanisms and individual schemes to insure oneself against negative income shocks.

Leakage in public income-support programs Individuals who receive public income-support programs for which they are not eligible.

Net debt Gross debt minus financial assets corresponding to debt instruments. These financial assets are monetary gold and special drawing rights; currency and deposits; debt securities; loans, insurance, pensions, and standardized guarantee programs; and other accounts receivable. In some countries, the reported net debt can deviate from this definition based on available information and national fiscal accounting practices.

Nonfinancial public sector General government plus nonfinancial public corporations.

Output gap Deviation of actual from potential GDP, in percent of potential GDP.

Overall fiscal balance (also “headline” fiscal balance) Net lending and borrowing, defined as the difference between revenue and total expenditure, using the IMF’s 2001 *Government Finance Statistics Manual* (GFSM 2001). Does not include policy lending. For some countries, the overall balance is still based on the GFSM 1986, which defines it as total revenue and grants minus total expenditure and net lending.

Permanent establishment A fixed place of business where the business of an enterprise is wholly or partly carried out.

Potential output Estimate of the level of GDP that can be reached if the economy’s resources are fully employed.

Primary balance Overall balance excluding net interest payment (interest expenditure minus interest revenue).

Procyclical fiscal policy Fiscal policy is said to be “procyclical” when it amplifies the economic cycle, for instance by raising taxes or cutting expenditures during an economic downturn.

Progressive (or regressive) taxes Taxes that feature an average tax rate that rises (or falls) with income.

Public debt See *gross debt*.

Structural fiscal balance Extension of the cyclically adjusted balance that also corrects for other nonrecurrent effects that go beyond the cycle, such as one-off operations and other factors whose cyclical fluctuations do not coincide with the output cycle (for instance, asset and commodity prices and output composition effects).

Take-up of public income-support programs Eligible population of individuals who receive public income-support programs.

METHODOLOGICAL AND STATISTICAL APPENDIX

This appendix comprises four sections. “Data and Conventions” provides a general description of the data and conventions used to calculate economy group composites. “Fiscal Policy Assumptions” summarizes the country-specific assumptions underlying the estimates and projections for 2018–19 and the medium-term scenario for 2020–23. “Definition and Coverage of Fiscal Data” summarizes the classification of countries in the various groups presented in the *Fiscal Monitor* and provides details on the coverage and accounting practices underlying each country’s *Fiscal Monitor* data. Statistical tables on key fiscal variables complete the appendix. Data in these tables have been compiled on the basis of information available through April 2, 2018.

Data and Conventions

Country-specific data and projections for key fiscal variables are based on the April 2018 World Economic Outlook (WEO) database, unless indicated otherwise, and compiled by the IMF staff. Historical data and projections are based on information gathered by IMF country desk officers in the context of their missions and through their ongoing analysis of the evolving situation in each country; they are updated on a continual basis as more information becomes available. Structural breaks in data may be adjusted to produce smooth series through splicing and other techniques. IMF staff estimates serve as proxies when complete information is unavailable. As a result, *Fiscal Monitor* data can differ from official data in other sources, including the IMF’s *International Financial Statistics*.

Sources for fiscal data and projections not covered by the WEO database are listed in the respective tables and figures.

The country classification in the *Fiscal Monitor* divides the world into three major groups: 35 advanced economies, 40 emerging market and middle-income economies, and 40 low-income developing countries. The seven largest advanced economies as measured by GDP (Canada, France, Germany, Italy, Japan, United Kingdom, United States) constitute the subgroup of major advanced economies, often referred to as the Group of Seven (G7). The members of the euro area are

also distinguished as a subgroup. Composite data shown in the tables for the euro area cover the current members for all years, even though membership has increased over time. Data for most European Union (EU) member countries have been revised after the new European System of National and Regional Accounts (ESA 2010) was adopted. Low-income developing countries are those that have per capita income levels below a certain threshold (currently set at \$2,700 in 2016 as measured by the World Bank’s Atlas method), structural features consistent with limited development and structural transformation, and external financial linkages insufficiently close to be widely seen as emerging market economies. Zimbabwe is included in the group. Emerging market and middle-income economies include those that are not classified as advanced economies or low-income developing countries. See Table A, “Economy Groupings,” for more details.

Most fiscal data refer to the general government for advanced economies; for emerging markets and developing economies, data often refer only to the central government or budgetary central government (for specific details, see Tables B–D). All fiscal data refer to calendar years, except in the cases of Bangladesh, Egypt, Ethiopia, Haiti, Hong Kong Special Administrative Region, India, the Islamic Republic of Iran, Myanmar, Nepal, Pakistan, Singapore, and Thailand, for which they refer to the fiscal year.

Composite data for country groups are weighted averages of individual-country data, unless specified otherwise. Data are weighted by annual nominal GDP converted to US dollars at average market exchange rates as a share of the group GDP.

For the purpose of data reporting in the *Fiscal Monitor*, the Group of Twenty (G20) member aggregate refers to the 19 country members and does not include the European Union.

In many countries, fiscal data follow the IMF’s 2001 *Government Finance Statistics Manual* (GFSM 2001). The overall fiscal balance refers to net lending (+) and borrowing (–) of the general government. In some cases, however, the overall balance refers to total revenue and grants minus total expenditure and net lending.

The fiscal gross and net debt data reported in the Fiscal Monitor are drawn from official data sources and IMF staff estimates. While attempts are made to align gross and net debt data with the definitions in the IMF's *Government Finance Statistics Manual*, as a result of data limitations or specific country circumstances, these data can sometimes deviate from the formal definitions. Although every effort is made to ensure the debt data are relevant and internationally comparable, differences in both sectoral and instrument coverage mean that the data are not universally comparable. As more information becomes available, changes in either data sources or instrument coverage can give rise to data revisions that can sometimes be substantial.

The term "country" as used in the *Fiscal Monitor* does not in all cases refer to a territorial entity that is a state as understood by international law and practice. As used here, the term also covers some territorial entities that are not states but whose statistical data are maintained separately and independently.

Argentina: Total expenditure and the overall balance account for cash interest only. The primary balance excludes profit transfers from the central bank of Argentina. Interest expenditure is net of interest income from the social security administration. For GDP and consumer price index (CPI) data, see the "Country Notes" section in the Statistical Appendix of the April 2018 WEO.

Australia: 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 (2008 SNA) (Canada, Hong Kong Special Administrative Region, United States) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans.

Bangladesh: Data are on a fiscal year basis.

Brazil: General government data refer to the nonfinancial public sector—which includes the federal, state, and local governments, as well as public enterprises (excluding Petrobras and Eletrobras)—and are consolidated with those for the sovereign wealth fund. Revenue and expenditures of federal public enterprises are added in full to the respective aggregates. Transfers and withdrawals from the sovereign wealth fund do not affect the primary balance. Disaggregated data on gross interest payments and interest receipts are available from 2003 only. Before 2003, total revenue of the general government

excludes interest receipts; total expenditure of the general government includes net interest payments. Gross public debt includes the Treasury bills on the central bank's balance sheet, including those not used under repurchase agreements. Net public debt consolidates general government and central bank debt. The national definition of nonfinancial public sector gross debt excludes government securities held by the central bank, except the stock of Treasury securities used for monetary policy purposes by the central bank (those pledged as security reverse repurchase agreement operations). According to this national definition, gross debt amounted to 74.0 percent of GDP at the end of 2017.

Canada: For cross-country comparability, gross and net debt levels reported by national statistical agencies for countries that have adopted the 2008 SNA (Australia, Hong Kong Special Administrative Region, United States) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans.

Chile: Cyclically adjusted balances include adjustments for commodity price developments.

China: Public debt data include central government debt as reported by the Ministry of Finance, explicit local government debt, and shares—less than 19 percent, according to the National Audit Office estimate—of contingent liabilities the government may incur. IMF staff estimates exclude central government debt issued for the China Railway Corporation. Relative to the authorities' definition, consolidated general government net borrowing includes (1) transfers to and from stabilization funds, (2) state-administered state-owned enterprise funds and social security contributions and expenses, and (3) off-budget spending by local governments. Deficit numbers do not include some expenditure items, mostly infrastructure investment financed off budget through land sales and local government financing vehicles. Fiscal balances are not consistent with reported debt because no time series of data in line with the National Audit Office debt definition is published officially.

Colombia: Gross public debt refers to the combined public sector, including Ecopetrol and excluding Banco de la República's outstanding external debt.

Egypt: Data are on a fiscal year basis.

Greece: General government gross debt includes short-term debt and loans of state-owned enterprises.

Haiti: Data are on a fiscal year basis.

Hong Kong Special Administrative Region: Data are on a fiscal year basis. Cyclically adjusted balances include adjustments for land revenue and investment income. For cross-country comparability, gross and net debt levels reported by national statistical agencies for countries that have adopted the 2008 SNA (Australia, Canada, United States) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans.

India: Data are on a fiscal year basis.

Ireland: General government balances between 2009 and 2012 reflect the impact of banking sector support. Fiscal balance estimates excluding these measures are –11.4 percent of GDP for 2009, –10.9 percent of GDP for 2010, –8.6 percent of GDP for 2011, and –7.9 percent of GDP for 2012. For 2015, if the conversion of government's remaining preference shares to ordinary shares in one bank were excluded, the fiscal balance would be –1.1 percent of GDP. Cyclically adjusted balances reported in Tables A3 and A4 exclude financial sector support measures. Ireland's 2015 national accounts were revised as a result of restructuring and relocation of multinational companies, which resulted in a level shift of nominal and real GDP. For more information, see "National Income and Expenditure Annual Results 2015," at <http://www.cso.ie/en/releasesandpublications/er/nie/nationalincomeandexpenditureannualresults2015/>.

Japan: Gross debt is on an unconsolidated basis.

Latvia: The fiscal deficit includes bank restructuring costs and thus is higher than the deficit in official statistics.

Mexico: General government refers to the central government, social security, public enterprises, development banks, the national insurance corporation, and the National Infrastructure Fund, but excludes subnational governments.

Norway: Cyclically adjusted balances correspond to the cyclically adjusted non-oil overall or primary balance. These variables are in percent of non-oil potential GDP.

Pakistan: Data are on a fiscal year basis.

Peru: Cyclically adjusted balances include adjustments for commodity price developments.

Singapore: Data are on a fiscal year basis. Historical fiscal data have been revised to reflect the migration to GFSM 2001, which entailed some classification changes.

Spain: Overall and primary balances include financial sector support measures estimated to be –0.1 percent of GDP for 2010, 0.3 percent of GDP for 2011, 3.7 percent of GDP for 2012, 0.3 percent of GDP for 2013, 0.1 percent of GDP for 2014, 0.1 percent of GDP for 2015, 0.2 percent of GDP for 2016, 0.1 percent of GDP for 2017, and 0.0 percent of GDP for 2018.

Sweden: Cyclically adjusted balances take into account output and employment gaps.

Switzerland: Data submissions at the cantonal and commune level are received with a long and variable lag and are subject to sizable revisions. Cyclically adjusted balances include adjustments for extraordinary operations related to the banking sector.

Thailand: Data are on a fiscal year basis.

Turkey: Information on the general government balance, primary balance, and cyclically adjusted primary balance differs from that in the authorities' official statistics or country reports, which include net lending and privatization receipts.

United States: Cyclically adjusted balances exclude financial sector support estimated at 2.4 percent of potential GDP for 2009, 0.3 percent of potential GDP for 2010, 0.2 percent of potential GDP for 2011, 0.1 percent of potential GDP for 2012, and 0.0 percent of potential GDP for 2013. 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 expenditure under the 2008 SNA adopted by the United States, but this is not true for countries that have not yet adopted the 2008 SNA. Data for the United States may thus differ from data published by the US Bureau of Economic Analysis (BEA). In addition, gross and net debt levels reported by the BEA and national statistical agencies for other countries that have adopted the 2008 SNA (Australia, Canada, Hong Kong Special Administrative Region) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans.

Uruguay: 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. In particular, Uruguay is one of the few countries in the sample for which public debt includes the debt of the

central bank, which increases recorded public sector gross debt.

Venezuela: Fiscal accounts for 2010–23 correspond to the budgetary central government and Petr6leos de Venezuela S.A. (PDVSA). Fiscal accounts before 2010 correspond to the budgetary central government, public enterprises (including PDVSA), Instituto Venezolano de los Seguros Sociales (IVSS—social security), and Fondo de Garantía de Dep6sitos y Protecci6n Bancaria (FOGADE—deposit insurance).

Fiscal Policy Assumptions

Historical data and projections of key fiscal aggregates are in line with those of the April 2018 WEO, unless noted otherwise. For underlying assumptions other than on fiscal policy, see the April 2018 WEO.

Short-term fiscal policy assumptions are based on officially announced budgets, adjusted for differences between the national authorities and the IMF staff regarding macroeconomic assumptions and projected fiscal outturns. Medium-term fiscal projections incorporate policy measures that are judged likely to be implemented. When the IMF staff has insufficient information to assess the authorities' budget intentions and prospects for policy implementation, an unchanged structural primary balance is assumed, unless indicated otherwise.

Argentina: Fiscal projections are based on the available information regarding budget outturn and budget plans for the federal and provincial governments, fiscal measures announced by the authorities, and on IMF staff macroeconomic projections.

Australia: Fiscal projections are based on Australian Bureau of Statistics data, the fiscal year 2017/18 budgets of the Commonwealth and States and Territories; the Commonwealth's 2017 Mid-Year Economic and Fiscal Outlook and Updates by States and Territories; and the IMF staff's estimates.

Austria: Fiscal projections are based on data from Statistics Austria, the authorities' projections, and IMF staff estimates and projections.

Belgium: Projections are based on the 2017–20 Stability Programme and other available information on the authorities' fiscal plans, with adjustments for the IMF staff's assumptions.

Brazil: Fiscal projections for the end of 2018 take into account budget performance through January, 2018, and the deficit target approved in the budget law.

Cambodia: Historical fiscal and monetary data are from the Cambodian authorities. Projections are based on the IMF staff's assumptions after discussions with the authorities.

Canada: Projections use the baseline forecasts in the 2018 federal budget and the latest provincial budget updates as available. The IMF staff makes some adjustments to these forecasts, including for differences in macroeconomic projections. The IMF staff's forecast also incorporates the most recent data releases from Statistics Canada's Canadian System of National Economic Accounts, including federal, provincial, and territorial budgetary outturns through the fourth quarter of 2017.

Chile: Projections are based on the authorities' budget projections, adjusted to reflect the IMF staff's projections for GDP and copper prices.

China: Projections assume that the pace of fiscal consolidation is likely to be gradual, reflecting reforms to strengthen social safety nets and the social security system announced as part of the Third Plenum reform agenda.

Croatia: Projections are based on the macroeconomic framework and the authorities' medium-term fiscal guidelines.

Cyprus: Projections are on accrual basis based on the IMF staff's assessment of budget and fiscal measures and on the IMF staff's macroeconomic assumptions.

Czech Republic: Projections are based on the authorities' budget forecast for 2017 with adjustments for the IMF staff's macroeconomic projections. Projections for 2018 onward are based on the country's Convergence Programme.

Denmark: Estimates for 2016 are aligned with the latest official budget estimates and the underlying economic projections, adjusted where appropriate for the IMF staff's macroeconomic assumptions. For 2017–18, the projections incorporate key features of the medium-term fiscal plan as embodied in the authorities' 2017 Convergence Programme submitted to the European Union and 2018 budget.

Estonia: Fiscal projections are on an accrual basis and are based on the authorities' 2017 budget.

Finland: Projections are based on the authorities' announced policies, adjusted for the IMF staff's macroeconomic scenario.

France: Projections for 2017 reflect the budget law and cancelation of spending taken in July 2017. For 2018–22, they are based on the multiyear budget and

the 2018 budget adjusted for differences in assumptions on macro and financial variables, and revenue projections. Historical fiscal data reflect the May and September 2017 revisions and update of the fiscal accounts, debt data, and national accounts for 2014 and 2015.

Germany: The IMF staff's projections for 2017 and beyond are based on the 2018 Draft Budgetary Plan, adjusted for the differences in the IMF staff's macroeconomic framework and assumptions concerning revenue elasticities. The estimate of gross debt includes portfolios of impaired assets and noncore business transferred to institutions that are winding up, as well as other financial sector and EU support operations.

Greece: Greece's primary balance estimates for 2016 are based on preliminary excessive deficit procedure (EDP) data on an accrual basis (ESA 2010) provided by the National Statistical Service (ELSTAT) as of October 23, 2017. Fiscal data since 2010 are adjusted in line with program definition.

Hong Kong Special Administrative Region: Projections are based on the authorities' medium-term fiscal projections on expenditure.

Hungary: Fiscal projections include IMF staff projections of the macroeconomic framework and of the impact of recent legislative measures, as well as fiscal policy plans announced in the 2019 budget.

India: Historical data are based on budgetary execution data. Projections are based on available information on the authorities' fiscal plans, with adjustments for IMF staff assumptions. Subnational data are incorporated with a lag of up to two years; general government data are thus finalized well after central government data. IMF and Indian presentations differ, particularly regarding divestment and license auction proceeds, net versus gross recording of revenues in certain minor categories, and some public sector lending.

Indonesia: IMF projections are based on moderate tax policy and administration reforms, fuel subsidy pricing reforms introduced in January 2015, and a gradual increase in social and capital spending over the medium term in line with fiscal space.

Ireland: Fiscal projections are based on the country's Budget 2018.

Israel: Historical data are based on Government Finance Statistics data prepared by the Central Bureau of Statistics. The central government deficit is assumed

to remain at the current ceiling level of 2.9 percent of GDP throughout the projection period, rather than declining in line with medium-term fiscal targets, consistent with long experience of revisions to those targets.

Italy: IMF staff estimates and projections are based on the fiscal plans included in the government's 2018 draft budget plan and September 2017 Update to the Economic and Financial Document.

Japan: The projections include fiscal measures already announced by the government, including the consumption tax hike in October 2019.

Kazakhstan: Fiscal projections are based on the Budget Code and IMF staff projections.

Korea: The medium-term forecast incorporates the government's announced medium-term consolidation path. The series on general government debt does not include nonmarket nonprofit institutions.

Libya: Against the background of a civil war and weak capacities, the reliability of Libya's data, especially medium-term projections, is low.

Malaysia: Projections are based on data provided by the Ministry of Finance for the 2018 Article IV Consultation.

Malta: Projections are based on the authorities' latest Stability Programme Update and budget documents, adjusted for the IMF staff's macroeconomic and other assumptions.

Mexico: Fiscal projections for 2018 are broadly in line with the approved budget; projections for 2019 onward assume compliance with rules established in the Fiscal Responsibility Law.

Moldova: Fiscal projections are based on various bases and growth rates for GDP, consumption, imports, wages, and energy prices and on demographic changes.

Myanmar: Fiscal projections are based on budget numbers, discussions with the authorities, and IMF staff adjustments.

Netherlands: Fiscal projections for the period 2017–23 are based on the authorities' Bureau for Economic Policy Analysis budget projections, after differences in macroeconomic assumptions are adjusted for. Historical data were revised after the Central Bureau of Statistics released revised macro data in June 2014 after adopting the ESA 2010 and revising data sources.

New Zealand: Fiscal projections are based on the authorities' fiscal year 2017/18 budget and half-

year economic and fiscal update, and on IMF staff estimates.

Norway: Fiscal projections are based on the latest 2018 revised budget.

Philippines: Fiscal projections assume that the authorities' fiscal deficit target for the national government will be achieved in 2018 and beyond. Revenue projections reflect the IMF staff's macroeconomic assumptions and incorporate anticipated revenue-enhancing tax reforms. Expenditure projections are based on budgeted figures, institutional arrangements, current data, and fiscal space in each year.

Poland: Data are based on ESA 2010 beginning in 2010. Data before 2010 are based on ESA 95. Projections are based on the 2016 budget and take into account the effects of the 2014 pension changes.

Portugal: Projections for the current year are based on the authorities' approved budget, adjusted to reflect the IMF staff's macroeconomic forecast. Projections thereafter are based on the assumption of unchanged policies.

Romania: Fiscal projections for 2018 reflect the adopted budget measures as of February 2018 (including the increases in wages and pensions, and changes to labor taxation). Projections for 2019 reflect the full effect of the 2018 budget measures and the impact of the unified wage law. Apart from the impact of the unified wage law which will be gradually implemented until 2022, no additional policy changes are assumed beyond 2019.

Russia: Projections for 2018-2020 are IMF staff estimates based on the authorities' budget. Projections for 2021-23 are based on the new oil-price rule, with adjustments by IMF staff.

Saudi Arabia: Staff baseline projections of total government revenues reflect the impact of announced policies in the 2018 Budget. Oil revenues are based on WEO baseline oil prices and the assumption that Saudi Arabia continues to meet its commitments under the OPEC+ agreement. Expenditure projections take the 2018 budget as a starting point and reflect IMF staff estimates of the effects of the latest changes in policies and economic developments. Expenditures in 2018 include the allowances and other measures announced in the Royal Decree for one year in January 2018.

Singapore: For fiscal years 2018/19, projections are based on budget numbers. For the remaining

projection period, the IMF staff assumes unchanged policies.

Slovak Republic: Projections for 2015 take into account developments in the first three quarters of the year and the authorities' new projections presented in the budget for 2016. Projections for 2016 consider the authorities' 2016 budget. Projections for 2017 and beyond reflect a no-policy-change scenario.

Spain: For 2017, fiscal data are IMF staff projections, reflecting the cash outturn through November. For 2018 and beyond, fiscal projections are based on the information specified in the government's 2018 Budgetary Plan, and on the IMF staff's macroeconomic projections.

Sri Lanka: Projections are based on the authorities' medium-term fiscal framework and the revenue measures proposed.

Sweden: Fiscal projections take into account the authorities' projections based on the 2018 Budget. The effect of cyclical developments on the fiscal accounts is calculated using the Organisation for Economic Co-operation and Development's 2005 elasticity to take into account output and employment gaps.

Switzerland: The projections assume that fiscal policy is adjusted as necessary to keep fiscal balances in line with the requirements of the country's fiscal rules.

Thailand: For the projection period, the IMF staff assumes a relatively modest and temporary increase in public infrastructure investment, partly reflecting 50 percent implementation of planned infrastructure by SOEs and low implementation rates by the general government.

Turkey: The fiscal projections for 2018 are based on the authorities' Medium-Term Plan (MTP) 2018-20, with adjustments for additionally announced fiscal measures and staff's higher inflation forecast. For the medium term, the fiscal projections assume a more gradual fiscal consolidation than envisaged in the MTP.

United Kingdom: Fiscal projections are based on the country's November 2017 Budget and the March 2018 update, with expenditure projections based on the budgeted nominal values and with revenue projections adjusted for differences between the IMF staff's forecasts of macroeconomic variables (such as GDP growth and inflation) and the forecasts of these variables assumed in the authorities' fiscal projections. The IMF staff's data exclude public sector banks and the effect of transferring assets from the Royal Mail Pension Plan to the public sector in April 2012. Real

government consumption and investment are part of the real GDP path, which, according to the IMF staff, may or may not be the same as projected by the UK Office for Budget Responsibility.

United States: Fiscal projections are based on the June 2017 Congressional Budget Office baseline, adjusted for the IMF staff's policy and macroeconomic assumptions. Projections incorporate the effects of tax reform (Tax Cuts and Jobs Act, signed into law end of 2017) as well as the Bipartisan Budget Act of 2018 passed in February 2018. Finally, fiscal projections are adjusted to reflect the IMF staff's forecasts for key macroeconomic and financial variables and different accounting treatment of financial sector support and defined-benefit pension plans, and are converted to a general government basis. Data are compiled using SNA 2008, and when translated into government finance statistics, this is in accordance with GFSM 2014. Because of data limitations, most series begin in 2001.

Venezuela: Projecting the economic outlook in Venezuela, including assessing past and current economic developments as the basis for the projections, is complicated by the lack of discussions with the authorities (the last Article IV consultation took place in 2004), long intervals in receiving data with information gaps, incomplete provision of information, and difficulties in interpreting certain reported economic indicators given economic developments. The fiscal accounts include the budgetary central government and *Petróleos de Venezuela, S.A. (PDVSA)*, and data for 2016–23 are IMF staff estimates. Revenue includes the IMF staff's estimate of foreign exchange profits transferred from the central bank to the government (buying US dollars at the most appreciated rate and selling at more depreciated rates in a multitier exchange rate system) and excludes IMF staff's estimate of revenue from PDVSA's sale of PetroCaribe assets

to the central bank. The effects of hyperinflation and the noted data gaps mean that IMF staff's projected macroeconomic indicators need to be interpreted with caution. For example, nominal GDP is estimated assuming the GDP deflator rises in line with IMF staff's projection of average inflation. Public external debt in relation to GDP is projected using IMF staff's estimate of the average exchange rate for the year. Revenue includes the IMF staff's estimated foreign exchange profits transferred from the central bank to the government (buying US dollars at the most appreciated rate and selling at more depreciated rates in a multitier exchange rate system) and excludes the IMF staff's estimated revenue from PDVSA's sale of PetroCaribe assets to the central bank. The effects of hyperinflation and the noted data gaps mean that staff's projected macroeconomic indicators need to be interpreted with caution. For example, nominal GDP is estimated assuming the GDP deflator rising in line with the staff's projection of average inflation. Public external debt in relation to GDP is projected using the staff's estimate of the average exchange rate for the year.

Vietnam: Fiscal data for 2015–17 are the authorities' estimate. From 2018 onward, fiscal data are based on IMF staff projections.

Yemen: Hydrocarbon revenue projections are based on *World Economic Outlook* assumptions for oil and gas prices (the authorities use \$55 a barrel) and authorities' projections of production of oil and gas. Nonhydrocarbon revenues largely reflect authorities' projections, as do most of the expenditure categories, with the exception of fuel subsidies, which are projected based on the *World Economic Outlook* price consistent with revenues. Monetary projections are based on key macroeconomic assumptions about the growth rate of broad money, credit to the private sector, and deposit growth

Definition and Coverage of Fiscal Data

Table A. Economy Groupings

The following groupings of countries are used in the *Fiscal Monitor*.

Advanced Economies	Emerging Market and Middle-Income Economies	Low-Income Developing Countries	G7	G20 ¹	Advanced G20 ¹	Emerging G20
Australia	Algeria	Bangladesh	Canada	Argentina	Australia	Argentina
Austria	Angola	Benin	France	Australia	Canada	Brazil
Belgium	Argentina	Burkina Faso	Germany	Brazil	France	China
Canada	Azerbaijan	Cambodia	Italy	Canada	Germany	India
Cyprus	Belarus	Cameroon	Japan	China	Italy	Indonesia
Czech Republic	Brazil	Chad	United Kingdom	France	Japan	Mexico
Denmark	Chile	Democratic Republic of the Congo	United States	Germany	Korea	Russia
Estonia	China	Republic of Congo		India	United Kingdom	Saudi Arabia
Finland	Colombia	Côte d'Ivoire		Indonesia	United States	South Africa
France	Croatia	Ethiopia		Italy		Turkey
Germany	Dominican Republic	Ghana		Japan		
Greece	Ecuador	Guinea		Korea		
Hong Kong SAR	Egypt	Haiti		Mexico		
Iceland	Hungary	Honduras		Russia		
Ireland	India	Kyrgyz Republic		Saudi Arabia		
Israel	Indonesia	Lao P.D.R.		South Africa		
Italy	Iran	Madagascar		Turkey		
Japan	Kazakhstan	Mali		United Kingdom		
Korea	Kuwait	Moldova		United States		
Latvia	Libya	Mozambique				
Lithuania	Malaysia	Myanmar				
Luxembourg	Mexico	Nepal				
Malta	Morocco	Nicaragua				
Netherlands	Oman	Niger				
New Zealand	Pakistan	Nigeria				
Norway	Peru	Papua New Guinea				
Portugal	Philippines	Rwanda				
Singapore	Poland	Senegal				
Slovak Republic	Qatar	Somalia				
Slovenia	Romania	Sudan				
Spain	Russia	Tajikistan				
Sweden	Saudi Arabia	Tanzania				
Switzerland	South Africa	Timor-Leste				
United Kingdom	Sri Lanka	Uganda				
United States	Thailand	Uzbekistan				
	Turkey	Vietnam				
	Ukraine	Yemen				
	United Arab Emirates	Zambia				
	Uruguay	Zimbabwe				
	Venezuela					

Note: Emerging market and developing economies include emerging market and middle-income economies as well as low-income developing countries.

¹ Does not include EU aggregate.

Table A. (continued)

Euro Area	Emerging Market and Middle-Income Asia	Emerging Market and Middle-Income Europe	Emerging Market and Middle-Income Latin America	Emerging Market and Middle-Income Middle East and North Africa and Pakistan	Emerging Market and Middle-Income Africa
Austria	China	Azerbaijan	Argentina	Algeria	Angola
Belgium	India	Belarus	Brazil	Egypt	South Africa
Cyprus	Indonesia	Croatia	Chile	Iran	
Estonia	Malaysia	Hungary	Colombia	Kuwait	
Finland	Philippines	Kazakhstan	Dominican Republic	Libya	
France	Sri Lanka	Poland	Ecuador	Morocco	
Germany	Thailand	Romania	Mexico	Oman	
Greece		Russia	Peru	Pakistan	
Ireland		Turkey	Uruguay	Qatar	
Italy		Ukraine	Venezuela	Saudi Arabia	
Latvia				United Arab Emirates	
Lithuania					
Luxembourg					
Malta					
Netherlands					
Portugal					
Slovak Republic					
Slovenia					
Spain					
Low-Income Developing Asia	Low-Income Developing Latin America	Low-Income Developing Sub-Saharan Africa	Low-Income Developing Others	Low-Income Oil Producers	Oil Producers
Bangladesh	Haiti	Benin	Kyrgyz Republic	Cameroon	Algeria
Cambodia	Honduras	Burkina Faso	Moldova	Republic of Congo	Angola
Lao P.D.R.	Nicaragua	Cameroon	Somalia	Côte d'Ivoire	Azerbaijan
Myanmar		Chad	Sudan	Nigeria	Bahrain
Nepal		Democratic Republic of the Congo	Tajikistan	Papua New Guinea	Brunei Darussalam
Papua New Guinea		Republic of Congo	Uzbekistan	Timor-Leste	Cameroon
Timor-Leste		Côte d'Ivoire	Yemen	Yemen	Canada
Vietnam		Ethiopia			Colombia
		Ghana			Republic of Congo
		Guinea			Côte d'Ivoire
		Kenya			Ecuador
		Madagascar			Equatorial Guinea
		Mali			Gabon
		Mozambique			Indonesia
		Niger			Iran
		Nigeria			Iraq
		Rwanda			Kazakhstan
		Senegal			Kuwait
		Tanzania			Libya
		Uganda			Mexico
		Zambia			Nigeria
		Zimbabwe			Norway
					Oman
					Papua New Guinea
					Qatar
					Russia
					Saudi Arabia
					Syria
					Timor-Leste
					Trinidad and Tobago
					United Arab Emirates
					Venezuela
					Yemen

Table B. Advanced Economies: Definition and Coverage of Fiscal Monitor Data

	Overall Fiscal Balance ¹			Cyclically Adjusted Balance			Gross Debt		
	Coverage		Accounting Practice	Coverage		Accounting Practice	Coverage		Valuation of Debt ²
	Aggregate	Subsectors		Aggregate	Subsectors		Aggregate	Subsectors	
Australia	GG	CG,SG,LG,TG	A	GG	CG,SG,LG,TG	A	GG	CG,SG,LG,TG	Nominal
Austria	GG	CG,SG,LG,SS	A	GG	CG,SG,LG,SS	A	GG	CG,SG,LG,SS	Face
Belgium	GG	CG,SG,LG,SS	A	GG	CG,SG,LG,SS	A	GG	CG,SG,LG,SS	Face
Canada	GG	CG,SG,LG,SS	A	GG	CG,SG,LG,SS	A	GG	CG,SG,LG,SS	Face
Cyprus ³	GG	CG,LG,SS	A	...	...	...	GG	CG,LG,SS	Face
Czech Republic	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Nominal
Denmark	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Nominal
Estonia	GG	CG,LG,SS	C	...	...	...	GG	CG,LG,SS	Nominal
Finland	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Nominal
France	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Face
Germany	GG	CG,SG,LG,SS	A	GG	CG,SG,LG,SS	A	GG	CG,SG,LG,SS	Face
Greece	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Nominal
Hong Kong SAR	GG	CG	C	GG	CG	C	GG	CG	Face
Iceland	GG	CG,SG,SS	A	GG	CG,SG,SS	A	GG	CG,SG,SS	Face
Ireland	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Nominal
Israel	GG	CG,LG,SS	Other	GG	CG,LG,SS	Other	GG	CG,LG,SS	Nominal
Italy	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Face
Japan	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Nominal
Korea	CG	CG	C	CG	CG	C	CG	CG	Nominal
Latvia	GG	CG,LG,SS	C	GG	CG,LG,SS	C	GG	CG,LG,SS	Nominal
Lithuania	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Nominal
Luxembourg	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Face
Malta	GG	CG,SS	A	GG	CG,SS	A	GG	CG,SS	Nominal
Netherlands	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Nominal
New Zealand	CG	CG	A	CG	CG	A	CG	CG	Current market
Norway	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Current market
Portugal	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Nominal
Singapore	GG	CG	C	GG	CG	C	GG	CG	Nominal
Slovak Republic	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Face
Slovenia	GG	CG,SG,LG,SS	C	GG	CG,SG,LG,SS	C	GG	CG,SG,LG,SS	Face
Spain	GG	CG,SG,LG,SS	A	GG	CG,SG,LG,SS	A	GG	CG,SG,LG,SS	Nominal
Sweden	GG	CG,LG,SS	A	GG	CG,LG,SS	A	GG	CG,LG,SS	Nominal
Switzerland	GG	CG,SG,LG,SS	A	GG	CG,SG,LG,SS	A	GG	CG,SG,LG,SS	Nominal
United Kingdom	GG	CG,LG	A	GG	CG,LG	A	GG	CG,LG	Nominal
United States	GG	CG,SG,LG	A	GG	CG,SG,LG	A	GG	CG,SG,LG	Nominal

Note: Coverage: CG = central government; GG = general government; LG = local government; NFPCC = nonfinancial public corporations; PS = public sector; SG = social security funds; TG = territorial governments. Accounting standard: C = cash; A = accrual.

¹ In many countries, fiscal data follow the IMF's *Government Finance Statistics Manual 2001*. The concept of overall fiscal balance refers to net lending (+) and borrowing (-) of the general government. In some cases, however, the overall balance refers to total revenue and grants minus total expenditure and net lending.

² Nominal = debt securities are valued at their nominal values; that is, the nominal value of a debt instrument at any moment in time is the amount that the debtor owes to the creditor. Face = undiscounted amount of principal to be repaid at (or before) maturity. The use of face value as a proxy for nominal value in measuring the gross debt position can result in an inconsistent approach across all instruments and is not recommended, unless nominal and market values are not available. Current market = debt securities are valued at market prices; insurance, pension, and standardized guarantee schemes are valued according to principles that are equivalent to market valuation; and all other debt instruments are valued at nominal prices, which are considered to be the best generally available proxies of their market prices.

³ Historical data until 2012 are reported on an accrual basis, as general government cash data are not available for years that preceded the IMF program.

Table C. Emerging Market and Middle-Income Economies: Definition and Coverage of Fiscal Monitor Data

	Overall Fiscal Balance ¹			Cyclically Adjusted Balance			Gross Debt		
	Coverage		Accounting Practice	Coverage		Accounting Practice	Coverage		Valuation of Debt ²
	Aggregate	Subsectors		Aggregate	Subsectors		Aggregate	Subsectors	
Algeria	CG	CG	C	...	...	CG	CG	Nominal
Angola	GG	CG,LG	Other	...	...	GG	CG,LG,NFPC	Nominal
Argentina	GG	CG,SG,SS	C	CG	CG	CG	CG	Nominal	
Azerbaijan	CG	CG	C	...	...	CG	CG	Face
Belarus ³	GG	CG,LG,SS	C	...	...	GG	CG,LG,SS	Nominal
Brazil ⁴	NFPS	CG,SG,LG,SS,MPC,NFPC	C	NFPS	CG,SG,LG,SS,MPC,NFPC	NFPS	CG,SG,LG,SS,MPC,NFPC	Nominal	
Chile	GG	CG,LG	A	GG	CG,LG	GG	CG,LG	Face	
China	GG	CG,LG	C	GG	CG,LG	GG	CG,LG	Face	
Colombia ⁵	GG	CG,SG,LG,SS	Other	GG	CG,SG,LG,SS	GG	CG,SG,LG,SS	Face	
Croatia	GG	CG,LG	A	GG	CG,LG	GG	CG,LG	Nominal	
Dominican Republic	GG	CG,SG,LG,SS,MMPC	Mixed	GG	CG,SG,LG,SS,MMPC	GG	CG,SG,LG,SS,MMPC	Face	
Ecuador	NFPS	CG,SG,LG,SS,NFPC	C	NFPS	CG,SG,LG,SS,NFPC	NFPS	CG,SG,LG,SS,NFPC	Face	
Egypt	GG	CG,LG,SS,MPC	C	GG	CG,LG,SS,MPC	GG	CG,LG,SS,MPC	Nominal	
Hungary	GG	CG,LG,SS,MMPC	A	GG	CG,LG,SS,MMPC	GG	CG,LG,SS,MMPC	Face	
India	GG	CG,SG	C	GG	CG,SG	GG	CG,SG	Nominal	
Indonesia	GG	CG,LG	C	GG	CG,LG	GG	CG,LG	Face	
Iran	CG	CG	C	...	...	CG	CG	Nominal
Kazakhstan	GG	CG,LG	A	...	...	GG	CG,LG	Nominal
Kuwait	CG	CG	Mixed	...	...	CG	CG	Nominal
Libya	GG	CG,SG,LG	C	...	...	GG	CG,SG,LG	Face
Malaysia	GG	CG,SG,LG	C	GG	CG,SG,LG	GG	CG,SG,LG	Nominal	
Mexico	PS	CG,SS,MMPC,NFPC	C	PS	CG,SS,MMPC,NFPC	PS	CG,SS,MMPC,NFPC	Face	
Morocco	CG	CG	A	...	...	CG	CG	Face
Oman	CG	CG	C	...	...	CG	CG	Nominal
Pakistan	GG	CG,SG,LG	C	...	...	GG	CG,SG,LG	Nominal
Peru	GG	CG,SG,LG,SS	C	GG	CG,SG,LG,SS	GG	CG,SG,LG,SS	Face	
Philippines	GG	CG,LG,SS	C	GG	CG,LG,SS	GG	CG,LG,SS	Nominal	
Poland	GG	CG,LG,SS	A	GG	CG,LG,SS	GG	CG,LG,SS	Face	
Qatar	CG	CG	C	...	...	CG	CG	Nominal
Romania	GG	CG,LG,SS	C	GG	CG,LG,SS	GG	CG,LG,SS	Face	
Russia	GG	CG,SG,SS	Mixed	GG	CG,SG,SS	GG	CG,SG,SS	Current market	
Saudi Arabia	CG	CG	C	...	...	CG	CG	Nominal
South Africa ⁶	GG	CG,SG,SS	C	GG	CG,SG,SS	GG	CG,SG,SS	Nominal	
Sri Lanka	CG	CG	C	...	...	CG	CG	Nominal
Thailand ⁷	PS	CG,BCG,LG,SS	A	PS	CG,BCG,LG,SS	PS	CG,BCG,LG,SS	Nominal	
Turkey	GG	CG,LG,SS	A	GG	CG,LG,SS	GG	CG,LG,SS	Nominal	
Ukraine	GG	CG,SG,LG,SS	C	GG	CG,SG,LG,SS	GG	CG,SG,LG,SS	Nominal	
United Arab Emirates ⁸	GG	CG,BCG,SG,SS	C	...	...	GG	CG,BCG,SG,SS	Nominal
Uruguay	PS	CG,LG,SS,MPC,NFPC	A	...	...	PS	CG,LG,SS,MPC,NFPC	Face
Venezuela ⁹	GG	BCG,NFPC	C	GG	BCG,NFPC	GG	BCG,NFPC	Nominal	

Note: Coverage: BCG = budgetary central government; CG = central government; GG = general government; LG = local governments; MPC = monetary public corporations; NFPC = nonfinancial public sector; MMPC = nonmonetary financial public corporations; PS = public sector; SG = state governments; SS = social security funds. Accounting practice: C = cash; NC = noncash.

¹ In many countries, fiscal data follow the IMF's *Government Finance Statistics Manual 2001*. The concept of overall fiscal balance refers to net lending (+) and borrowing (-) of the general government. In some cases, however, the overall balance refers to total revenue and grants minus total expenditure and net lending.

² Nominal = debt securities are valued at their nominal values; that is, the nominal value of a debt instrument at any moment in time is the amount that the debtor owes to the creditor. Face = undiscounted amount of principal to be repaid at (or before) maturity. The use of face value as a proxy for nominal value in measuring the gross debt position can result in an inconsistent approach across all instruments and is not recommended, unless nominal and market values are not available. Current market = debt securities are valued at market prices; insurance, pension, and standardized guarantee schemes are valued according to principles that are equivalent to market valuation; and all other debt instruments are valued at nominal prices, which are considered to be the best generally available proxies of their market prices.

³ Gross debt refers to general government public debt, including publicly guaranteed debt.

⁴ 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.

⁵ Revenue is recorded on a cash basis and expenditure on an accrual basis.

⁶ Coverage for South Africa is a proxy for general government. It includes the national and provincial governments and certain public entities, while local governments are only partly covered, through the transfers to them.

⁷ Data for Thailand do not include the debt of specialized financial institutions (SFIs/MMPC), without government guarantee.

⁸ Gross debt covers banking system claims only.

⁹ The fiscal accounts for 2010–22 correspond to the budgetary central government and Petróleos de Venezuela S.A. (PDVSA), whereas the fiscal accounts for years before 2010 correspond to the budgetary central government, public enterprises (including PDVSA), Instituto Venezolano de los Seguros Sociales (IVSS—social security), and Fondo de Garantía de Depósitos y Protección Bancaria (FOGADE—deposit insurance).

Table D. Low-Income Developing Countries: Definition and Coverage of Fiscal Monitor Data

	Overall Fiscal Balance ¹			Cyclically Adjusted Balance			Gross Debt		
	Coverage		Accounting Practice	Coverage		Accounting Practice	Coverage		Valuation of Debt ²
	Aggregate	Subsectors		Aggregate	Subsectors		Aggregate	Subsectors	
Bangladesh	CG	CG	C	CG	CG	C	CG	CG	Nominal
Benin	CG	CG	C	...	...	...	CG	CG	Nominal
Burkina Faso	GG	CG	CB	...	...	...	GG	CG	Face
Cambodia	CG	CG,LG	A	CG	CG,LG	A	CG	CG,LG	Face
Cameroon	NFPS	CG,NFPC	C	...	...	...	NFPS	CG,NFPC	Current market
Chad	NFPS	CG,NFPC	C	...	...	...	NFPS	CG,NFPC	Face
Democratic Republic of the Congo	GG	CG,LG	A	...	...	...	GG	CG,LG	Nominal
Republic of Congo	CG	CG	A	...	...	...	CG	CG	Nominal
Côte d'Ivoire	CG	CG	A	...	...	...	CG	CG	Nominal
Ethiopia	CG	CG,SG,LG,NFPC	C	...	...	...	CG	CG,SG,LG,NFPC	Nominal
Ghana	CG	CG	C	...	...	...	CG	CG	Face
Guinea	CG	CG	Other	...	...	...	CG	CG	Nominal
Haiti	CG	CG	C	CG	CG	C	CG	CG	Nominal
Honduras	CPS	CG,LG,SS,NFPC	A	CPS	CG,LG,SS,NFPC	A	CPS	CG,LG,SS,NFPC	Nominal
Kenya	CG	CG	A	...	...	...	CG	CG	Current market
Kyrgyz Republic	GG	CG,LG,SS	C	...	...	...	GG	CG,LG,SS	Face
Lao P.D.R. ³	CG	CG	C	CG	CG	C	CG	CG	...
Madagascar	CG	CG,LG	C	...	...	...	CG	CG,LG	Nominal
Mali	CG	CG	Mixed	...	...	...	CG	CG	Nominal
Moldova	GG	CG,LG,SS	C	GG	CG,LG,SS	C	GG	CG,LG,SS	Nominal
Mozambique	CG	CG,SG	Mixed	CG	CG,SG	Mixed	CG	CG,SG	Nominal
Myanmar ⁴	NFPS	CG,NFPC	C	...	...	...	NFPS	CG,NFPC	Face
Nepal	CG	CG	C	CG	CG	C	CG	CG	Face
Nicaragua	GG	CG,LG,SS	C	GG	CG,LG,SS	C	GG	CG,LG,SS	Nominal
Niger	CG	CG	A	...	...	...	CG	CG	Nominal
Nigeria	GG	CG,SG,LG	C	...	...	...	GG	CG,SG,LG	Current market
Papua New Guinea	CG	CG	C	...	...	...	CG	CG	Face
Rwanda	GG	CG,LG	Mixed	...	...	...	GG	CG,LG	Nominal
Senegal	CG	CG	C	CG	CG	C	CG	CG	Nominal
Somalia	CG	CG	C	CG	CG	C	CG	CG	...
Sudan	CG	CG	Mixed	...	...	...	CG	CG	Nominal
Tajikistan	GG	CG,LG,SS	C	...	...	...	GG	CG,LG,SS	...
Tanzania	CG	CG,LG	C	...	...	...	CG	CG,LG	Nominal
Timor-Leste	CG	CG	C	CG	CG	C	CG	CG	...
Uganda	CG	CG	C	...	...	...	CG	CG	Nominal
Uzbekistan ⁵	GG	CG,SG,LG,SS	C	...	...	...	GG	CG,SG,LG,SS	Nominal
Vietnam	GG	CG,SG,LG	C	GG	CG,SG,LG	C	GG	CG,SG,LG	Nominal
Yemen	GG	CG,LG	C	...	...	...	GG	CG,LG	Nominal
Zambia	CG	CG	C	...	...	...	CG	CG	Current market
Zimbabwe	CG	CG	C	...	...	...	CG	CG	Current market

Note: Coverage: BCG = budgetary central government; CG = central government; CPS = combined public sector; EA = extrabudgetary units; FC = financial public corporations; GG = general government; LG = local governments; MPC = monetary public corporations, including central bank; NC = noncash; NFPC = nonfinancial public corporations; NFPS = nonfinancial public sector; NMPC = nonmonetary financial public corporations; PS = public sector; SG = state governments; SS = social security funds. Accounting standard: C = cash; NC = noncash; CB = commitments basis accounting; Mixed = combination of accrual and cash accounting.

¹ In many countries, fiscal data follow the IMF's *Government Finance Statistics Manual 2001*. The concept of overall fiscal balance refers to net lending (+) and borrowing (-) of the general government. In some cases, however, the overall balance refers to total revenue and grants minus total expenditure and net lending.

² Nominal = debt securities are valued at their nominal values, that is, the nominal value of a debt instrument at any moment in time is the amount that the debtor owes to the creditor. Face = undiscounted amount of principal to be repaid at (or before) maturity. The use of face value as a proxy for nominal value in measuring the gross debt position can result in an inconsistent approach across all instruments and is not recommended, unless nominal and market values are not available. Current market = debt securities are valued at market prices; insurance, pension, and standardized guarantee schemes are valued according to principles that are equivalent to market valuation; and all other debt instruments are valued at nominal prices, which are considered to be the best generally available proxies of their market prices.

³ Lao P.D.R.'s fiscal spending includes capital spending by local governments financed by loans provided by the central bank.

⁴ Overall and primary balances in 2012 are based on the monetary statistics and are different from the balances calculated from expenditure and revenue data.

⁵ Uzbekistan/sisting includes the Fund for Reconstruction and Development.

Table A1. Advanced Economies: General Government Overall Balance, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Australia	-4.6	-5.1	-4.4	-3.4	-2.8	-2.9	-2.8	-2.6	-2.2	-1.7	-1.1	-0.1	0.2	0.2	0.2
Austria	-5.4	-4.5	-2.6	-2.2	-1.4	-2.7	-1.1	-1.5	-0.8	-0.3	-0.2	-0.2	-0.2	-0.4	-0.5
Belgium	-5.4	-4.0	-4.1	-4.2	-3.1	-3.1	-2.5	-2.5	-1.1	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Canada	-3.9	-4.7	-3.3	-2.5	-1.5	0.2	-0.1	-1.1	-1.0	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7
Cyprus ¹	-5.4	-4.7	-5.7	-5.6	-3.3	-0.2	-0.2	0.5	1.9	2.0	2.0	1.8	1.8	1.6	1.7
Czech Republic	-5.5	-4.2	-2.7	-3.9	-1.2	-1.9	-0.6	0.7	1.3	1.1	1.0	0.5	0.5	0.5	0.5
Denmark	-2.8	-2.7	-2.1	-3.5	-1.2	1.1	-1.5	-0.4	-0.1	-0.8	-0.5	-0.3	0.0	0.2	0.4
Estonia	-2.2	0.2	1.2	-0.3	-0.2	0.7	0.1	-0.3	-0.1	-0.4	-0.2	0.0	0.0	0.0	0.0
Finland	-2.5	-2.6	-1.0	-2.2	-2.6	-3.2	-2.7	-1.8	-1.4	-1.4	-0.9	-0.2	-0.1	-0.1	-0.1
France	-7.2	-6.8	-5.1	-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	-3.2	-4.2	-1.0	0.0	-0.1	0.3	0.6	0.8	1.1	1.5	1.7	1.6	1.5	1.5	1.4
Greece	-15.1	-11.2	-10.3	-6.6	-3.6	-4.0	-2.9	0.5	0.0	-0.1	0.0	0.1	0.2	-0.1	-2.4
Hong Kong SAR	1.5	4.1	3.8	3.1	1.0	3.6	0.6	4.4	5.1	2.7	1.7	1.7	1.3	1.3	1.2
Iceland	-9.6	-9.7	-5.6	-3.7	-1.8	-0.1	-0.8	12.6	1.6	1.2	1.1	1.2	1.3	1.2	1.1
Ireland ¹	-13.8	-32.1	-12.7	-8.0	-6.1	-3.7	-1.9	-0.7	-0.4	-0.2	-0.1	0.2	0.6	0.8	1.0
Israel	-5.7	-3.7	-2.9	-4.8	-4.1	-3.3	-2.1	-2.1	-2.2	-3.2	-3.3	-3.4	-3.4	-3.4	-3.4
Italy	-5.3	-4.2	-3.7	-2.9	-2.9	-3.0	-2.6	-2.5	-1.9	-1.6	-0.9	-0.3	0.0	0.0	0.0
Japan	-10.2	-9.5	-9.4	-8.6	-7.9	-5.6	-3.8	-3.7	-4.2	-3.4	-2.8	-2.2	-2.1	-2.0	-2.0
Korea	0.0	1.5	1.7	1.6	0.6	0.4	0.6	1.7	1.9	2.0	1.9	1.8	1.8	1.8	1.9
Latvia	-7.0	-6.5	-3.2	0.2	-0.6	-1.7	-1.5	-0.4	0.0	-0.5	-0.9	-0.4	-0.2	-0.2	-0.2
Lithuania	-9.3	-6.9	-8.9	-3.1	-2.6	-0.7	-0.2	0.3	0.6	0.7	0.8	0.9	0.7	0.7	0.6
Luxembourg	-0.7	-0.7	0.5	0.3	1.0	1.3	1.4	1.6	1.4	0.8	0.2	0.5	0.4	0.3	0.2
Malta	-3.2	-2.4	-2.4	-3.5	-2.4	-1.8	-1.1	1.1	1.9	1.6	1.1	0.7	0.6	0.5	0.5
Netherlands	-5.4	-5.0	-4.3	-3.9	-2.4	-2.3	-2.0	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.0
New Zealand	-1.2	-4.8	-4.5	-1.7	-0.8	-0.1	0.6	1.3	1.6	1.1	1.1	2.0	2.5	2.6	2.6
Norway	10.3	10.9	13.2	13.5	10.5	8.5	5.9	3.9	4.9	3.7	3.8	4.0	4.0	4.0	4.1
Portugal	-9.8	-11.2	-7.4	-5.7	-4.8	-7.2	-4.4	-2.0	-1.2	-1.0	-0.9	-0.8	-0.7	-0.6	-0.6
Singapore	0.0	6.0	8.6	7.8	6.6	5.4	3.6	3.3	6.0	2.3	1.9	1.7	2.0	2.0	1.9
Slovak Republic	-7.8	-7.5	-4.3	-4.3	-2.7	-2.7	-2.7	-2.2	-1.6	-0.9	-0.4	-0.2	-0.2	-0.1	-0.1
Slovenia	-5.4	-5.2	-5.5	-3.1	-13.8	-5.8	-3.3	-1.7	-0.8	0.0	-0.3	-0.4	-0.6	-0.7	-0.8
Spain ¹	-11.0	-9.4	-9.6	-10.5	-7.0	-6.0	-5.3	-4.5	-3.1	-2.5	-2.1	-2.1	-2.1	-2.1	-2.2
Sweden	-0.7	0.0	-0.2	-1.0	-1.4	-1.6	0.2	1.2	1.2	1.1	0.7	0.6	0.5	0.4	0.3
Switzerland	0.5	0.4	0.7	0.4	-0.4	-0.2	0.6	0.1	0.0	0.4	0.4	0.3	0.3	0.3	0.3
United Kingdom	-10.1	-9.4	-7.5	-7.6	-5.4	-5.4	-4.3	-3.0	-2.3	-1.8	-1.5	-1.3	-1.1	-0.7	-0.6
United States ²	-13.1	-10.9	-9.6	-7.9	-4.4	-4.0	-3.5	-4.2	-4.6	-5.3	-5.9	-5.5	-5.5	-5.4	-5.0
Average	-8.7	-7.7	-6.3	-5.5	-3.7	-3.1	-2.6	-2.6	-2.6	-2.7	-2.8	-2.4	-2.3	-2.3	-2.0
Euro Area	-6.3	-6.2	-4.2	-3.6	-3.0	-2.6	-2.1	-1.5	-0.9	-0.6	-0.5	-0.2	-0.1	0.0	0.1
G7	-9.9	-8.8	-7.4	-6.4	-4.3	-3.6	-3.0	-3.3	-3.4	-3.5	-3.7	-3.3	-3.2	-3.0	-2.7
G20 Advanced	-9.5	-8.4	-7.0	-6.0	-4.1	-3.4	-2.9	-3.1	-3.1	-3.2	-3.3	-2.9	-2.8	-2.7	-2.4

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table B; G7 = Group of Seven; G20 = Group of Twenty.

¹ Data include financial sector support. For Cyprus, 2014 and 2015 balances exclude financial sector support.

² 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 A2. Advanced Economies: General Government Primary Balance, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Australia	-4.5	-4.8	-3.9	-2.7	-2.0	-2.0	-1.8	-1.7	-1.3	-0.9	-0.2	0.7	1.0	1.0	1.0
Austria	-3.2	-2.3	-0.4	0.0	0.8	-0.7	0.8	0.1	0.6	0.9	1.1	1.0	0.9	0.8	0.6
Belgium	-2.0	-0.7	-0.9	-1.0	-0.2	-0.2	0.2	0.1	1.1	0.7	0.5	0.5	0.4	0.3	0.2
Canada	-2.8	-3.9	-2.7	-1.8	-1.0	0.5	0.5	-0.4	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	-0.1
Cyprus ¹	-3.4	-3.2	-4.1	-2.9	0.4	2.8	2.5	2.9	4.4	4.2	4.2	4.0	3.9	3.7	3.7
Czech Republic	-4.5	-3.2	-1.7	-2.8	-0.2	-0.8	0.3	1.5	2.0	1.8	1.6	1.1	1.0	1.0	1.0
Denmark	-2.4	-2.1	-1.4	-3.0	-0.8	1.6	-0.7	0.1	0.3	-0.6	-0.6	-0.2	0.2	0.5	0.8
Estonia	-2.5	0.0	1.0	-0.4	-0.3	0.6	0.0	-0.4	-0.2	-0.4	-0.3	-0.1	0.0	-0.1	-0.1
Finland	-2.9	-2.5	-1.0	-2.0	-2.5	-3.0	-2.5	-1.5	-1.2	-1.3	-0.9	-0.3	-0.2	-0.1	-0.1
France	-4.9	-4.5	-2.6	-2.4	-1.9	-1.9	-1.7	-1.5	-0.8	-0.6	-1.2	0.0	0.5	1.2	1.9
Germany	-0.8	-2.1	1.1	1.8	1.4	1.7	1.8	1.9	2.1	2.3	2.3	2.2	2.1	2.0	1.9
Greece	-10.1	-5.3	-3.0	-1.5	0.4	0.0	0.7	3.8	3.7	2.9	3.5	3.5	3.5	3.5	1.5
Hong Kong SAR	-0.4	2.3	1.9	1.3	-0.7	3.6	0.6	3.6	4.3	1.3	0.6	0.6	0.2	0.2	0.2
Iceland	-6.6	-6.9	-2.9	-0.4	1.6	3.5	2.9	15.6	4.5	3.5	3.0	2.9	2.7	2.5	2.4
Ireland ¹	-12.4	-29.7	-10.2	-4.8	-2.6	-0.3	0.5	1.5	1.4	1.5	1.5	1.6	1.9	2.1	2.3
Israel	-1.9	0.0	0.6	-1.3	-0.9	-0.2	0.8	0.5	0.6	-0.4	-0.5	-0.6	-0.6	-0.5	-0.5
Italy	-1.0	-0.1	0.8	2.1	1.7	1.4	1.4	1.3	1.7	1.9	2.5	3.2	3.5	3.6	3.6
Japan	-9.3	-8.6	-8.3	-7.5	-7.0	-4.9	-3.2	-2.9	-3.7	-3.2	-2.7	-2.1	-2.0	-1.9	-1.9
Korea	-0.7	0.8	0.9	0.8	-0.2	-0.3	-0.3	0.8	0.9	1.1	0.8	0.9	1.0	1.2	1.2
Latvia	-5.9	-5.1	-1.8	1.7	0.9	-0.2	0.3	0.8	1.1	0.4	0.0	0.6	0.6	0.6	0.6
Lithuania	-8.2	-5.2	-7.2	-1.2	-0.9	1.0	1.3	1.6	1.9	2.2	2.3	2.4	2.1	1.8	1.6
Luxembourg	-1.2	-0.9	0.3	0.1	0.8	1.1	1.2	1.4	1.2	0.6	-0.2	-0.2	-0.5	-0.8	-1.1
Malta	0.0	0.7	0.8	-0.5	0.4	1.0	1.3	3.2	3.8	3.4	2.7	2.3	2.1	2.1	2.1
Netherlands	-4.2	-3.8	-3.0	-2.8	-1.3	-1.2	-1.1	1.2	1.3	1.1	1.2	1.3	1.4	1.5	1.6
New Zealand	-1.0	-4.3	-3.9	-1.0	-0.2	0.4	1.0	1.6	2.1	1.8	1.8	2.6	3.1	3.2	3.2
Norway	8.0	8.8	11.1	11.7	8.7	6.4	3.4	1.6	2.6	1.3	1.5	1.7	1.7	1.7	1.8
Portugal	-7.1	-8.5	-3.6	-1.4	-0.6	-2.8	-0.1	1.9	2.5	2.3	2.3	2.2	2.2	2.1	2.1
Singapore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Slovak Republic	-6.7	-6.4	-2.9	-2.8	-1.1	-1.1	-1.3	-0.8	-0.4	0.3	0.8	0.9	0.9	0.8	0.8
Slovenia	-4.6	-4.0	-4.2	-1.4	-11.5	-2.8	-0.6	1.0	1.5	1.9	1.5	1.4	1.3	1.2	1.1
Spain ¹	-9.6	-7.8	-7.7	-8.0	-4.0	-3.0	-2.6	-2.0	-0.8	-0.2	0.2	0.2	0.3	0.2	0.2
Sweden	-0.4	0.3	0.1	-0.8	-1.2	-1.5	0.1	1.1	1.0	0.9	0.5	0.4	0.3	0.2	0.2
Switzerland	1.0	0.8	1.1	0.8	-0.2	0.0	0.9	0.3	0.2	0.6	0.6	0.5	0.4	0.4	0.4
United Kingdom	-8.7	-6.9	-4.7	-5.3	-4.1	-3.6	-2.8	-1.4	-0.6	-0.2	0.0	0.3	0.5	0.7	0.8
United States	-11.2	-8.9	-7.3	-5.7	-2.4	-2.0	-1.6	-2.2	-2.5	-3.0	-3.4	-2.7	-2.4	-2.2	-1.6
Average	-7.1	-6.0	-4.5	-3.7	-2.1	-1.5	-1.1	-1.2	-1.1	-1.2	-1.2	-0.8	-0.6	-0.4	-0.1
Euro Area	-3.8	-3.7	-1.6	-1.0	-0.6	-0.2	0.0	0.4	0.9	1.1	1.1	1.4	1.6	1.7	1.8
G7	-8.0	-6.8	-5.2	-4.3	-2.4	-1.8	-1.3	-1.5	-1.6	-1.7	-1.8	-1.3	-1.0	-0.8	-0.4
G20 Advanced	-7.7	-6.5	-5.0	-4.1	-2.3	-1.8	-1.3	-1.5	-1.5	-1.6	-1.6	-1.1	-0.9	-0.7	-0.3

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: Primary balance is defined as the overall balance excluding net interest payments. For country-specific details, see "Data and Conventions" in text, and Table B.

¹ Data include financial sector support. For Cyprus, 2014 and 2015 balances exclude financial sector support.

Table A3. Advanced Economies: General Government Cyclically Adjusted Balance, 2009–23
(Percent of potential GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Australia	-4.5	-4.9	-4.3	-3.3	-2.5	-2.5	-2.4	-2.3	-1.8	-1.4	-0.9	-0.1	0.2	0.2	0.2
Austria	-4.6	-4.0	-3.2	-2.5	-0.9	-2.0	-0.2	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6	-0.7
Belgium	-4.5	-3.8	-4.3	-4.0	-2.5	-2.5	-2.1	-2.2	-1.0	-1.4	-1.5	-1.4	-1.3	-1.3	-1.3
Canada	-2.6	-4.1	-3.3	-2.5	-1.6	-0.3	-0.2	-0.9	-1.1	-1.0	-1.0	-0.9	-0.8	-0.8	-0.7
Cyprus	-7.2	-6.7	-7.7	-5.9	-1.4	2.1	2.0	2.0	2.5	2.2	1.9	1.6	1.4	1.2	1.7
Czech Republic	-5.3	-4.1	-2.9	-3.2	0.1	-1.1	-0.8	0.5	0.7	0.4	0.2	0.0	0.1	0.3	0.5
Denmark	-0.6	-1.7	-1.4	-2.4	-0.1	1.8	-0.9	-0.3	-0.3	-1.3	-1.1	-0.9	-0.5	-0.2	0.0
Estonia	1.8	3.8	2.6	0.4	0.5	0.9	0.3	0.0	-0.6	-0.9	-0.6	-0.2	-0.1	0.0	-0.1
Finland	-0.3	-1.8	-1.5	-1.7	-1.2	-0.9	0.0	0.2	-0.8	-1.1	-1.0	-0.5	-0.4	-0.3	-0.3
France	-5.5	-5.7	-4.5	-3.8	-2.8	-2.6	-2.3	-2.2	-1.7	-1.9	-2.8	-1.8	-1.4	-1.0	-0.3
Germany	-1.2	-3.6	-1.5	-0.3	0.0	0.3	0.6	0.7	0.6	0.6	0.7	0.8	0.9	1.0	1.0
Greece	-19.4	-13.4	-8.8	-2.1	1.4	-0.7	-0.3	2.7	1.4	0.9	0.7	0.4	0.2	-0.1	-2.7
Hong Kong SAR ¹	-0.8	1.0	0.5	0.4	-1.8	2.6	-0.1	2.4	3.1	0.7	-0.1	0.0	-0.4	-0.3	-0.4
Iceland	-10.0	-7.6	-4.7	-3.1	-1.6	-0.1	-1.1	11.2	0.9	0.7	0.8	1.1	1.3	1.2	1.1
Ireland ¹	-9.4	-8.9	-6.5	-5.4	-4.6	-2.8	-1.2	-1.1	-1.0	-0.8	-0.6	-0.2	0.3	0.6	0.9
Israel	-5.0	-3.7	-3.5	-4.7	-4.3	-3.4	-1.9	-2.1	-2.2	-3.2	-3.4	-3.4	-3.4	-3.4	-3.4
Italy	-3.6	-3.6	-3.5	-1.4	-0.8	-0.8	-0.9	-1.1	-1.1	-1.2	-0.8	-0.3	-0.1	-0.1	-0.1
Japan	-6.7	-7.9	-7.8	-7.4	-7.3	-5.3	-4.2	-4.1	-4.0	-3.4	-2.8	-2.2	-2.0	-2.0	-1.9
Korea	0.5	1.5	1.6	1.7	0.9	0.6	0.8	2.0	2.1	2.2	2.0	1.9	1.8	1.8	1.9
Latvia	-3.2	-3.3	-1.4	0.9	-1.0	-1.5	-1.4	-0.1	-0.2	-0.8	-1.0	-0.5	-0.3	-0.2	-0.2
Lithuania	-6.7	-4.2	-7.4	-2.3	-2.1	-0.6	0.0	0.5	0.5	0.5	0.5	0.7	0.6	0.6	0.6
Luxembourg	0.9	-0.6	0.3	1.2	1.5	0.8	1.2	1.7	1.5	0.6	0.0	0.3	0.3	0.2	0.2
Malta	-2.6	-2.5	-1.9	-2.5	-1.3	-1.4	-2.0	0.8	1.5	1.2	0.9	0.6	0.6	0.5	0.5
Netherlands	-5.0	-4.5	-4.3	-3.1	-1.2	-1.2	-1.4	0.8	0.5	0.0	0.0	0.0	0.0	0.1	0.2
New Zealand	-1.7	-4.5	-3.8	-1.2	-0.5	0.1	0.7	1.3	1.6	1.1	1.2	2.0	2.5	2.6	2.6
Norway ¹	-4.9	-4.9	-4.1	-4.5	-4.9	-5.7	-6.6	-7.5	-7.8	-7.8	-7.9	-8.0	-8.0	-8.0	-8.0
Portugal	-8.8	-11.0	-6.4	-3.3	-2.5	-5.1	-3.0	-1.0	-0.8	-1.0	-1.1	-1.1	-0.9	-0.9	-0.9
Singapore	0.2	6.5	8.6	7.8	6.5	5.4	3.6	3.3	5.6	2.1	1.5	1.6	1.7	1.8	1.8
Slovak Republic	-5.4	-5.8	-3.0	-3.1	-1.7	-2.2	-3.1	-2.6	-2.0	-1.3	-0.7	-0.4	-0.4	-0.3	-0.2
Slovenia	-4.5	-4.8	-4.3	-2.0	-1.4	-2.3	-0.9	-0.3	0.2	-0.2	-1.0	-1.3	-1.4	-1.3	-1.1
Spain ¹	-10.6	-8.5	-7.4	-3.3	-2.3	-1.9	-2.4	-2.8	-2.5	-2.5	-2.6	-2.6	-2.5	-2.5	-2.6
Sweden ¹	1.2	0.5	-0.1	-0.5	-0.6	-0.6	-0.2	0.9	0.9	0.8	0.5	0.5	0.3	0.3	0.3
Switzerland ¹	0.8	0.4	0.7	0.6	-0.3	-0.3	0.7	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3
United Kingdom ¹	-8.7	-7.4	-5.8	-5.9	-3.8	-4.6	-3.9	-2.8	-2.2	-1.8	-1.5	-1.3	-1.1	-0.7	-0.6
United States ^{1,2}	-7.7	-9.6	-8.2	-6.4	-4.4	-3.8	-3.6	-4.3	-4.6	-5.6	-6.8	-6.3	-6.2	-6.0	-5.3
Average	-5.9	-6.7	-5.6	-4.5	-3.2	-2.7	-2.5	-2.6	-2.6	-2.9	-3.3	-3.0	-2.8	-2.7	-2.3
Euro Area	-4.8	-5.1	-3.9	-2.6	-1.4	-1.3	-1.0	-0.8	-0.7	-0.8	-0.9	-0.6	-0.4	-0.3	-0.2
G7	-6.2	-7.6	-6.4	-5.2	-3.8	-3.2	-2.9	-3.2	-3.3	-3.6	-4.2	-3.7	-3.6	-3.4	-3.0
G20 Advanced	-6.0	-7.2	-6.1	-4.9	-3.6	-3.1	-2.7	-3.0	-3.0	-3.3	-3.8	-3.4	-3.2	-3.1	-2.6

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table B.

¹ Data for these countries include adjustments beyond the output cycle.

² 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 U.S. Bureau of Economic Analysis.

Table A4. Advanced Economies: General Government Cyclically Adjusted Primary Balance, 2009–23
(Percent of potential GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Australia	-4.4	-4.6	-3.7	-2.6	-1.7	-1.6	-1.4	-1.3	-0.9	-0.5	0.0	0.8	1.0	1.0	1.0
Austria	-2.4	-1.9	-1.0	-0.3	1.2	0.0	1.7	1.0	0.7	0.5	0.5	0.5	0.6	0.6	0.5
Belgium	-1.1	-0.6	-1.1	-0.8	0.4	0.3	0.6	0.3	1.2	0.6	0.4	0.4	0.3	0.3	0.2
Canada	-1.5	-3.3	-2.7	-1.8	-1.1	0.0	0.5	-0.2	-0.8	-0.7	-0.6	-0.5	-0.3	-0.2	-0.1
Cyprus	-5.1	-5.2	-6.0	-3.2	2.1	4.9	4.5	4.3	5.0	4.4	4.1	3.7	3.5	3.3	3.7
Czech Republic	-4.4	-3.1	-1.9	-2.1	1.1	0.0	0.1	1.3	1.4	1.0	0.9	0.6	0.7	0.8	0.9
Denmark	-0.2	-1.1	-0.8	-1.9	0.3	2.2	-0.2	0.3	0.1	-1.1	-1.1	-0.8	-0.3	0.1	0.4
Estonia	1.5	3.6	2.4	0.3	0.4	0.8	0.2	-0.1	-0.7	-1.0	-0.6	-0.3	-0.1	-0.1	-0.1
Finland	-0.7	-1.8	-1.5	-1.5	-1.1	-0.7	0.2	0.4	-0.6	-1.0	-1.0	-0.6	-0.5	-0.3	-0.3
France	-3.4	-3.5	-2.1	-1.4	-0.7	-0.6	-0.5	-0.3	0.1	-0.1	-0.9	0.1	0.6	1.2	1.9
Germany	1.1	-1.4	0.5	1.6	1.6	1.6	1.8	1.8	1.6	1.4	1.4	1.4	1.4	1.4	1.4
Greece	-13.9	-7.3	-1.7	2.6	5.0	3.1	3.1	5.8	4.9	3.8	4.1	3.7	3.5	3.5	1.2
Hong Kong SAR ¹	-2.6	-0.8	-1.4	-1.4	-3.5	2.6	-0.1	1.6	2.4	-0.7	-1.2	-1.0	-1.6	-1.4	-1.4
Iceland	-7.0	-5.0	-2.0	0.2	1.8	3.5	2.7	14.3	3.8	3.0	2.7	2.8	2.7	2.5	2.4
Ireland ¹	-8.0	-6.7	-4.0	-2.3	-1.1	0.5	1.1	1.1	0.9	0.9	1.0	1.2	1.7	2.0	2.3
Israel	-1.3	0.0	0.2	-1.2	-1.0	-0.3	1.0	0.5	0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.5
Italy	0.5	0.5	1.0	3.4	3.6	3.4	2.9	2.5	2.4	2.2	2.6	3.1	3.4	3.5	3.5
Japan	-5.8	-6.9	-6.8	-6.3	-6.4	-4.6	-3.6	-3.4	-3.6	-3.1	-2.7	-2.0	-1.9	-1.8	-1.8
Korea	-0.2	0.8	0.9	1.0	0.0	-0.1	-0.1	1.0	1.1	1.2	0.9	0.9	1.0	1.2	1.2
Latvia	-2.2	-2.0	-0.1	2.4	0.5	0.0	0.4	1.1	0.9	0.2	-0.1	0.5	0.6	0.6	0.6
Lithuania	-5.6	-2.6	-5.8	-0.4	-0.4	1.1	1.5	1.9	1.8	2.0	2.0	2.2	1.9	1.8	1.6
Luxembourg	0.4	-0.8	0.0	1.0	1.3	0.6	1.0	1.5	1.4	0.5	-0.4	-0.3	-0.6	-0.9	-1.1
Malta	0.6	0.6	1.2	0.5	1.5	1.3	0.4	2.9	3.4	3.0	2.5	2.2	2.2	2.1	2.1
Netherlands	-3.8	-3.4	-3.0	-2.0	-0.1	-0.2	-0.5	1.6	1.3	0.6	0.5	0.5	0.6	0.7	0.7
New Zealand	-1.5	-4.0	-3.2	-0.5	0.1	0.6	1.1	1.7	2.1	1.9	1.9	2.7	3.1	3.1	3.2
Norway ¹	-7.9	-7.5	-6.6	-6.7	-7.1	-8.2	-9.5	-10.2	-10.5	-10.6	-10.6	-10.7	-10.7	-10.7	-10.7
Portugal	-6.1	-8.3	-2.7	0.8	1.5	-0.9	1.1	2.9	2.8	2.3	2.1	1.9	2.0	1.9	1.9
Singapore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Slovak Republic	-4.4	-4.7	-1.7	-1.6	0.0	-0.6	-1.6	-1.2	-0.7	0.0	0.5	0.7	0.7	0.7	0.8
Slovenia	-3.7	-3.6	-3.0	-0.4	0.7	0.5	1.8	2.3	2.5	1.7	0.8	0.6	0.5	0.7	0.8
Spain ¹	-9.2	-6.9	-5.5	-0.9	0.4	0.9	0.2	-0.4	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
Sweden ¹	1.6	0.8	0.2	-0.4	-0.5	-0.5	-0.2	0.8	0.7	0.6	0.3	0.3	0.2	0.2	0.1
Switzerland ¹	1.3	0.8	1.1	0.9	-0.1	-0.1	0.9	0.3	0.4	0.4	0.5	0.4	0.4	0.4	0.4
United Kingdom ¹	-7.4	-5.0	-3.1	-3.6	-2.5	-2.8	-2.4	-1.2	-0.5	-0.2	0.1	0.3	0.5	0.7	0.8
United States ¹	-5.9	-7.6	-6.0	-4.2	-2.4	-1.9	-1.7	-2.3	-2.5	-3.3	-4.2	-3.5	-3.1	-2.8	-1.9
Average	-4.3	-5.1	-3.8	-2.7	-1.6	-1.2	-1.0	-1.1	-1.2	-1.5	-1.8	-1.3	-1.1	-0.8	-0.4
Euro Area	-2.4	-2.6	-1.3	0.0	1.1	1.0	1.0	1.1	1.2	0.9	0.8	1.1	1.2	1.4	1.5
G7	-4.4	-5.6	-4.3	-3.2	-2.0	-1.4	-1.2	-1.5	-1.6	-1.9	-2.3	-1.7	-1.4	-1.2	-0.7
G20 Advanced	-4.3	-5.4	-4.1	-3.0	-1.9	-1.4	-1.2	-1.4	-1.5	-1.7	-2.1	-1.5	-1.2	-1.0	-0.5

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: Cyclically adjusted primary balance is defined as the cyclically adjusted balance plus net interest payable/paid (interest expense minus interest revenue) following the *World Economic Outlook* convention. For country-specific details, see "Data and Conventions" in text, and Table B.¹ The data for these countries include adjustments beyond the output cycle.

Table A5. Advanced Economies: General Government Revenue, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Australia	33.4	32.0	31.9	33.2	33.8	34.0	34.6	34.8	34.9	35.1	35.2	35.5	35.6	35.6	35.6
Austria	48.8	48.4	48.3	49.0	49.7	49.6	49.9	49.0	48.8	48.9	48.9	48.9	48.9	48.9	48.9
Belgium	48.8	49.3	50.3	51.6	52.7	52.1	51.3	50.7	51.1	50.4	50.1	49.9	49.9	49.9	49.9
Canada	39.6	38.4	38.4	38.5	38.6	38.6	39.8	39.6	39.3	39.4	39.5	39.5	39.5	39.5	39.5
Cyprus	36.5	37.3	36.7	36.4	37.7	39.8	39.0	38.8	40.4	40.3	40.5	40.4	40.4	40.3	40.3
Czech Republic	38.7	39.3	40.3	40.5	41.4	40.3	41.1	40.1	40.6	41.3	41.4	41.5	41.6	41.7	41.8
Denmark	53.7	54.0	54.4	54.5	54.6	56.4	53.3	53.2	52.1	51.3	50.8	50.6	50.4	50.0	49.9
Estonia	43.9	40.7	38.6	39.0	38.3	39.1	40.3	40.3	40.1	40.3	40.4	40.4	40.2	40.1	40.0
Finland	52.2	52.1	53.3	54.0	54.9	54.9	54.2	54.0	52.7	51.5	51.2	51.4	51.2	51.2	51.2
France	49.6	49.6	50.8	52.0	52.9	53.2	53.1	53.2	53.9	53.5	52.2	51.7	51.4	51.2	51.1
Germany	44.3	43.0	43.8	44.3	44.5	44.6	44.5	45.0	45.2	45.4	45.5	45.5	45.4	45.3	45.3
Greece	38.9	41.3	43.8	45.8	47.8	46.2	48.1	50.2	48.8	48.8	48.3	47.8	46.8	46.5	45.1
Hong Kong SAR	18.8	20.7	22.4	21.4	21.0	20.8	18.6	22.6	22.6	21.5	20.7	20.6	20.7	20.7	20.6
Iceland	38.6	39.4	39.9	41.4	41.9	44.9	41.7	57.6	43.1	42.2	42.0	42.0	41.8	41.6	41.7
Ireland	33.2	33.0	33.6	33.9	34.2	34.0	27.0	26.4	25.3	25.2	24.9	24.6	24.5	24.3	24.2
Israel	35.9	37.1	37.0	36.1	36.5	36.9	37.0	36.7	38.1	36.9	36.7	36.7	36.7	36.7	36.7
Italy	45.9	45.6	45.7	47.8	48.1	47.9	47.7	46.9	46.6	46.7	47.5	47.5	47.5	47.5	47.5
Japan	29.3	29.0	30.0	30.8	31.6	33.3	34.2	34.1	33.2	33.1	33.1	33.8	33.9	33.8	33.8
Korea	21.3	21.0	21.6	22.1	21.5	21.2	21.5	22.5	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Latvia	35.8	36.5	35.6	37.4	36.7	36.1	36.2	36.4	37.3	37.0	35.9	36.3	36.0	35.9	35.7
Lithuania	34.3	34.3	32.6	32.1	32.1	33.4	34.1	33.7	33.8	35.4	35.1	35.1	34.8	34.7	34.6
Luxembourg	44.5	43.5	42.9	44.4	44.3	43.1	42.8	43.8	43.2	42.4	42.0	41.8	41.7	41.5	41.4
Malta	38.6	38.7	38.8	39.2	39.5	39.6	39.0	38.2	39.5	39.2	38.8	38.6	38.6	38.6	38.6
Netherlands	42.7	43.2	42.7	43.2	43.9	43.9	42.8	43.8	43.9	43.9	43.9	43.9	43.9	43.9	43.9
New Zealand	35.1	34.3	34.1	34.2	34.0	33.9	34.3	34.3	34.1	34.1	34.2	34.2	34.1	34.1	34.1
Norway	55.3	54.9	56.1	55.7	53.8	53.6	53.9	53.9	54.1	51.7	52.2	52.9	53.2	53.5	53.9
Portugal	40.4	40.6	42.6	42.9	45.1	44.6	43.8	43.0	43.1	43.0	42.8	42.7	42.6	42.5	42.4
Singapore	17.4	21.1	23.1	22.2	21.4	21.2	21.4	21.0	23.3	20.8	21.2	21.4	21.6	21.8	22.0
Slovak Republic	36.3	34.7	36.5	36.3	38.7	39.3	42.5	39.3	39.4	38.7	39.4	39.1	39.4	38.8	38.8
Slovenia	39.8	40.8	40.6	41.6	40.6	41.2	40.5	39.2	38.8	39.3	39.0	39.0	39.1	39.2	39.3
Spain	34.8	36.2	36.2	37.6	38.6	38.9	38.5	37.7	38.2	38.2	38.0	37.8	37.6	37.5	37.3
Sweden	51.0	49.7	49.1	49.3	49.6	48.5	48.9	49.7	49.3	48.2	47.9	48.1	48.1	48.1	48.1
Switzerland	32.7	32.4	32.7	32.6	32.7	32.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5
United Kingdom	34.2	35.3	36.0	35.9	36.3	35.3	35.6	36.0	36.4	36.7	36.7	36.6	36.4	36.5	36.5
United States	28.4	29.1	29.4	29.4	31.6	31.5	31.6	31.2	31.1	30.7	30.4	30.8	31.2	31.6	31.8
Average	35.0	34.9	35.5	35.7	36.9	36.9	36.5	36.4	36.3	36.3	36.1	36.4	36.5	36.6	36.7
Euro Area	44.4	44.3	44.9	46.0	46.7	46.7	46.2	46.1	46.2	46.1	45.9	45.8	45.6	45.5	45.4
G7	34.2	34.2	34.8	34.9	36.4	36.5	36.3	36.0	36.0	36.0	35.8	36.1	36.2	36.4	36.6
G20 Advanced	33.8	33.7	34.3	34.4	35.8	35.9	35.7	35.5	35.4	35.4	35.3	35.5	35.7	35.8	36.0

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table B.

Table A6. Advanced Economies: General Government Expenditure, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Australia	37.9	37.1	36.4	36.6	36.6	36.9	37.4	37.4	37.0	36.8	36.3	35.7	35.4	35.4	35.4
Austria	54.1	52.8	50.9	51.2	51.0	52.3	51.0	50.5	49.7	49.2	49.0	49.1	49.2	49.2	49.4
Belgium	54.2	53.3	54.5	55.9	55.8	55.2	53.8	53.2	52.2	51.7	51.4	51.1	51.1	51.2	51.2
Canada	43.5	43.2	41.7	41.0	40.1	38.5	39.9	40.7	40.3	40.3	40.3	40.2	40.2	40.2	40.2
Cyprus	41.9	42.0	42.3	41.9	41.0	40.0	39.2	38.3	38.5	38.3	38.4	38.5	38.5	38.6	38.6
Czech Republic	44.2	43.5	43.0	44.5	42.6	42.2	41.7	39.4	39.3	40.1	40.4	41.0	41.1	41.2	41.3
Denmark	56.5	56.7	56.4	58.0	55.8	55.2	54.8	53.6	52.2	52.1	51.3	50.9	50.4	49.9	49.5
Estonia	46.1	40.5	37.4	39.3	38.5	38.4	40.2	40.6	40.3	40.7	40.6	40.4	40.2	40.1	40.0
Finland	54.8	54.8	54.4	56.2	57.5	58.1	56.9	55.7	54.0	52.9	52.0	51.6	51.3	51.3	51.3
France	56.8	56.4	55.9	56.8	57.0	57.1	56.7	56.6	56.5	55.9	55.3	53.7	52.9	52.1	51.5
Germany	47.6	47.3	44.7	44.3	44.7	44.3	43.9	44.2	44.1	44.0	43.8	43.8	43.9	43.8	43.9
Greece	54.1	52.5	54.1	52.4	51.4	50.2	50.9	49.7	48.8	48.8	48.3	47.7	46.7	46.7	47.5
Hong Kong SAR	17.3	16.6	18.6	18.3	20.0	17.3	18.0	18.3	17.5	18.8	18.9	18.9	19.5	19.5	19.5
Iceland	48.2	49.1	45.5	45.2	43.7	45.0	42.5	45.0	41.4	41.0	40.9	40.8	40.5	40.4	40.5
Ireland	47.0	65.1	46.3	42.0	40.3	37.6	28.9	27.1	25.8	25.4	25.0	24.4	23.9	23.5	23.3
Israel	41.6	40.7	40.0	40.9	40.6	40.2	39.1	38.8	40.2	40.1	40.0	40.1	40.1	40.1	40.1
Italy	51.2	49.9	49.4	50.8	51.1	50.9	50.3	49.3	48.6	48.2	48.4	47.8	47.5	47.6	47.6
Japan	39.5	38.5	39.4	39.4	39.5	38.9	38.0	37.8	37.5	36.6	36.0	36.0	35.9	35.8	35.8
Korea	21.3	19.5	19.9	20.6	20.9	20.8	20.9	20.7	21.1	21.0	21.1	21.2	21.2	21.2	21.1
Latvia	42.8	43.0	38.8	37.2	37.3	37.8	37.8	36.8	37.3	37.5	36.8	36.7	36.2	36.1	35.9
Lithuania	43.6	41.2	41.5	35.2	34.7	34.0	34.3	33.5	33.2	34.7	34.3	34.2	34.1	34.0	34.0
Luxembourg	45.1	44.1	42.4	44.1	43.3	41.8	41.5	42.1	41.8	41.7	41.8	41.3	41.3	41.2	41.2
Malta	41.9	41.1	41.2	42.7	42.0	41.3	40.1	37.1	37.6	37.6	37.7	37.9	38.0	38.2	38.2
Netherlands	48.2	48.1	47.0	47.1	46.3	46.2	44.9	43.4	43.3	43.4	43.2	43.1	43.0	42.9	42.9
New Zealand	36.4	39.1	38.6	35.9	34.8	34.0	33.7	33.0	32.5	33.0	33.1	32.2	31.6	31.5	31.5
Norway	45.0	44.0	43.0	42.2	43.3	45.1	48.0	50.0	49.2	48.0	48.5	48.9	49.2	49.5	49.8
Portugal	50.2	51.8	50.0	48.5	49.9	51.8	48.2	44.9	44.3	44.0	43.7	43.5	43.3	43.1	43.1
Singapore	17.3	15.0	14.5	14.4	14.8	15.8	17.8	17.7	17.4	18.5	19.3	19.7	19.6	19.8	20.1
Slovak Republic	44.1	42.1	40.8	40.6	41.4	42.0	45.2	41.5	41.0	39.6	39.7	39.2	39.6	38.9	38.9
Slovenia	45.3	46.0	46.1	44.7	54.4	47.0	43.8	40.9	39.6	39.3	39.3	39.4	39.7	39.9	40.2
Spain	45.8	45.6	45.8	48.1	45.6	44.8	43.8	42.2	41.3	40.7	40.1	39.9	39.7	39.6	39.6
Sweden	51.7	49.8	49.3	50.3	51.0	50.1	48.7	48.5	48.1	47.1	47.2	47.5	47.6	47.7	47.8
Switzerland	32.2	32.0	32.0	32.2	33.1	32.7	32.9	33.5	33.5	33.1	33.1	33.2	33.2	33.2	33.2
United Kingdom	44.3	44.7	43.5	43.5	41.7	40.7	39.8	39.0	38.7	38.5	38.3	37.9	37.5	37.2	37.1
United States	41.6	40.0	38.9	37.3	36.0	35.5	35.2	35.4	35.7	36.0	36.3	36.4	36.7	37.0	36.8
Average	43.8	42.6	41.8	41.1	40.6	40.1	39.1	39.0	38.9	39.0	38.9	38.8	38.8	38.8	38.7
Euro Area	50.7	50.5	49.1	49.7	49.7	49.2	48.3	47.6	47.1	46.8	46.5	45.9	45.7	45.5	45.4
G7	44.1	43.0	42.2	41.3	40.7	40.1	39.3	39.3	39.3	39.4	39.5	39.3	39.4	39.5	39.3
G20 Advanced	43.3	42.0	41.3	40.4	39.9	39.3	38.5	38.5	38.5	38.6	38.6	38.5	38.5	38.6	38.4

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table B.

Table A7. Advanced Economies: General Government Gross Debt, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Australia ¹	16.7	20.5	24.1	27.7	30.6	34.1	37.8	40.6	41.6	41.7	41.0	38.7	36.1	34.2	32.2
Austria	79.6	82.4	82.2	81.6	81.0	83.8	84.3	83.7	78.8	75.4	72.0	69.3	66.8	64.9	63.2
Belgium	99.5	99.7	102.6	104.3	105.5	106.8	106.0	105.7	103.2	101.0	99.1	97.4	95.6	94.0	93.0
Canada ¹	79.3	81.1	81.5	84.8	85.8	85.0	90.5	91.1	89.7	86.6	83.8	81.2	78.7	76.4	74.3
Cyprus	52.8	55.8	65.2	79.2	102.1	107.5	107.5	107.1	99.3	97.0	89.5	83.0	78.8	73.1	67.6
Czech Republic	33.6	37.4	39.8	44.5	44.9	42.2	40.0	36.8	34.7	32.9	31.3	29.4	27.6	26.0	24.5
Denmark	40.2	42.6	46.1	44.9	44.0	43.9	39.6	37.7	36.4	35.9	35.1	34.1	32.8	31.4	29.8
Estonia	7.0	6.6	6.1	9.7	10.2	10.7	10.0	9.4	8.8	8.5	8.1	7.6	7.2	6.8	6.4
Finland	41.7	47.1	48.5	53.9	56.5	60.2	63.6	63.0	61.4	60.5	59.6	57.8	56.3	54.6	53.0
France	82.9	85.1	87.8	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	72.6	80.9	78.6	79.8	77.4	74.7	71.0	68.2	64.1	59.8	55.7	52.2	48.7	45.5	42.4
Greece	126.7	146.2	172.1	159.6	177.9	180.2	178.8	183.5	181.9	191.3	181.8	177.0	172.2	168.7	165.1
Hong Kong SAR ¹	0.7	0.6	0.6	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Iceland	82.3	87.8	94.7	92.1	84.3	81.8	67.6	52.7	40.9	38.4	34.9	32.1	29.2	25.6	23.5
Ireland	61.5	86.1	110.4	119.7	119.6	104.7	77.1	72.9	68.5	67.1	64.9	61.0	58.8	55.6	52.4
Israel	74.6	70.7	68.8	68.4	67.1	66.1	64.2	62.3	61.0	61.6	61.4	61.3	61.2	61.0	60.9
Italy	112.5	115.4	116.5	123.4	129.0	131.8	131.5	132.0	131.5	129.7	127.5	124.9	122.1	119.3	116.6
Japan	201.0	207.9	222.1	229.0	232.5	236.1	231.3	235.6	236.4	236.0	234.2	232.3	231.4	230.7	229.6
Korea	31.4	30.8	31.5	32.2	35.4	37.3	39.5	40.0	39.8	38.9	38.3	37.9	37.6	37.3	37.0
Latvia	32.5	40.3	37.5	36.7	35.8	38.5	34.9	37.4	34.8	32.9	31.9	30.6	29.3	28.1	26.9
Lithuania	29.0	36.2	37.2	39.8	38.8	40.5	42.6	40.2	36.5	34.2	31.4	28.9	26.6	24.6	22.7
Luxembourg	15.7	19.8	18.7	21.7	23.7	22.7	22.0	20.8	23.0	22.9	22.8	22.4	22.1	21.8	21.7
Malta	67.6	67.5	70.1	67.8	68.4	63.8	58.7	56.2	52.6	48.6	45.9	43.1	41.2	40.0	38.0
Netherlands	56.5	59.3	61.6	66.3	67.8	68.0	64.6	61.8	56.7	53.5	50.9	49.0	47.4	44.9	42.5
New Zealand	21.1	26.0	30.8	31.3	29.9	29.1	28.4	28.2	26.4	24.0	22.7	21.5	19.5	20.9	17.4
Norway	41.9	42.3	28.8	30.2	30.4	28.3	33.1	36.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7
Portugal	83.6	96.2	111.4	126.2	129.0	130.6	128.8	129.9	125.6	121.2	117.5	114.1	110.8	107.7	104.7
Singapore	99.7	97.0	100.7	105.1	101.5	96.6	100.5	106.8	110.9	110.2	108.8	108.1	106.8	105.8	107.2
Slovak Republic	35.9	40.7	43.2	52.2	54.7	53.5	52.3	51.8	50.4	49.0	46.6	43.9	42.3	41.1	40.3
Slovenia	34.5	38.2	46.4	53.8	70.4	80.3	82.6	78.4	75.4	72.1	69.8	68.0	66.5	65.3	64.4
Spain	52.7	60.1	69.5	85.7	95.5	100.4	99.4	99.0	98.4	96.7	95.1	93.9	92.8	91.8	90.9
Sweden	40.3	38.6	37.9	38.1	40.8	45.5	44.2	42.2	40.9	38.0	34.4	32.0	30.6	29.3	27.9
Switzerland	45.2	44.0	44.1	44.7	43.8	43.7	43.6	43.3	42.8	41.9	41.1	39.6	38.2	36.9	35.7
United Kingdom	64.1	75.6	81.3	84.5	85.6	87.4	88.2	88.2	87.0	86.3	85.9	85.2	84.5	83.6	82.5
United States ¹	87.0	95.7	100.0	103.5	105.4	105.1	105.3	107.2	107.8	108.0	109.4	111.3	113.1	115.2	116.9
Average	91.8	98.4	102.5	106.7	105.4	104.8	104.4	106.9	105.4	103.9	103.1	102.4	101.7	101.2	100.4
Euro Area	78.4	83.8	86.1	89.4	91.3	91.8	89.9	88.9	86.6	84.2	81.7	79.3	76.8	74.3	71.7
G7	103.6	111.8	116.9	121.1	119.0	117.7	116.6	119.7	118.6	117.3	117.0	116.6	116.4	116.3	115.9
G20 Advanced	99.1	106.0	110.5	114.3	112.6	111.7	111.1	114.1	112.9	111.6	111.2	110.7	110.3	110.0	109.5

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table B.

¹ For cross-country comparability, gross 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.

Table A8. Advanced Economies: General Government Net Debt, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Australia ¹	-0.6	3.9	8.0	11.2	13.1	15.5	17.8	19.1	19.1	19.2	18.7	17.3	15.6	13.9	12.3
Austria	56.7	60.5	60.3	60.3	60.2	59.0	58.0	57.5	54.3	51.9	49.4	47.5	45.8	44.6	43.6
Belgium ²	88.3	88.4	90.8	91.6	92.5	93.7	93.1	92.4	90.3	88.6	87.1	85.7	84.3	83.0	82.4
Canada ¹	24.4	26.8	27.1	28.3	29.3	28.0	27.7	28.5	27.8	27.4	26.6	25.7	24.9	24.1	23.5
Cyprus	44.4	48.6	53.0	67.5	78.6	89.5	91.3	88.8	...	...	...	...	...	...	...
Czech Republic	20.7	26.4	26.8	28.3	29.1	29.4	28.1	24.8	22.9	...	...	...	...	...	...
Denmark	11.5	15.0	15.1	18.5	18.3	17.8	16.2	16.8	16.3	16.5	16.4	16.1	15.5	14.7	13.8
Estonia	-9.7	-8.5	-6.8	-4.9	-4.4	-3.9	-2.2	-2.7	-0.6	-0.2	0.0	0.0	0.0	0.0	0.1
Finland ³	-3.7	1.4	3.4	9.6	13.2	14.6	20.9	22.0	22.6	23.1	23.1	22.5	21.9	21.3	20.7
France	69.6	73.5	76.4	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	59.4	60.9	59.2	58.4	57.4	54.2	51.2	48.5	45.1	41.5	38.1	35.1	32.3	29.7	27.2
Greece	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hong Kong SAR	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Iceland ⁴	65.8	65.4	61.4	63.5	61.9	55.4	48.9	40.4	33.3	31.1	27.6	18.8	16.4	13.8	11.1
Ireland ⁵	36.5	66.2	78.6	86.7	89.7	86.1	65.9	63.8	59.8	58.1	56.0	54.8	52.8	50.3	47.8
Israel	66.4	64.2	63.3	63.1	62.0	62.0	60.2	58.6	57.9	58.6	58.6	58.6	58.6	58.6	58.6
Italy	102.8	104.7	106.8	111.6	116.7	118.8	119.5	120.2	119.9	118.5	116.5	114.1	111.6	109.0	106.5
Japan	122.7	131.1	142.4	146.7	146.4	148.5	147.6	152.8	153.0	152.6	150.8	148.9	148.1	147.4	146.3
Korea	30.0	29.2	29.9	-2.0	1.9	3.5	6.4	6.8	6.6	5.7	5.1	4.8	4.4	4.1	3.8
Latvia	15.3	22.4	25.8	24.7	26.1	27.1	29.2	28.0	26.9	25.6	25.0	24.1	23.1	22.2	21.4
Lithuania	20.8	26.3	33.1	33.4	34.2	32.7	35.0	32.8	29.7	27.7	25.3	23.1	21.1	19.4	17.8
Luxembourg	-20.3	-13.4	-10.9	-10.4	-8.8	-10.8	-12.0	-11.8	-8.3	-6.7	-5.2	-4.2	-3.1	-2.2	-1.2
Malta	57.3	57.2	58.1	58.0	59.0	54.3	50.2	43.7	...	...	...	...	...	...	...
Netherlands	41.6	45.7	48.2	51.9	53.5	54.7	52.6	50.4	46.2	43.6	41.5	40.0	38.7	36.6	34.6
New Zealand	-0.6	2.5	6.3	7.9	7.9	7.7	6.4	6.0	4.6	5.2	6.4	6.1	5.4	4.3	0.8
Norway ⁶	-43.8	-47.4	-48.3	-49.8	-61.2	-76.0	-86.7	-87.7	-90.5	-90.7	-92.1	-94.0	-96.3	-98.5	-101.0
Portugal	76.0	87.7	96.1	104.8	107.3	111.9	113.1	112.3	108.1	105.2	102.6	100.0	97.4	94.8	92.1
Singapore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Slovak Republic	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Slovenia	21.0	26.6	32.2	36.7	45.5	46.5	50.4	52.1	...	...	...	...	...	...	...
Spain	36.6	46.0	56.5	71.8	81.1	85.5	85.7	86.5	86.3	85.2	84.0	83.2	82.4	81.8	81.3
Sweden	13.5	13.6	11.9	11.5	11.7	11.4	11.1	8.8	9.0	7.5	5.1	3.8	3.2	2.7	2.3
Switzerland	26.8	25.6	25.6	25.0	23.8	23.8	23.9	24.1	23.1	22.2	21.4	19.9	18.5	17.2	15.9
United Kingdom	57.3	68.4	72.9	76.0	77.2	79.1	79.6	79.1	78.2	77.4	77.0	76.2	75.6	74.7	73.6
United States ¹	62.7	70.1	76.5	80.5	81.3	80.8	80.5	81.5	82.3	81.4	82.7	84.4	86.3	88.4	90.2
Average	64.2	69.6	74.0	76.6	75.8	75.6	75.7	77.3	76.3	75.0	74.5	74.1	73.7	73.5	73.0
Euro Area	62.0	66.1	68.5	72.2	74.6	75.0	73.9	73.2	71.0	68.9	66.9	64.9	62.9	60.7	58.6
G7	73.6	79.9	85.4	88.7	87.5	86.9	86.2	88.1	87.5	86.2	85.9	85.7	85.7	85.9	85.7
G20 Advanced	70.2	75.7	80.5	82.6	81.6	81.2	81.0	82.9	82.0	80.6	80.4	80.0	79.9	79.9	79.5

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table B.

¹ For cross-country comparability, 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 Belgium's net debt series has been revised to ensure consistency between liabilities and assets. Net debt is defined as gross debt (Maastricht definition) minus assets in the form of currency and deposits, loans, and debt securities.³ Net debt figures were revised to include only categories of assets corresponding to the categories of liabilities covered by the Maastricht definition of gross debt.⁴ Net debt for Iceland is defined as gross debt less currency and deposits.⁵ Net debt for Ireland is defined as gross general debt less debt instrument assets, namely, currency and deposits (F2), debt securities (F3), and loans (F4). It was previously defined as general government debt less currency and deposits.⁶ Norway's net debt series has been revised because of a change in the net debt calculation by excluding the equity and shares from financial assets and including accounts receivable in the financial assets, following *Government Finance Statistics* and the Maastricht definition.

Table A9. Emerging Market and Middle-Income Economies: General Government Overall Balance, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Algeria	-5.8	0.0	-0.1	-4.4	-0.4	-7.3	-15.3	-13.1	-6.4	-7.9	-4.6	-3.2	-2.1	0.0	0.0
Angola	-7.4	3.4	8.7	4.6	-0.3	-6.6	-3.3	-4.8	-5.6	-1.7	-2.2	-2.4	-2.6	-2.3	-2.0
Argentina	-2.6	-1.4	-2.7	-3.0	-3.3	-4.3	-5.8	-6.4	-6.5	-5.5	-4.9	-4.0	-4.2	-4.6	-4.8
Azerbaijan	5.9	13.8	10.9	3.7	1.6	2.7	-4.8	-1.2	0.9	2.4	2.1	1.8	0.6	-0.6	-1.6
Belarus	-7.2	-4.2	-2.8	0.4	-1.0	0.1	-2.2	-3.4	-1.7	-2.4	-3.0	-1.2	-0.9	-0.6	-0.5
Brazil	-3.2	-2.7	-2.5	-2.5	-3.0	-5.4	-10.3	-9.0	-7.8	-8.3	-8.3	-7.9	-7.6	-7.0	-6.6
Chile	-4.2	-0.4	1.4	0.7	-0.5	-1.5	-2.1	-2.7	-2.7	-0.9	-0.6	-0.4	0.0	0.0	0.0
China	-1.7	-0.4	-0.1	-0.3	-0.8	-0.9	-2.8	-3.7	-4.0	-4.1	-4.3	-4.3	-4.3	-4.4	-4.3
Colombia	-2.8	-3.3	-2.0	0.1	-0.9	-1.8	-3.4	-3.0	-3.1	-2.7	-1.9	-0.9	-0.7	-0.7	-0.8
Croatia	-6.0	-6.2	-7.8	-5.3	-5.3	-5.4	-3.3	-0.9	0.6	-0.5	-0.3	0.2	0.4	0.6	0.7
Dominican Republic	-3.0	-2.7	-3.1	-6.6	-3.5	-3.0	-0.2	-2.8	-3.4	-3.0	-3.2	-3.2	-3.4	-3.7	-3.7
Ecuador	-3.6	-1.4	-0.1	-0.9	-4.6	-5.2	-5.3	-8.3	-5.3	-5.0	-3.7	-2.9	-2.8	-1.8	-1.6
Egypt ¹	-6.2	-7.4	-9.6	-10.0	-12.9	-11.3	-10.9	-10.7	-11.4	-10.0	-6.6	-5.7	-3.4	-3.3	-3.2
Hungary	-4.6	-4.5	-5.4	-2.3	-2.5	-2.1	-1.5	-1.8	-2.0	-2.1	-1.9	-1.9	-2.1	-2.3	-2.3
India	-9.5	-8.6	-8.3	-7.5	-7.0	-7.2	-7.0	-6.7	-6.9	-6.5	-6.5	-6.4	-6.2	-6.0	-5.9
Indonesia	-1.6	-1.2	-0.7	-1.6	-2.2	-2.1	-2.6	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5
Iran	0.8	2.6	0.6	-0.3	-0.9	-1.1	-1.8	-2.3	-2.3	-1.4	-2.7	-2.7	-2.8	-2.9	-3.0
Kazakhstan	-1.3	1.5	5.8	4.4	4.9	2.5	-6.3	-5.5	-6.3	-2.3	-2.2	-1.8	-2.0	-1.7	-1.4
Kuwait	27.5	26.0	33.3	32.4	34.1	22.4	5.6	0.6	4.0	7.1	6.2	4.3	2.5	1.9	1.3
Libya	-6.5	12.5	-17.2	28.6	-5.1	-73.8	-131.0	-113.3	-43.2	-39.3	-35.5	-38.0	-40.0	-42.0	-42.6
Malaysia	-6.5	-4.5	-3.6	-3.8	-4.1	-2.7	-2.6	-2.6	-2.9	-2.7	-2.5	-2.3	-2.1	-1.9	-1.7
Mexico	-4.9	-3.9	-3.4	-3.7	-3.7	-4.5	-4.0	-2.8	-1.1	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5
Morocco	-1.8	-4.3	-6.6	-7.2	-5.1	-4.8	-4.2	-4.1	-3.6	-3.0	-2.8	-2.7	-2.4	-2.2	-2.1
Oman	-0.3	5.5	9.4	4.6	4.7	-1.1	-15.9	-21.3	-11.4	-5.7	-4.9	-5.5	-6.7	-7.1	-7.2
Pakistan	-5.0	-6.0	-6.7	-8.6	-8.4	-4.9	-5.3	-4.4	-5.7	-5.3	-5.7	-5.7	-5.7	-5.7	-5.7
Peru	-1.4	0.1	2.0	2.1	0.7	-0.3	-2.2	-2.3	-3.1	-3.3	-2.7	-1.8	-1.0	-1.0	-1.0
Philippines	-2.7	-2.4	-0.3	-0.3	0.2	0.9	0.6	-0.4	-0.3	-0.5	-0.6	-0.7	-0.7	-0.8	-0.9
Poland	-7.3	-7.3	-4.8	-3.7	-4.1	-3.6	-2.6	-2.5	-1.7	-1.9	-1.8	-1.5	-1.4	-1.3	-1.2
Qatar	14.9	6.7	7.5	11.2	22.7	15.3	5.3	-4.7	-1.6	2.8	7.5	6.8	5.5	5.1	5.0
Romania	-6.9	-6.3	-4.2	-2.5	-2.5	-1.9	-1.5	-2.4	-2.8	-3.6	-3.5	-3.4	-3.4	-3.3	-3.2
Russia	-5.9	-3.2	1.4	0.4	-1.2	-1.1	-3.4	-3.7	-1.5	0.0	0.1	0.3	0.5	0.5	0.5
Saudi Arabia	-5.4	4.4	11.6	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	-5.2	-5.0	-4.1	-4.4	-4.3	-4.3	-4.8	-4.1	-4.5	-4.2	-4.1	-4.1	-4.0	-4.1	-4.1
Sri Lanka	-8.6	-7.0	-6.2	-5.6	-5.2	-6.2	-7.0	-5.4	-5.5	-4.4	-3.5	-3.5	-3.5	-3.5	-3.5
Thailand	-2.2	-1.3	0.0	-0.9	0.5	-0.8	0.1	0.6	-0.6	-0.9	-0.9	-0.9	-1.0	-1.2	-1.3
Turkey	-5.9	-3.4	-0.7	-1.8	-1.5	-1.4	-1.3	-2.3	-2.3	-2.9	-3.2	-2.8	-2.4	-2.3	-2.2
Ukraine	-6.0	-5.8	-2.8	-4.3	-4.8	-4.5	-1.2	-2.2	-2.4	-2.5	-2.7	-2.4	-2.3	-2.3	-2.2
United Arab Emirates	-6.1	0.6	5.3	9.0	8.4	1.9	-3.4	-2.5	-1.8	-1.4	-0.8	-0.5	-0.1	0.3	0.7
Uruguay	-1.6	-1.1	-0.9	-2.7	-2.3	-3.5	-3.6	-3.9	-3.5	-2.9	-2.5	-2.5	-2.5	-2.5	-2.5
Venezuela	-8.7	-9.2	-10.6	-14.6	-14.1	-16.5	-17.6	-17.8	-31.8	-30.2	-30.9	-30.8	-30.1	-29.4	-30.3
Average	-3.7	-2.2	-1.0	-1.0	-1.5	-2.4	-4.4	-4.8	-4.4	-4.2	-4.1	-4.0	-3.9	-3.9	-3.8
Asia	-3.3	-2.2	-1.6	-1.6	-1.8	-1.9	-3.2	-3.9	-4.2	-4.2	-4.3	-4.3	-4.3	-4.3	-4.3
Europe	-5.8	-3.7	-0.2	-0.7	-1.5	-1.4	-2.7	-3.0	-2.0	-1.4	-1.4	-1.2	-1.1	-1.0	-1.0
Latin America	-3.8	-3.1	-2.8	-3.1	-3.3	-4.8	-7.2	-6.6	-6.2	-5.8	-5.6	-5.1	-4.9	-4.6	-4.4
MENAP	-1.3	2.4	4.3	5.7	4.0	-1.4	-8.4	-9.3	-5.8	-4.6	-3.5	-3.4	-3.2	-3.0	-2.9
G20 Emerging	-3.9	-2.3	-1.1	-1.2	-1.8	-2.5	-4.4	-4.8	-4.4	-4.4	-4.4	-4.3	-4.3	-4.3	-4.2

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table C. MENAP = Middle East, North Africa, and Pakistan.

¹ Based on nominal GDP series prior to the recent revision; therefore, data in the tables are not comparable to the authorities' numbers.

Table A10. Emerging Market and Middle-Income Economies: General Government Primary Balance, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Algeria	-6.3	-0.5	-1.3	-5.3	-0.5	-7.4	-15.9	-13.2	-6.4	-8.1	-4.9	-3.3	-2.2	-0.1	-0.1
Angola	-5.6	4.6	9.6	5.6	0.5	-5.4	-1.3	-1.8	-2.3	2.5	2.0	1.7	1.5	1.6	1.6
Argentina	-1.3	-0.6	-1.6	-1.7	-2.6	-3.5	-4.4	-4.7	-4.5	-3.5	-2.4	-1.3	-1.0	-1.0	-0.9
Azerbaijan	6.0	13.8	10.9	3.8	1.7	2.9	-4.4	-0.8	1.5	3.2	3.3	3.2	2.1	1.0	0.4
Belarus	-6.5	-3.5	-1.7	1.7	0.0	1.1	-0.5	-1.4	0.4	0.0	-0.5	1.4	1.9	2.0	2.0
Brazil	1.9	2.3	2.9	1.9	1.7	0.0	-2.0	-2.5	-1.7	-2.3	-1.8	-1.1	-0.4	0.1	0.6
Chile	-4.4	-0.3	1.5	0.8	-0.4	-1.3	-1.9	-2.4	-2.4	-0.5	-0.1	0.1	0.4	0.5	0.5
China	-1.3	0.1	0.4	0.2	-0.3	-0.4	-2.2	-2.9	-3.0	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1
Colombia	-1.1	-1.6	-0.1	1.6	1.2	0.3	-0.7	0.2	-0.2	0.1	0.8	1.8	1.7	1.7	1.4
Croatia	-4.1	-4.1	-5.1	-2.3	-2.2	-2.3	-0.1	2.0	3.3	2.0	2.1	2.4	2.4	2.5	2.5
Dominican Republic	-1.2	-0.9	-1.0	-4.2	-1.2	-0.5	2.4	0.1	-0.3	0.4	0.4	0.6	0.6	0.6	0.5
Ecuador	-3.0	-0.8	0.5	-0.2	-3.5	-4.2	-3.9	-6.8	-3.2	-2.9	-1.0	0.2	0.7	1.8	2.2
Egypt ¹	-3.2	-3.2	-4.8	-4.9	-5.9	-4.2	-4.1	-3.0	-2.8	-1.1	1.3	1.7	2.1	1.8	1.8
Hungary	-0.6	-0.7	-1.7	1.9	1.7	1.7	1.8	1.3	0.4	0.0	0.1	0.0	-0.1	-0.1	0.1
India	-5.0	-4.4	-4.0	-3.2	-2.4	-2.7	-2.5	-1.9	-2.1	-1.7	-1.8	-1.8	-1.7	-1.6	-1.6
Indonesia	-0.1	0.0	0.5	-0.4	-1.0	-0.9	-1.2	-1.0	-0.9	-0.9	-0.8	-0.8	-0.8	-0.8	-0.8
Iran	0.8	2.6	0.7	-0.2	-0.8	-1.1	-1.7	-2.2	-2.2	-1.0	2.1	2.1	2.3	2.3	2.3
Kazakhstan	-1.4	1.8	5.7	3.8	4.4	2.0	-5.9	-4.8	-6.3	-2.1	-1.9	-1.4	-1.5	-1.1	-0.8
Kuwait	18.1	16.9	26.5	25.4	25.8	12.7	-7.5	-13.8	-9.8	-5.5	-6.4	-8.1	-9.3	-9.4	-9.4
Libya	-6.5	12.5	-17.2	28.6	-5.1	-73.8	-131.0	-113.3	-43.2	-39.3	-35.5	-38.0	-40.0	-42.0	-42.6
Malaysia	-5.0	-2.9	-2.0	-2.0	-2.2	-0.8	-0.9	-0.8	-1.1	-0.8	-0.4	-0.2	0.0	0.2	0.4
Mexico	-2.2	-1.4	-1.0	-0.6	-0.7	-1.5	-1.0	0.6	3.0	1.0	0.6	0.6	0.8	0.9	1.0
Morocco	0.6	-2.0	-4.4	-4.7	-2.5	-2.1	-1.4	-1.4	-1.0	-0.6	-0.5	-0.4	-0.2	-0.1	0.0
Oman	-1.3	4.6	8.9	3.3	2.6	-2.1	-16.1	-21.8	-11.7	-5.3	-4.5	-5.0	-5.8	-5.8	-5.4
Pakistan	-0.2	-1.7	-2.9	-4.2	-3.9	-0.3	-0.5	-0.1	-1.4	-1.3	-1.4	-1.4	-1.3	-1.1	-1.1
Peru	-0.3	1.2	3.1	3.0	1.7	0.7	-1.3	-1.4	-2.0	-2.2	-1.6	-0.7	0.1	0.2	0.2
Philippines	0.6	0.7	2.3	2.3	2.7	3.1	2.7	1.5	1.4	1.4	1.2	1.0	1.0	1.0	0.8
Poland	-4.8	-4.9	-2.3	-1.1	-1.6	-1.6	-0.9	-0.8	-0.1	-0.2	-0.1	0.2	0.3	0.4	0.5
Qatar	16.0	7.9	9.0	12.7	24.0	16.4	6.8	-3.2	-0.3	4.4	9.2	8.5	7.0	6.5	6.3
Romania	-5.9	-5.1	-2.8	-0.7	-0.8	-0.4	-0.2	-1.1	-1.7	-2.4	-2.2	-2.0	-2.0	-1.9	-1.9
Russia	-6.2	-3.1	1.7	0.7	-0.8	-0.7	-3.1	-3.2	-0.9	0.4	0.6	0.9	1.0	1.1	1.1
Saudi Arabia	-5.5	4.7	11.6	11.7	5.2	-4.2	-17.9	-20.2	-10.5	-8.2	-6.2	-5.7	-5.2	-4.5	-3.9
South Africa	-2.9	-2.6	-1.5	-1.7	-1.4	-1.3	-1.6	-0.7	-1.0	-0.5	-0.1	0.0	0.0	0.0	0.0
Sri Lanka	-3.0	-1.5	-1.3	-0.9	-0.6	-2.0	-2.2	-0.2	0.0	1.0	2.0	2.1	2.2	2.2	2.1
Thailand	-1.5	-0.7	0.8	-0.1	1.3	-0.1	0.7	1.0	-0.1	-0.4	-0.4	-0.4	-0.5	-0.6	-0.7
Turkey	-1.5	0.1	1.8	0.7	0.8	0.5	0.6	-1.0	-0.9	-1.3	-1.3	-0.7	-0.3	-0.2	-0.2
Ukraine	-4.9	-4.1	-0.8	-2.4	-2.3	-1.2	3.0	1.9	1.4	1.5	1.8	1.8	1.8	1.8	1.8
United Arab Emirates	-5.9	0.9	5.5	9.3	8.8	2.2	-3.2	-2.3	-1.7	-1.3	-0.7	-0.3	0.0	0.4	0.8
Uruguay	1.1	1.9	1.9	-0.2	0.4	-0.6	0.0	-0.5	-0.2	0.1	0.6	0.6	0.9	1.0	0.8
Venezuela	-7.2	-7.4	-8.5	-11.3	-10.6	-12.6	-15.9	-16.8	-31.5	-24.2	-24.7	-24.4	-24.0	-23.7	-25.0
Average	-2.0	-0.4	0.7	0.6	0.1	-0.8	-2.7	-3.0	-2.5	-2.2	-2.0	-1.9	-1.8	-1.7	-1.7
Asia	-1.9	-0.8	-0.3	-0.4	-0.6	-0.7	-2.0	-2.4	-2.5	-2.6	-2.6	-2.6	-2.6	-2.6	-2.5
Europe	-4.3	-2.3	1.0	0.5	-0.3	-0.3	-1.5	-1.8	-0.9	-0.3	-0.1	0.2	0.3	0.4	0.4
Latin America	-0.6	0.2	0.7	0.1	-0.1	-1.3	-2.8	-2.7	-2.2	-1.8	-1.4	-0.7	-0.3	0.1	0.3
MENAP	-1.0	2.9	4.8	6.2	4.6	-0.8	-7.9	-9.0	-5.3	-3.9	-2.2	-2.0	-1.9	-1.6	-1.4
G20 Emerging	-2.0	-0.5	0.8	0.4	-0.2	-0.8	-2.6	-3.0	-2.4	-2.4	-2.3	-2.2	-2.1	-2.1	-2.0

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: Primary balance is defined as the overall balance excluding net interest payments. For country-specific details, see "Data and Conventions" in text, and Table C. MENAP = Middle East, North Africa, and Pakistan.

¹ Based on nominal GDP series prior to the recent revision; therefore, data in the tables are not comparable to the authorities' numbers.

Table A11. Emerging Market and Middle-Income Economies: General Government Cyclically Adjusted Balance, 2009–23
(Percent of potential GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Algeria	-12.2	-4.1	0.5	-3.1	1.2	-10.4	-19.3	-17.0	-8.9	-10.5	-5.7	-3.8	-2.1	1.1	2.7
Angola	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Argentina	-0.5	-1.4	-3.9	-3.1	-3.9	-3.7	-6.3	-5.7	-5.9	-4.8	-4.3	-3.5	-3.7	-4.2	-4.5
Azerbaijan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belarus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Brazil	-2.7	-3.7	-3.9	-3.8	-4.4	-6.8	-10.1	-7.4	-6.4	-7.2	-7.6	-7.5	-7.4	-7.0	-6.5
Chile ¹	-4.3	-2.5	-1.1	0.0	-0.9	-1.4	-2.0	-2.4	-2.2	-2.4	-2.8	-2.8	-2.5	-2.5	-2.5
China	-1.8	-0.4	-0.1	-0.1	-0.5	-0.5	-2.5	-3.6	-4.0	-4.2	-4.4	-4.4	-4.4	-4.4	-4.3
Colombia	-2.3	-2.7	-2.1	0.1	-1.1	-2.1	-3.7	-2.9	-2.6	-2.2	-1.5	-0.6	-0.6	-0.6	-0.8
Croatia	-5.4	-5.1	-6.8	-3.5	-3.2	-3.2	-2.0	-0.4	0.5	-0.6	-0.4	0.2	0.4	0.6	0.7
Dominican Republic	-2.4	-3.2	-3.1	-6.3	-3.2	-2.9	-0.3	-3.0	-3.4	-3.1	-3.3	-3.3	-3.5	-3.7	-3.7
Ecuador	-3.2	-2.4	-2.4	-3.6	-8.7	-9.4	-7.6	-7.9	-4.6	-4.8	-3.0	-1.5	-0.9	0.0	0.5
Egypt ²	-7.1	-8.6	-9.6	-10.0	-13.0	-11.4	-15.3	-15.9	-20.0	-19.8	-15.5	-14.7	-10.5	-10.8	-11.1
Hungary	-3.3	-3.1	-4.3	0.1	-0.3	-1.0	-1.0	-1.2	-2.1	-2.7	-2.7	-2.6	-2.8	-2.8	-2.7
India	-9.3	-9.0	-8.6	-7.5	-6.8	-7.0	-7.0	-6.5	-6.4	-6.5	-6.5	-6.4	-6.2	-6.0	-5.9
Indonesia	-1.8	-1.5	-1.0	-1.9	-2.5	-2.3	-2.7	-2.5	-2.4	-2.4	-2.5	-2.5	-2.5	-2.5	-2.5
Iran	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kuwait	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Libya	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	-5.5	-4.2	-2.9	-3.8	-3.5	-2.4	-3.0	-2.9	-3.1	-2.7	-2.6	-2.5	-2.2	-2.0	-1.7
Mexico	-4.0	-3.6	-3.3	-3.9	-3.7	-4.5	-4.3	-4.1	-2.6	-2.4	-2.5	-2.5	-2.5	-2.5	-2.5
Morocco	-1.9	-4.3	-6.9	-7.7	-5.9	-6.3	-4.6	-4.8	-4.2	-3.7	-3.1	-2.8	-2.8	-2.9	-3.1
Oman	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pakistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Peru ¹	-0.2	-0.4	1.2	1.4	0.1	-0.2	-1.6	-1.9	-2.8	-3.2	-2.8	-1.8	-1.0	-1.0	-1.0
Philippines	-1.8	-2.5	0.0	-0.3	0.1	0.6	0.6	-0.4	-0.3	-0.5	-0.7	-0.7	-0.7	-0.8	-0.8
Poland	-6.7	-7.2	-5.4	-3.6	-3.2	-3.2	-2.6	-2.5	-2.3	-2.7	-2.6	-2.2	-1.9	-1.6	-1.3
Qatar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Romania	-8.3	-5.8	-3.5	-1.3	-1.5	-0.9	-0.7	-2.1	-3.5	-4.7	-4.5	-4.2	-4.0	-3.7	-3.4
Russia	-5.0	-2.8	1.4	0.2	-1.3	0.1	-2.4	-2.9	-1.4	0.0	0.1	0.3	0.5	0.5	0.5
Saudi Arabia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South Africa	-3.6	-3.8	-3.7	-4.2	-4.1	-4.1	-4.1	-3.8	-3.8	-3.7	-3.6	-3.4	-3.5	-3.6	-3.7
Sri Lanka	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thailand	-1.4	-1.4	0.0	-0.7	0.3	-0.4	0.6	0.8	-0.6	-0.9	-0.8	-0.9	-1.1	-1.3	-1.3
Turkey	-3.3	-2.1	-1.1	-1.7	-2.0	-1.6	-1.5	-2.1	-2.9	-3.6	-3.8	-3.3	-2.9	-2.8	-2.7
Ukraine	-2.1	-2.7	-3.2	-4.5	-4.6	-3.2	1.8	-1.1	-1.7	-2.2	-2.5	-2.3	-2.2	-2.3	-2.2
United Arab Emirates	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Uruguay	-1.9	-2.1	-2.1	-3.6	-3.3	-4.4	-3.6	-3.5	-3.4	-2.9	-2.6	-2.5	-2.5	-2.5	-2.6
Venezuela	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Average	-3.6	-2.8	-2.0	-1.9	-2.2	-2.4	-3.8	-4.1	-4.1	-4.1	-4.2	-4.1	-4.0	-4.0	-3.9
Asia	-3.2	-2.2	-1.6	-1.4	-1.5	-1.5	-3.0	-3.7	-4.1	-4.3	-4.4	-4.4	-4.4	-4.4	-4.3
Europe	-4.9	-3.5	-0.7	-1.0	-1.8	-1.0	-1.9	-2.4	-2.0	-1.7	-1.8	-1.5	-1.3	-1.2	-1.1
Latin America	-2.8	-3.2	-3.3	-3.1	-3.6	-5.0	-6.6	-5.5	-4.7	-4.8	-4.9	-4.6	-4.5	-4.4	-4.2
MENAP	-7.1	-6.5	-6.4	-7.8	-7.9	-10.1	-14.2	-13.8	-11.4	-11.2	-7.7	-6.3	-4.5	-3.1	-2.7
G20 Emerging	-3.4	-2.6	-1.8	-1.8	-2.1	-2.3	-3.8	-4.2	-4.2	-4.3	-4.4	-4.3	-4.3	-4.3	-4.2

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table C. MENAP = Middle East, North Africa, and Pakistan.

¹ Data for these countries include adjustments beyond the output cycle.

² Based on nominal GDP series prior to the recent revision; therefore, data in the tables are not comparable to the authorities' numbers.

Table A12. Emerging Market and Middle-Income Economies: General Government Cyclically Adjusted Primary Balance, 2009–23
(Percent of potential GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Algeria	-12.9	-4.8	-1.5	-4.5	1.1	-10.5	-20.0	-17.1	-8.8	-10.8	-6.0	-3.9	-2.2	1.0	2.5
Angola	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Argentina	0.8	-0.6	-2.7	-1.8	-3.3	-2.9	-4.9	-4.0	-3.9	-2.8	-1.9	-0.8	-0.6	-0.7	-0.6
Azerbaijan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belarus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Brazil	2.4	1.5	1.7	0.8	0.5	-1.2	-1.7	-1.2	-0.5	-1.4	-1.3	-0.8	-0.3	0.2	0.6
Chile ¹	-4.5	-2.4	-1.0	0.1	-0.8	-1.2	-1.8	-2.1	-1.9	-1.9	-2.4	-2.4	-2.0	-2.0	-2.0
China	-1.4	0.0	0.4	0.4	0.0	0.1	-1.9	-2.8	-3.1	-3.2	-3.2	-3.2	-3.2	-3.2	-3.1
Colombia	-0.7	-1.1	-0.2	1.6	1.0	0.0	-1.0	0.2	0.2	0.5	1.1	2.0	1.8	1.7	1.4
Croatia	-3.5	-3.0	-4.1	-0.6	-0.3	-0.4	1.1	2.4	3.2	1.9	2.0	2.4	2.4	2.5	2.5
Dominican Republic	-0.6	-1.4	-1.1	-3.9	-0.9	-0.5	2.3	-0.1	-0.4	0.3	0.4	0.5	0.5	0.5	0.5
Ecuador	-2.6	-1.8	-1.7	-2.8	-7.7	-8.4	-6.2	-6.3	-2.5	-2.7	-0.4	1.6	2.5	3.7	4.3
Egypt ²	-4.0	-4.1	-4.7	-4.9	-6.1	-4.4	-6.3	-5.1	-5.2	-1.2	3.2	4.6	4.8	4.5	4.9
Hungary	0.6	0.6	-0.7	4.2	3.8	2.8	2.4	1.8	0.3	-0.6	-0.7	-0.7	-0.8	-0.5	-0.2
India	-4.8	-4.7	-4.2	-3.1	-2.3	-2.6	-2.4	-1.7	-1.6	-1.6	-1.7	-1.8	-1.7	-1.6	-1.6
Indonesia	-0.2	-0.1	0.2	-0.7	-1.3	-1.1	-1.3	-1.0	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8
Iran	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kuwait	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Libya	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	-4.0	-2.7	-1.3	-2.0	-1.7	-0.5	-1.3	-1.0	-1.3	-0.8	-0.5	-0.3	0.0	0.2	0.4
Mexico	-1.5	-1.1	-0.9	-0.8	-0.6	-1.5	-1.2	-0.7	1.5	1.1	0.6	0.6	0.8	0.9	1.1
Morocco	0.4	-2.0	-4.7	-5.2	-3.3	-3.6	-1.9	-2.2	-1.7	-1.2	-0.8	-0.5	-0.6	-0.7	-0.9
Oman	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pakistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Peru ¹	0.9	0.6	2.2	2.3	1.1	0.7	-0.8	-1.0	-1.7	-2.1	-1.7	-0.7	0.1	0.1	0.2
Philippines	1.5	0.5	2.6	2.3	2.6	2.9	2.7	1.4	1.4	1.3	1.1	1.0	1.0	1.0	0.9
Poland	-4.3	-4.7	-2.9	-1.0	-0.7	-1.3	-0.9	-0.8	-0.7	-1.0	-0.9	-0.5	-0.2	0.1	0.3
Qatar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Romania	-7.3	-4.5	-2.1	0.4	0.1	0.6	0.5	-0.8	-2.3	-3.4	-3.1	-2.8	-2.6	-2.3	-2.1
Russia	-5.3	-2.7	1.7	0.5	-1.0	0.5	-2.1	-2.4	-0.8	0.4	0.6	0.9	1.0	1.1	1.1
Saudi Arabia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South Africa	-1.3	-1.3	-1.2	-1.5	-1.2	-1.1	-0.9	-0.4	-0.3	0.1	0.4	0.6	0.6	0.5	0.5
Sri Lanka	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thailand	-0.7	-0.8	0.9	0.2	1.1	0.3	1.1	1.2	-0.1	-0.4	-0.4	-0.4	-0.6	-0.7	-0.7
Turkey	0.7	1.2	1.5	0.7	0.3	0.4	0.3	-0.7	-1.5	-1.9	-1.9	-1.2	-0.7	-0.7	-0.7
Ukraine	-1.1	-1.1	-1.2	-2.6	-2.2	0.0	5.7	2.9	2.1	1.7	1.9	1.9	1.8	1.8	1.8
United Arab Emirates	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Uruguay	0.9	0.9	0.8	-1.0	-0.5	-1.4	-0.1	-0.2	-0.1	0.1	0.6	0.6	0.9	1.0	0.8
Venezuela	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Average	-1.7	-0.9	-0.1	-0.2	-0.5	-0.6	-1.8	-2.1	-1.9	-2.0	-2.0	-1.9	-1.8	-1.7	-1.7
Asia	-1.9	-0.9	-0.3	-0.2	-0.3	-0.3	-1.8	-2.3	-2.5	-2.6	-2.7	-2.7	-2.7	-2.6	-2.5
Europe	-3.4	-2.0	0.6	0.3	-0.5	0.3	-0.6	-1.2	-0.8	-0.6	-0.4	-0.1	0.1	0.2	0.3
Latin America	0.5	0.2	0.3	0.1	-0.4	-1.4	-2.0	-1.5	-0.6	-0.9	-0.8	-0.3	0.1	0.3	0.5
MENAP	-5.2	-3.8	-3.9	-4.8	-3.6	-5.9	-9.2	-7.9	-5.6	-5.1	-1.8	-0.6	0.1	1.3	1.9
G20 Emerging	-1.5	-0.7	0.1	-0.1	-0.5	-0.5	-1.9	-2.2	-2.1	-2.2	-2.2	-2.1	-2.1	-2.0	-1.9

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: Cyclically adjusted primary balance is defined as the cyclically adjusted balance plus net interest payable/paid (interest expense minus interest revenue) following the *World Economic Outlook* convention. For country-specific details, see "Data and Conventions" in text, and Table C. MENAP = Middle East, North Africa, and Pakistan.¹ Data for these countries include adjustments beyond the output cycle. For country-specific details, see "Data and Conventions" in text, and Table C.² Based on nominal GDP series prior to the recent revision; therefore, data in the tables are not comparable to the authorities' numbers.

Table A13. Emerging Market and Middle-Income Economies: General Government Revenue, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Algeria	36.8	37.2	40.0	39.1	35.8	33.3	30.6	28.8	29.9	28.7	26.4	25.3	24.6	24.2	23.6
Angola	34.6	43.4	48.8	46.5	40.2	35.3	27.3	18.6	16.5	18.4	18.3	17.7	17.3	17.1	16.8
Argentina	31.9	31.9	32.2	33.8	34.3	34.6	35.4	35.1	34.1	34.0	33.5	33.2	32.8	32.6	32.5
Azerbaijan	40.4	45.8	44.6	40.3	39.4	39.1	33.9	34.3	37.0	38.9	39.9	40.4	39.9	39.2	38.9
Belarus	44.5	40.1	37.5	39.3	39.8	38.9	41.3	42.4	41.7	41.2	40.9	40.7	40.9	41.1	41.1
Brazil	34.0	36.1	35.1	34.7	34.5	32.5	28.1	30.5	30.1	29.9	29.1	28.9	29.1	29.1	29.0
Chile	20.6	23.0	24.2	23.8	22.6	22.3	22.8	22.6	22.6	23.8	23.9	23.9	23.9	23.9	23.9
China	23.8	24.6	26.9	27.8	27.7	28.1	28.5	28.2	27.6	27.5	27.4	27.1	27.0	26.8	26.7
Colombia	26.7	26.1	26.7	28.3	28.1	27.7	26.4	25.1	25.6	25.7	25.9	26.5	26.6	26.4	26.2
Croatia	41.6	41.2	40.9	41.7	42.8	42.7	44.5	46.3	47.0	46.5	46.5	46.4	46.5	46.5	46.6
Dominican Republic	13.2	13.1	12.9	13.6	14.4	14.8	17.5	14.8	15.1	15.1	15.0	15.1	15.0	15.0	15.0
Ecuador	29.4	33.3	39.3	39.3	39.2	38.4	33.8	30.7	32.0	33.6	32.8	32.1	31.7	31.4	31.2
Egypt ¹	26.3	23.9	20.9	20.8	21.7	24.4	22.0	21.5	21.3	20.8	21.1	20.6	20.8	20.8	21.1
Hungary	45.8	44.7	44.0	46.1	46.6	46.7	48.0	45.1	47.7	47.5	46.4	45.4	43.1	43.2	43.3
India	18.5	18.8	19.3	19.8	19.6	19.2	20.3	20.9	20.9	21.3	21.3	21.3	21.4	21.4	21.5
Indonesia	15.4	15.6	17.0	17.2	16.9	16.5	14.9	14.3	14.0	14.2	14.1	14.0	14.1	14.2	14.3
Iran	20.7	21.0	18.9	13.9	13.5	14.3	16.1	17.3	15.7	18.7	19.5	19.5	19.5	19.5	19.2
Kazakhstan	22.1	23.9	27.0	26.3	24.8	23.7	16.6	16.6	18.6	19.4	19.7	20.1	19.9	20.2	20.3
Kuwait	69.7	70.7	72.3	71.2	72.3	66.6	60.0	53.4	54.3	54.3	54.1	52.4	50.4	48.5	46.7
Libya	65.6	70.4	42.4	74.2	83.0	69.3	51.2	31.7	47.1	41.2	43.4	39.0	35.4	33.0	31.2
Malaysia	24.8	22.5	23.9	25.0	24.1	23.7	22.5	20.7	19.6	19.0	19.2	19.2	19.2	19.3	19.3
Mexico	23.2	22.7	23.5	24.5	24.1	23.4	23.5	24.6	24.8	22.1	22.2	22.3	22.4	22.4	22.4
Morocco	28.7	26.8	27.2	28.0	27.8	28.0	26.5	26.1	26.1	26.6	26.0	26.0	26.2	26.3	26.5
Oman	37.9	39.4	48.7	48.7	49.4	46.3	34.9	29.3	29.5	34.7	35.3	34.1	32.7	31.8	31.2
Pakistan	14.2	14.3	12.6	13.0	13.5	15.2	14.5	15.5	15.7	15.8	15.8	15.8	15.8	16.0	16.0
Peru	20.1	21.2	22.0	22.8	22.8	22.3	20.1	18.6	18.2	18.2	18.4	18.7	18.9	18.8	18.7
Philippines	17.4	16.8	17.6	18.6	18.8	19.0	19.4	19.1	19.6	19.8	19.9	20.0	20.1	20.0	20.1
Poland	37.8	38.5	39.1	39.1	38.5	38.7	38.9	38.7	39.8	40.8	41.1	40.9	40.7	40.7	40.6
Qatar	47.7	37.4	36.0	42.2	51.0	48.7	46.8	35.2	30.7	33.2	35.7	34.4	32.7	31.3	30.8
Romania	29.7	31.8	32.3	32.4	31.4	32.0	32.8	29.0	28.0	28.4	29.0	29.0	29.2	29.2	29.1
Russia	32.6	32.2	34.6	34.4	33.4	33.8	31.8	32.8	33.3	33.2	32.5	32.3	32.2	32.4	32.4
Saudi Arabia	31.7	37.5	44.4	45.1	41.2	36.7	25.0	21.5	24.4	29.1	29.9	30.7	30.7	30.7	30.7
South Africa	26.5	26.4	26.8	26.9	27.3	27.6	28.1	28.6	28.4	29.0	29.3	29.5	29.7	29.8	29.9
Sri Lanka	13.1	13.0	13.6	12.2	12.0	11.6	13.3	14.2	13.8	14.4	15.6	15.7	15.8	16.0	15.9
Thailand	19.5	20.7	21.1	21.3	22.2	21.4	22.3	22.0	21.1	21.4	21.5	21.5	21.5	21.5	21.5
Turkey	32.5	32.8	32.7	32.6	32.8	31.9	32.2	32.8	31.5	30.7	30.7	30.7	31.0	31.1	31.1
Ukraine	40.8	43.4	42.9	44.7	43.3	40.3	41.9	38.4	40.1	40.9	41.4	41.3	41.2	41.1	41.0
United Arab Emirates	28.9	32.8	36.5	38.1	38.7	35.0	29.0	29.8	30.3	29.6	29.2	28.3	27.6	27.0	26.4
Uruguay	28.1	29.4	28.3	27.8	29.5	28.8	28.8	29.5	29.5	29.7	30.1	30.1	30.4	30.5	30.3
Venezuela	24.6	21.0	27.6	25.1	25.9	30.1	18.9	17.1	9.0	13.2	11.9	12.1	12.5	12.9	11.5
Average	26.9	27.5	28.9	29.4	29.1	28.5	27.2	26.9	26.6	26.9	26.7	26.5	26.4	26.3	26.2
Asia	21.9	22.4	24.3	25.3	25.3	25.5	26.1	25.8	25.2	25.3	25.3	25.0	25.0	24.9	24.8
Europe	34.1	34.2	35.3	35.1	34.4	34.3	33.3	33.8	34.0	34.0	33.8	33.7	33.6	33.7	33.6
Latin America	28.8	29.8	30.3	30.3	30.2	29.2	26.6	27.4	27.2	27.0	26.6	26.6	26.7	26.6	26.6
MENAP	31.1	32.6	33.8	36.3	35.5	32.6	26.6	24.4	25.1	27.1	27.4	27.1	26.7	26.3	25.9
G20 Emerging	26.0	26.9	28.5	29.0	28.6	28.1	27.3	27.3	26.9	26.9	26.7	26.5	26.4	26.3	26.2

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table C. MENAP = Middle East, North Africa, and Pakistan.

¹ Based on nominal GDP series prior to the recent revision; therefore, data in the tables are not comparable to the authorities' numbers.

Table A14. Emerging Market and Middle-Income Economies: General Government Expenditure, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Algeria	42.6	37.3	40.1	43.5	36.2	40.6	45.8	41.9	36.3	36.5	31.1	28.5	26.7	24.2	23.6
Angola	41.9	40.0	40.2	41.8	40.5	41.9	30.6	23.4	22.0	20.1	20.4	20.1	19.9	19.4	18.8
Argentina	34.5	33.4	34.9	36.8	37.6	38.9	41.2	41.4	40.5	39.5	38.4	37.2	37.0	37.1	37.2
Azerbaijan	34.5	32.0	33.7	36.6	37.8	36.4	38.7	35.4	36.1	36.6	37.8	38.6	39.3	39.8	40.4
Belarus	51.7	44.3	40.3	38.9	40.8	38.8	43.5	45.8	43.4	43.6	43.9	41.9	41.8	41.7	41.6
Brazil	37.1	38.8	37.6	37.2	37.5	37.8	38.4	39.5	37.9	38.3	37.4	36.8	36.7	36.1	35.5
Chile	24.9	23.3	22.8	23.1	23.1	23.7	24.9	25.3	25.3	24.7	24.4	24.3	23.9	23.9	23.9
China	25.5	25.0	27.0	28.1	28.5	29.0	31.3	31.9	31.5	31.6	31.6	31.3	31.3	31.2	31.0
Colombia	29.5	29.4	28.7	28.3	29.0	29.4	29.8	28.1	28.7	28.4	27.9	27.4	27.4	27.1	27.0
Croatia	47.6	47.3	48.7	47.0	48.1	48.0	47.9	47.1	46.4	47.0	46.8	46.2	46.1	46.0	45.9
Dominican Republic	16.2	15.8	16.0	20.1	17.9	17.7	17.7	17.6	18.5	18.1	18.2	18.3	18.5	18.7	18.7
Ecuador	33.0	34.7	39.5	40.3	43.7	43.6	39.1	39.1	37.4	38.6	36.5	35.0	34.4	33.2	32.8
Egypt ¹	32.5	31.4	30.5	30.8	34.6	35.7	33.0	32.2	32.7	30.8	27.7	26.3	24.2	24.1	24.3
Hungary	50.3	49.2	49.4	48.4	49.1	48.7	49.6	46.9	49.8	49.6	48.2	47.2	45.2	45.4	45.6
India	28.1	27.4	27.6	27.4	26.6	26.3	27.3	27.5	27.8	27.8	27.8	27.7	27.6	27.5	27.4
Indonesia	17.0	16.9	17.7	18.8	19.1	18.6	17.5	16.8	16.5	16.7	16.6	16.5	16.6	16.7	16.8
Iran	19.9	18.4	18.3	14.3	14.4	15.4	17.9	19.5	18.0	20.0	22.2	22.2	22.4	22.4	22.2
Kazakhstan	23.5	22.5	21.2	21.9	19.8	21.3	22.9	22.1	24.9	21.7	21.9	21.9	21.9	21.9	21.8
Kuwait	42.2	44.7	39.1	38.8	38.1	44.3	54.4	52.8	50.4	47.2	47.9	48.1	47.9	46.7	45.3
Libya	72.1	57.9	59.7	45.7	88.1	143.1	182.2	145.1	90.4	80.6	78.9	77.1	75.4	75.0	73.8
Malaysia	31.3	27.0	27.5	28.8	28.2	26.3	25.1	23.3	22.5	21.7	21.7	21.6	21.4	21.2	21.1
Mexico	28.1	26.6	26.9	28.2	27.8	28.0	27.5	27.4	25.9	24.6	24.7	24.8	24.9	24.9	24.9
Morocco	30.4	31.1	33.8	35.2	32.9	32.9	30.7	30.2	29.7	29.6	28.8	28.7	28.5	28.5	28.6
Oman	38.2	33.9	39.3	44.0	44.8	47.4	50.9	50.6	40.9	40.3	40.2	39.5	39.4	38.8	38.4
Pakistan	19.3	20.3	19.3	21.7	21.8	20.1	19.8	19.9	21.3	21.2	21.5	21.5	21.6	21.7	21.7
Peru	21.5	21.1	20.0	20.7	22.0	22.5	22.3	21.0	21.3	21.5	21.1	20.4	19.9	19.7	19.7
Philippines	20.1	19.2	17.9	18.9	18.7	18.1	18.8	19.5	19.9	20.3	20.5	20.7	20.8	20.8	21.0
Poland	45.0	45.8	43.9	42.9	42.6	42.3	41.6	41.2	41.5	42.7	42.8	42.4	42.1	42.0	41.8
Qatar	32.9	30.6	28.5	31.0	28.3	33.4	41.5	39.9	32.4	30.4	28.2	27.6	27.2	26.2	25.8
Romania	36.6	38.2	36.5	34.9	33.9	33.9	34.2	31.4	30.8	32.0	32.5	32.4	32.6	32.5	32.3
Russia	38.5	35.4	33.2	34.0	34.6	34.9	35.1	36.5	34.7	33.1	32.3	31.9	31.8	31.9	31.9
Saudi Arabia	37.1	33.1	32.8	33.2	35.5	40.2	40.8	38.7	33.4	36.4	35.5	36.0	35.6	35.1	34.7
South Africa	31.7	31.4	30.9	31.4	31.6	31.9	32.9	32.7	32.9	33.2	33.4	33.6	33.7	33.8	34.0
Sri Lanka	21.7	20.0	19.9	17.8	17.2	17.9	20.4	19.6	19.4	18.8	19.1	19.2	19.3	19.5	19.4
Thailand	21.7	22.0	21.1	22.2	21.6	22.2	22.2	21.4	21.7	22.3	22.4	22.4	22.6	22.7	22.8
Turkey	38.3	36.2	33.4	34.4	34.2	33.3	33.4	35.1	33.8	33.6	33.8	33.5	33.4	33.3	33.3
Ukraine	46.8	49.2	45.7	49.0	48.1	44.8	43.0	40.6	42.5	43.4	44.1	43.7	43.5	43.4	43.2
United Arab Emirates	35.0	32.2	31.1	29.1	30.3	33.1	32.4	32.3	32.1	31.0	30.1	28.8	27.8	26.7	25.7
Uruguay	29.7	30.5	29.2	30.5	31.8	32.3	32.3	33.3	33.1	32.7	32.6	32.6	32.9	33.0	32.9
Venezuela	33.3	30.2	38.2	39.7	40.0	46.6	36.4	34.8	40.9	43.4	42.8	42.9	42.7	42.3	41.9
Average	30.6	29.7	29.8	30.4	30.5	30.9	31.6	31.7	31.1	31.0	30.8	30.5	30.4	30.2	30.0
Asia	25.2	24.6	26.0	26.9	27.1	27.4	29.3	29.6	29.3	29.6	29.6	29.4	29.3	29.2	29.1
Europe	39.9	37.9	35.5	35.8	35.9	35.7	36.0	36.7	36.0	35.4	35.2	34.9	34.7	34.7	34.6
Latin America	32.6	32.9	33.1	33.4	33.4	34.0	33.9	34.0	33.4	32.8	32.2	31.7	31.6	31.3	31.0
MENAP	32.4	30.2	29.5	30.6	31.5	34.1	35.0	33.6	30.9	31.7	30.9	30.6	29.9	29.3	28.8
G20 Emerging	29.9	29.2	29.6	30.2	30.4	30.7	31.7	32.1	31.3	31.3	31.1	30.8	30.7	30.6	30.4

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table C. MENAP = Middle East, North Africa, and Pakistan.

¹ Based on nominal GDP series prior to the recent revision; therefore, data in the tables are not comparable to the authorities' numbers.

Table A15. Emerging Market and Middle-Income Economies: General Government Gross Debt, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Algeria	9.8	10.5	9.3	9.3	7.6	7.7	8.8	20.6	25.8	33.3	38.4	39.4	38.4	35.1	31.5
Angola	22.7	44.3	33.8	29.9	32.9	40.7	64.6	79.8	65.3	73.0	71.6	68.6	66.4	63.2	60.5
Argentina	53.8	42.0	37.5	38.9	41.7	43.6	55.1	53.3	52.6	54.1	52.7	52.2	52.0	52.5	53.5
Azerbaijan	12.4	12.5	11.2	13.8	12.6	14.4	35.0	50.7	54.7	54.9	56.4	56.4	55.7	55.4	56.0
Belarus	32.5	36.8	58.2	36.9	36.9	38.8	53.0	53.5	51.0	49.5	49.9	49.6	47.5	46.1	43.2
Brazil ¹	65.0	63.1	61.2	62.2	60.2	62.3	72.6	78.4	84.0	87.3	90.2	92.7	94.6	95.7	96.3
Chile	5.8	8.6	11.1	11.9	12.7	15.0	17.3	21.0	23.6	23.8	24.6	25.2	25.5	25.6	25.7
China	34.3	33.7	33.6	34.3	37.0	39.9	41.1	44.3	47.8	51.2	54.4	57.6	60.5	63.1	65.5
Colombia	35.2	36.4	35.7	34.1	37.8	43.7	50.6	50.7	49.4	49.3	48.2	46.0	43.9	41.8	40.2
Croatia	49.0	58.2	65.0	70.6	81.7	85.8	85.4	82.7	78.4	75.5	72.6	69.6	66.5	63.2	60.7
Dominican Republic	22.6	23.7	25.9	30.0	34.3	33.7	33.0	35.0	37.7	36.9	37.9	38.8	39.9	41.2	42.6
Ecuador ²	25.3	23.1	21.4	20.6	21.1	27.1	33.8	42.9	45.0	48.0	50.1	51.4	52.4	52.4	52.1
Egypt ³	69.5	69.6	72.8	73.8	84.0	85.1	88.5	96.8	103.3	91.2	87.1	81.2	77.9	72.8	68.1
Hungary	77.5	80.1	80.3	77.9	76.3	75.2	74.0	73.3	69.9	67.4	65.9	64.7	64.0	63.6	61.8
India	72.5	67.5	69.6	69.1	68.5	67.8	69.6	68.9	70.2	68.9	67.3	65.8	64.3	62.9	61.4
Indonesia	26.5	24.5	23.1	23.0	24.8	24.7	27.5	28.3	28.9	29.6	30.3	30.7	31.1	31.5	31.7
Iran	10.1	11.7	8.9	12.1	10.7	11.8	41.6	48.9	40.9	53.9	49.2	45.6	42.6	40.0	38.1
Kazakhstan	10.2	10.7	10.2	12.1	12.6	14.5	21.9	21.0	21.2	21.6	23.1	24.5	25.8	26.8	27.8
Kuwait	6.7	6.2	4.6	3.6	3.1	3.4	4.7	9.9	20.6	26.7	32.4	37.4	41.4	44.7	46.8
Libya	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	51.1	51.9	52.6	54.6	56.4	56.2	57.9	56.2	54.2	53.6	52.6	51.4	50.0	48.2	46.2
Mexico	43.7	42.0	42.9	42.7	45.9	48.9	52.9	56.8	54.2	53.5	53.4	53.4	53.3	53.3	53.3
Morocco	46.1	49.0	52.5	56.5	61.7	63.3	63.7	64.7	64.4	64.1	62.4	61.5	60.0	58.4	57.3
Oman	6.7	5.7	5.2	4.9	5.0	4.9	15.5	33.3	44.2	46.8	48.3	50.6	53.5	55.9	58.6
Pakistan	58.5	60.6	58.9	63.2	63.9	63.5	63.3	67.6	67.2	67.2	67.4	67.3	66.9	66.2	65.5
Peru	28.4	25.5	23.3	21.6	20.8	20.7	24.0	24.4	25.5	27.0	28.0	28.1	27.5	26.9	26.3
Philippines	52.1	49.7	47.5	47.9	45.7	42.1	41.5	39.0	37.8	37.3	36.3	35.7	35.1	34.6	34.2
Poland	49.4	53.1	54.1	53.7	55.7	50.2	51.1	54.1	51.4	50.8	49.8	48.6	47.4	46.2	45.0
Qatar	32.4	29.1	33.5	32.1	30.9	24.9	34.9	46.5	54.0	55.4	52.0	48.2	44.9	41.8	38.6
Romania	22.6	30.8	34.1	37.7	38.9	40.5	39.3	39.1	36.9	37.8	39.0	40.0	41.0	41.9	42.7
Russia	9.9	10.6	10.8	11.5	12.7	15.6	15.9	15.7	17.4	18.7	19.5	19.9	20.0	20.1	20.4
Saudi Arabia	14.0	8.4	5.4	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	30.1	34.7	38.2	41.0	44.1	47.0	49.3	51.6	52.7	54.9	55.7	56.4	57.0	57.6	58.1
Sri Lanka	75.2	71.6	71.1	69.6	71.8	72.2	78.5	79.6	79.4	77.3	75.2	73.1	71.0	69.0	66.9
Thailand	42.4	39.8	39.1	41.9	42.2	43.3	42.5	41.8	41.9	41.6	41.6	41.6	41.7	41.9	41.9
Turkey	43.9	40.1	36.5	32.7	31.4	28.8	27.6	28.3	28.5	27.8	27.9	27.9	28.0	28.1	28.1
Ukraine	34.1	40.6	36.9	37.5	40.5	70.3	79.3	81.2	75.6	78.4	76.9	71.7	66.9	63.1	59.4
United Arab Emirates	24.1	21.9	17.4	17.0	15.7	15.5	18.7	20.7	19.5	19.0	19.3	19.3	19.1	19.0	18.7
Uruguay	63.1	59.4	58.1	58.0	60.2	61.4	64.6	61.9	66.2	66.2	65.2	64.9	65.0	64.8	64.7
Venezuela	27.6	36.5	50.6	58.1	72.3	63.5	31.9	31.3	34.9	162.0	172.1	168.1	165.5	160.4	157.7
Average	39.0	38.3	37.5	37.4	38.6	40.7	44.0	47.0	49.0	51.2	52.9	54.3	55.6	56.7	57.6
Asia	41.8	40.4	39.8	39.8	41.5	43.6	44.8	47.2	50.1	52.3	54.5	56.6	58.5	60.1	61.6
Europe	28.3	28.2	26.9	25.5	26.4	28.5	30.9	32.1	31.8	32.1	32.5	32.6	32.5	32.4	32.2
Latin America	49.8	48.6	48.6	48.7	49.3	51.4	55.5	59.0	61.8	66.4	67.4	67.9	68.3	68.4	68.4
MENAP	25.6	24.0	21.6	22.8	23.5	23.6	33.7	41.1	40.3	42.5	43.3	43.0	42.6	41.7	41.3
G20 Emerging	40.5	39.0	37.9	37.5	38.6	41.1	44.0	46.8	49.6	51.6	53.8	55.8	57.5	59.1	60.5

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table C. MENAP = Middle East, North Africa, and Pakistan.

¹ 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.

² In late 2016, the authorities changed the definition of debt to a consolidated basis, which in 2016 was 11.5 percent of GDP lower than the previous aggregate definition. Both the historic and projection numbers are now presented on a consolidated basis.

³ Based on nominal GDP series prior to the recent revision; therefore, data in the tables are not comparable to the authorities' numbers.

Table A16. Emerging Market and Middle-Income Economies: General Government Net Debt, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Algeria	-39.6	-33.7	-31.1	-29.0	-29.5	-21.8	-7.6	13.4	20.5	28.8	33.7	34.8	34.3	31.4	28.2
Angola	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Argentina	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Azerbaijan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belarus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Brazil	40.4	38.0	34.5	32.2	30.5	32.6	35.6	46.2	51.6	55.3	59.1	63.2	66.7	69.5	71.5
Chile	-10.5	-7.0	-8.6	-6.8	-5.6	-4.3	-3.4	0.9	5.3	5.8	6.7	7.4	7.7	7.9	8.0
China	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Colombia	26.1	28.4	27.1	24.9	27.0	33.2	42.2	40.8	41.3	41.2	40.8	39.5	37.8	36.2	34.7
Croatia	37.8	45.8	54.1	59.1	66.6	71.0	72.5	70.9	...	...	...	...	...	...	...
Dominican Republic	15.8	16.6	18.7	24.0	26.5	26.1	25.2	26.4	28.6	27.5	28.3	29.1	30.1	31.4	32.8
Ecuador	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Egypt ¹	55.9	57.1	61.3	63.5	73.7	77.1	78.8	88.2	94.0	79.8	77.5	73.0	70.6	66.4	65.4
Hungary	71.8	74.7	74.0	71.7	70.8	70.1	70.1	69.6	66.4	64.2	62.8	61.8	61.2	61.0	59.3
India	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Indonesia	21.3	19.7	17.8	18.6	20.6	20.4	22.5	23.8	24.8	25.9	26.8	27.5	28.2	28.8	29.2
Iran	2.5	1.9	-2.5	1.3	-5.6	-5.6	24.9	35.9	29.7	45.5	41.4	38.0	35.8	34.2	33.0
Kazakhstan	-11.0	-10.2	-12.7	-15.9	-17.6	-19.2	-30.9	-22.8	-11.8	-8.2	-5.5	-3.4	-1.1	0.6	2.0
Kuwait	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Libya	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mexico	36.0	36.0	37.2	37.2	40.0	42.6	46.6	48.7	46.1	45.4	45.3	45.3	45.3	45.2	45.2
Morocco	45.5	48.5	52.1	56.0	61.2	62.8	63.1	64.2	64.0	63.7	62.1	61.1	59.6	58.0	56.9
Oman	-32.0	-29.2	-29.7	-29.0	-43.8	-44.1	-43.1	-26.9	-10.8	-1.2	3.4	8.3	14.4	20.7	26.9
Pakistan	54.5	56.5	55.8	59.2	60.1	58.0	58.2	61.2	61.6	62.4	63.3	63.7	63.8	63.4	63.2
Peru	12.3	10.3	7.2	4.6	3.6	3.6	5.6	7.5	10.1	12.8	14.8	15.7	15.9	15.9	16.0
Philippines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Poland	42.8	47.2	48.3	47.9	50.9	44.5	46.4	48.1	46.7	46.1	45.1	43.9	42.7	41.5	40.3
Qatar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Romania	15.4	22.9	27.3	28.9	29.5	29.7	29.7	27.9	28.3	29.5	30.7	31.8	33.0	34.0	41.3
Russia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Saudi Arabia	-39.3	-37.8	-37.7	-47.7	-50.9	-47.1	-35.9	-17.1	-7.7	2.0	7.6	12.7	17.2	21.0	24.2
South Africa	25.4	28.5	31.3	34.8	38.2	40.8	44.1	45.2	47.9	50.1	51.5	52.6	53.5	54.3	55.0
Sri Lanka	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thailand	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Turkey	37.4	34.9	31.1	27.5	25.9	23.8	23.0	23.4	22.7	23.1	23.5	23.8	23.9	24.1	24.0
Ukraine	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
United Arab Emirates	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Uruguay	30.7	31.1	28.8	25.9	24.2	22.9	25.8	30.1	32.3	33.7	33.6	33.9	34.2	34.2	34.2
Venezuela	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Average	26.0	25.9	23.9	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	35.8	36.7	34.9	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	33.8	33.0	31.1	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	1.1	0.9	-1.2	-3.2	-4.0	-0.7	15.2	28.6	29.0	34.6	36.8	37.9	39.2	39.8	40.7
G20 Emerging	28.1	27.1	24.7	21.8	21.7	23.2	26.2	32.1	35.2	37.5	39.8	41.9	43.7	45.1	46.0

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table C. MENAP = Middle East, North Africa, and Pakistan.

¹ Based on nominal GDP series prior to the recent revision; therefore, data in the tables are not comparable to the authorities' numbers.

Table A17. Low-Income Developing Countries: General Government Overall Balance, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bangladesh	-3.2	-2.7	-3.6	-3.0	-3.4	-3.1	-4.0	-3.4	-3.3	-4.1	-4.6	-4.3	-4.2	-4.3	-4.1
Benin	-3.1	-0.4	-1.3	-0.3	-1.9	-2.3	-7.6	-5.9	-5.8	-4.7	-2.0	-0.7	-0.2	0.6	1.2
Burkina Faso	-4.7	-4.6	-2.3	-3.1	-4.0	-2.0	-2.4	-3.5	-8.2	-5.0	-3.0	-3.0	-3.0	-3.0	-3.0
Cambodia	-4.1	-2.8	-4.1	-3.8	-2.1	-1.1	-1.6	-1.7	-3.6	-4.8	-4.7	-4.3	-4.2	-4.0	-3.9
Cameroon	0.0	-1.0	-2.4	-1.4	-3.7	-4.2	-4.4	-6.2	-4.3	-2.2	-1.8	-1.6	-1.4	-1.4	-1.4
Chad	-9.2	-4.2	2.4	0.5	-2.1	-4.2	-4.4	-2.0	-0.9	0.9	-0.1	0.6	0.6	1.4	1.6
Congo, Democratic Republic of the	1.0	-0.9	-0.9	2.0	2.0	0.1	-0.2	-1.0	-2.5	0.1	0.1	0.1	0.0	0.0	0.0
Congo, Republic of	4.9	15.5	15.4	7.5	-5.0	-16.7	-27.2	-22.6	-7.2	3.9	5.0	4.1	2.0	2.1	0.7
Côte d'Ivoire	-1.4	-1.8	-4.0	-3.1	-2.2	-2.2	-2.8	-3.9	-4.3	-3.7	-3.0	-2.9	-2.9	-2.7	-2.6
Ethiopia	-0.9	-1.3	-1.6	-1.2	-1.9	-2.6	-1.9	-2.3	-3.3	-2.5	-2.4	-2.3	-2.2	-2.1	-2.7
Ghana	-7.2	-10.1	-7.4	-11.3	-12.0	-10.9	-5.4	-8.9	-5.0	-5.0	-3.6	-3.5	-3.8	-3.7	-0.1
Guinea	-4.9	-9.6	-0.9	-2.5	-3.9	-3.2	-6.9	-0.1	-0.3	-2.1	-2.0	-1.7	-1.6	-1.9	-2.0
Haiti	-3.5	-2.7	-2.5	-4.8	-7.2	-6.4	-2.5	-0.1	-1.0	-2.5	-1.4	-1.3	-1.0	-0.8	-0.6
Honduras	-4.9	-3.4	-2.9	-3.5	-5.7	-2.9	-0.8	-0.4	-0.1	-0.8	-1.0	-1.0	-1.0	-1.0	-0.6
Kenya	-4.3	-4.4	-4.1	-5.0	-5.7	-7.4	-8.1	-8.3	-8.5	-7.5	-6.2	-5.3	-4.8	-4.4	-4.2
Kyrgyz Republic	-1.5	-5.9	-4.7	-5.9	-3.7	0.5	-1.2	-4.6	-3.3	-2.5	-2.5	-2.3	-2.1	-1.9	-1.9
Lao P.D.R.	-3.6	-2.9	-1.6	-0.5	-5.0	-4.1	-2.4	-4.7	-4.9	-4.3	-4.2	-4.3	-4.7	-5.0	-5.0
Madagascar	-2.5	-0.9	-2.4	-2.6	-4.0	-2.3	-3.3	-1.3	-3.5	-3.0	-5.1	-5.4	-4.7	-4.0	-2.2
Mali	-3.7	-2.6	-3.4	-1.0	-2.4	-2.9	-1.8	-3.9	-2.9	-3.3	-3.0	-3.0	-3.0	-3.0	-3.0
Moldova	-6.4	-2.6	-2.5	-2.3	-1.9	-1.9	-2.3	-2.1	-1.0	-3.2	-3.8	-3.6	-2.8	-2.8	-2.8
Mozambique	-4.9	-3.8	-4.8	-3.9	-2.7	-10.7	-7.2	-6.2	-5.5	-7.5	-10.8	-9.9	-9.6	-10.6	-9.9
Myanmar	-4.4	-5.5	-3.5	0.9	-1.3	-0.9	-4.4	-2.5	-3.5	-3.9	-4.0	-4.1	-4.1	-4.1	-4.2
Nepal	-2.6	-0.8	-0.8	-1.3	1.8	1.5	0.7	1.4	-1.4	-3.7	-3.2	-2.7	-2.8	-2.8	-2.7
Nicaragua	-1.2	0.1	0.1	-0.1	-0.7	-1.2	-1.4	-1.6	-1.7	-2.0	-2.1	-2.0	-2.1	-2.2	-2.4
Niger	-5.3	-2.4	-1.5	-1.1	-2.6	-8.0	-9.1	-6.1	-5.1	-6.1	-5.8	-4.2	-2.8	-2.8	-2.8
Nigeria	-5.4	-4.2	0.4	0.2	-2.3	-2.1	-3.5	-3.9	-5.8	-4.8	-4.6	-4.2	-4.3	-4.2	-4.2
Papua New Guinea	-5.5	3.1	2.2	-1.2	-6.9	-6.3	-4.0	-4.4	-2.9	-2.3	-2.1	-2.1	-2.1	-2.1	-2.0
Rwanda	0.3	-0.7	-0.9	-2.5	-1.3	-4.0	-2.8	-2.3	-2.5	-2.0	-2.0	-1.4	-0.8	-0.7	-0.5
Senegal	-4.6	-4.9	-6.1	-5.2	-5.5	-5.0	-4.8	-4.2	-4.5	-3.5	-3.0	-3.0	-3.0	-3.0	-3.0
Somalia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sudan	-3.7	0.2	0.0	-3.1	-2.7	-1.3	-1.7	-1.6	-1.4	-3.1	-2.9	-2.9	-2.9	-3.1	-3.0
Tajikistan	-5.2	-3.0	-2.1	0.6	-0.8	0.0	-1.9	-9.8	-2.4	-7.4	-5.4	-2.5	-2.5	-2.5	-2.5
Tanzania	-4.5	-4.8	-3.6	-4.1	-3.9	-3.0	-3.3	-2.2	-2.7	-4.4	-4.6	-4.1	-3.3	-2.6	-2.3
Timor-Leste	40.7	41.1	43.7	39.9	41.7	22.9	3.7	-33.0	-9.7	-23.8	-36.0	-29.3	-25.1	-19.5	-18.1
Uganda	-2.1	-5.7	-2.7	-3.0	-4.0	-4.7	-4.6	-4.9	-3.2	-5.3	-6.5	-7.0	-2.8	-2.3	-1.7
Uzbekistan	2.3	3.3	7.4	8.1	2.6	3.0	0.4	0.4	-1.7	0.8	1.3	2.0	2.1	2.1	2.3
Vietnam	-6.0	-2.8	-1.1	-6.9	-7.4	-6.3	-6.2	-6.3	-4.7	-4.7	-4.8	-4.7	-4.6	-4.5	-4.5
Yemen	-10.2	-4.1	-4.5	-6.3	-6.9	-4.1	-11.5	-17.5	-8.5	-14.4	-8.9	-3.0	-1.9	-1.7	-0.9
Zambia	-2.1	-2.4	-1.8	-2.8	-6.2	-5.7	-9.3	-5.8	-7.3	-7.8	-7.4	-7.3	-6.5	-6.5	-6.0
Zimbabwe	-2.0	0.7	-0.5	0.0	-1.7	-1.4	-1.0	-8.4	-9.6	-3.1	-1.9	-1.8	-1.8	-1.5	-1.5
Average	-3.9	-2.8	-0.9	-1.7	-3.3	-3.2	-4.0	-4.2	-4.3	-4.2	-4.0	-3.7	-3.6	-3.5	-3.4
Oil Producers	-4.5	-2.8	0.7	0.2	-2.5	-2.6	-4.2	-5.0	-5.5	-4.6	-4.3	-3.8	-3.9	-3.8	-3.8
Asia	-4.0	-2.3	-1.6	-3.0	-4.0	-3.7	-4.5	-4.3	-3.8	-4.3	-4.6	-4.4	-4.3	-4.3	-4.2
Latin America	-3.5	-2.3	-2.0	-2.8	-4.6	-3.2	-1.3	-0.7	-0.7	-1.5	-1.4	-1.4	-1.4	-1.4	-1.2
Sub-Saharan Africa	-4.0	-3.6	-1.0	-1.3	-3.2	-3.4	-4.1	-4.5	-5.2	-4.3	-4.0	-3.7	-3.6	-3.4	-3.3
Others	-3.5	-0.3	0.8	-0.4	-1.8	-0.4	-2.8	-3.3	-2.4	-3.3	-2.4	-1.2	-0.9	-0.9	-0.6

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table D.

Table A18. Low-Income Developing Countries: General Government Primary Balance, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bangladesh	-1.0	-0.8	-1.9	-1.1	-1.4	-1.0	-1.9	-1.5	-1.6	-2.4	-2.7	-2.4	-2.3	-2.4	-2.3
Benin	-2.6	0.1	-0.9	0.3	-1.4	-1.9	-6.9	-4.7	-3.8	-2.4	0.5	1.5	1.9	2.5	2.8
Burkina Faso	-4.3	-4.1	-1.7	-2.4	-3.4	-1.2	-1.7	-2.5	-7.3	-3.8	-1.8	-1.7	-1.7	-1.6	-1.6
Cambodia	-3.9	-2.5	-3.8	-3.3	-1.4	-0.8	-1.3	-1.3	-3.2	-4.4	-4.3	-4.0	-3.9	-3.7	-3.6
Cameroon	0.2	-0.7	-2.0	-1.1	-3.3	-3.8	-4.0	-5.4	-3.4	-1.4	-1.1	-1.0	-0.9	-0.9	-0.8
Chad	-8.8	-3.6	3.0	0.9	-1.5	-3.6	-2.7	0.1	0.7	2.1	0.9	1.7	1.5	2.3	2.4
Congo, Democratic Republic of the	1.3	-0.7	-0.3	2.5	2.4	0.4	0.0	-0.8	-2.2	0.4	0.4	0.5	0.5	0.5	0.5
Congo, Republic of	6.3	16.4	15.5	7.5	-4.7	-16.5	-26.4	-20.0	-4.8	6.3	7.1	6.2	4.1	4.1	2.6
Côte d'Ivoire	0.1	-0.3	-2.2	-1.4	-0.9	-0.9	-1.3	-2.2	-2.7	-1.9	-1.2	-1.0	-1.0	-0.8	-0.8
Ethiopia	-0.6	-0.9	-1.2	-0.9	-1.6	-2.2	-1.5	-1.9	-2.9	-1.9	-1.9	-1.8	-1.6	-1.5	-1.6
Ghana	-4.4	-6.9	-4.8	-7.8	-7.3	-4.7	1.3	-2.0	1.6	1.4	2.5	2.3	2.1	1.9	1.6
Guinea	-3.5	-8.3	0.5	-1.2	-3.0	-2.2	-6.1	1.0	0.9	-0.9	-0.9	-0.7	-0.8	-1.1	-1.2
Haiti	-2.9	-2.2	-2.1	-4.4	-6.7	-5.9	-2.2	0.2	-0.6	-2.0	-0.8	-0.8	-0.5	-0.2	-0.1
Honduras	-5.8	-4.1	-3.2	-3.6	-5.6	-2.6	0.0	0.2	0.7	0.3	0.0	-0.1	-0.2	-0.2	0.3
Kenya	-2.7	-2.5	-2.2	-2.9	-3.3	-4.8	-5.3	-5.2	-5.3	-4.0	-2.7	-1.9	-1.4	-1.2	-1.2
Kyrgyz Republic	-0.7	-5.1	-3.7	-4.9	-2.9	1.4	-0.2	-3.4	-2.2	-1.3	-1.3	-1.2	-1.0	-0.8	-0.8
Lao P.D.R.	-3.3	-2.5	-1.1	0.2	-4.0	-3.3	-1.5	-3.5	-3.8	-2.8	-2.6	-2.7	-3.0	-3.3	-3.4
Madagascar	-1.8	-0.1	-1.5	-1.9	-3.3	-1.7	-2.5	-0.4	-2.6	-2.0	-4.1	-4.5	-3.8	-3.1	-1.1
Mali	-3.4	-2.2	-2.8	-0.4	-1.9	-2.3	-1.2	-3.3	-2.0	-2.5	-2.1	-2.1	-2.1	-2.0	-1.9
Moldova	-5.0	-1.8	-1.6	-1.5	-1.3	-1.3	-1.4	-0.8	0.3	-2.1	-2.6	-2.4	-1.7	-1.6	-1.6
Mozambique	-4.4	-3.1	-3.9	-2.9	-1.9	-9.6	-5.9	-3.3	-1.8	-3.2	-5.1	-5.5	-6.4	-7.6	-7.6
Myanmar	-3.6	-4.6	-2.5	2.3	-0.1	0.3	-3.3	-1.2	-2.3	-2.4	-2.5	-2.5	-2.5	-2.5	-2.6
Nepal	-1.9	0.0	0.0	-0.5	2.6	2.1	1.1	1.7	-0.9	-3.2	-2.7	-2.2	-2.3	-2.3	-2.1
Nicaragua	-0.8	0.4	0.6	0.5	-0.4	-0.9	-0.9	-0.9	-0.8	-1.3	-1.3	-1.2	-1.3	-1.3	-1.3
Niger	-5.1	-2.2	-1.1	-0.8	-2.3	-7.7	-8.4	-5.2	-4.1	-5.1	-4.6	-3.0	-1.8	-1.8	-1.8
Nigeria	-4.7	-3.6	1.2	1.2	-1.3	-1.2	-2.4	-2.7	-4.2	-3.4	-2.9	-2.3	-2.4	-2.2	-2.1
Papua New Guinea	-4.0	4.0	3.2	-0.2	-5.8	-4.7	-2.3	-2.6	-0.9	-0.2	-0.4	-0.4	-0.4	-0.4	-0.3
Rwanda	0.6	-0.2	-0.5	-2.1	-0.4	-3.2	-1.9	-1.3	-1.5	-0.8	-1.0	-0.4	0.1	0.2	0.3
Senegal	-3.9	-4.0	-4.6	-3.7	-4.0	-3.3	-2.8	-2.1	-2.1	-1.4	-0.7	-0.9	-1.0	-1.0	-1.0
Somalia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sudan	-2.8	1.2	1.1	-2.0	-2.2	-0.5	-1.0	-1.1	-0.9	-2.7	-2.7	-2.7	-2.7	-2.7	-2.8
Tajikistan	-4.7	-2.5	-1.6	1.1	0.1	0.4	-1.5	-8.3	-1.1	-6.1	-3.9	-0.9	-1.0	-1.0	-1.0
Tanzania	-3.8	-4.1	-2.8	-3.1	-2.7	-1.6	-1.8	-0.6	-1.2	-2.7	-2.6	-2.1	-1.2	-0.5	-0.2
Timor-Leste	40.7	41.1	43.7	39.9	41.7	22.9	3.7	-33.0	-9.7	-23.7	-35.7	-28.9	-24.6	-18.9	-17.5
Uganda	-1.1	-4.8	-1.7	-1.7	-2.7	-3.2	-2.9	-2.4	-0.6	-2.6	-3.7	-4.3	-0.1	0.2	0.7
Uzbekistan	2.3	3.3	7.5	8.1	2.7	3.0	0.5	0.4	-1.7	0.8	1.3	2.1	2.1	2.2	2.3
Vietnam	-4.9	-1.6	-0.1	-5.6	-5.9	-4.6	-4.3	-4.3	-2.7	-2.6	-2.6	-2.6	-2.4	-2.3	-2.2
Yemen	-7.7	-1.7	-0.2	-0.9	-1.5	1.5	-3.4	-8.3	-8.1	-8.1	-2.1	1.4	0.4	0.4	1.1
Zambia	-0.7	-1.0	-0.8	-1.5	-4.7	-3.5	-6.5	-2.4	-3.3	-3.9	-3.2	-3.1	-2.2	-2.0	-1.3
Zimbabwe	0.3	1.8	-0.2	0.3	-0.9	-0.5	0.0	-7.7	-8.5	-1.9	0.0	0.1	0.2	0.1	0.1
Average	-3.0	-1.8	0.1	-0.5	-2.0	-1.8	-2.5	-2.6	-2.7	-2.4	-2.2	-1.9	-1.8	-1.7	-1.6
Oil Producers	-3.6	-2.0	1.7	1.4	-1.3	-1.4	-2.7	-3.4	-4.1	-3.0	-2.5	-2.0	-2.1	-1.9	-1.8
Asia	-2.6	-1.0	-0.4	-1.6	-2.5	-2.1	-2.8	-2.6	-2.2	-2.6	-2.8	-2.5	-2.5	-2.4	-2.3
Latin America	-3.7	-2.4	-1.9	-2.6	-4.3	-2.8	-0.7	-0.1	0.0	-0.7	-0.6	-0.6	-0.6	-0.6	-0.3
Sub-Saharan Africa	-3.2	-2.8	0.0	-0.2	-2.0	-2.2	-2.7	-2.8	-3.3	-2.4	-2.0	-1.7	-1.5	-1.4	-1.3
Others	-2.5	0.7	2.2	1.2	-0.3	1.2	-0.9	-1.8	-2.0	-2.2	-1.2	-0.2	-0.2	-0.2	0.0

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: Primary balance is defined as the overall balance excluding net interest payments. For country-specific details, see "Data and Conventions" in text, and Table D.

Table A19. Low-Income Developing Countries: General Government Revenue, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bangladesh	9.5	10.0	10.4	11.2	11.2	10.9	9.8	10.1	10.2	10.7	10.7	10.8	10.7	10.8	10.8
Benin	20.2	18.9	18.8	19.2	18.5	17.2	17.3	15.3	18.7	18.9	19.1	19.6	19.5	19.9	20.1
Burkina Faso	19.5	19.8	20.7	22.4	24.4	21.6	20.7	21.0	21.7	23.1	23.9	24.1	24.4	24.5	24.6
Cambodia	15.8	17.1	15.6	16.9	18.5	19.8	18.8	19.8	19.5	19.5	19.7	20.1	20.2	20.4	20.8
Cameroon	15.7	15.0	16.3	16.3	16.3	16.6	16.5	15.0	14.9	15.7	16.0	15.9	16.2	16.3	16.4
Chad	14.9	20.2	24.8	24.4	20.7	17.8	14.0	12.6	14.1	15.7	14.8	15.1	14.7	15.3	15.5
Congo, Democratic Republic of the	13.7	15.6	13.7	16.5	14.6	18.6	16.8	11.7	10.4	11.2	11.2	11.4	11.6	11.8	12.0
Congo, Republic of	30.3	36.7	41.4	42.7	45.1	39.7	25.9	27.4	23.1	27.7	28.2	28.9	29.8	30.5	31.1
Côte d'Ivoire	18.5	18.1	14.2	19.2	19.7	18.9	20.0	19.4	19.1	19.3	20.0	20.1	20.1	20.1	20.2
Ethiopia	16.2	17.2	16.6	15.5	15.8	14.9	15.4	15.9	14.9	15.2	15.5	15.6	15.9	16.2	16.8
Ghana	16.4	16.7	19.1	18.5	16.7	18.4	19.6	17.2	17.5	17.9	18.0	17.9	17.7	17.4	17.3
Guinea	11.4	10.8	15.1	17.5	14.8	17.0	14.9	16.2	16.8	18.1	18.6	19.1	19.2	19.1	19.1
Haiti	16.8	19.9	22.0	23.8	21.0	18.9	19.4	18.6	17.7	20.4	19.6	19.3	19.2	19.1	18.6
Honduras	23.5	23.1	23.0	22.9	23.8	24.7	25.2	27.1	27.4	26.6	26.7	26.5	26.4	26.4	26.3
Kenya	18.8	19.8	19.5	19.1	19.7	19.8	19.2	18.8	18.7	19.0	18.9	18.9	19.0	19.1	19.2
Kyrgyz Republic	32.9	31.2	32.7	34.7	34.4	35.4	35.6	34.7	37.8	35.1	33.5	33.3	34.0	34.0	34.2
Lao P.D.R.	15.0	20.1	20.0	21.4	21.1	20.8	21.1	16.2	17.0	17.3	17.8	17.8	17.5	17.1	17.2
Madagascar	11.5	13.2	11.7	10.8	10.9	12.4	11.8	14.7	15.0	15.1	15.0	14.1	14.6	14.9	15.1
Mali	19.1	17.7	17.1	14.6	17.4	17.1	19.1	18.3	20.1	20.6	20.3	20.7	21.2	21.7	22.3
Moldova	38.9	38.3	36.6	37.9	36.7	37.9	35.6	34.1	35.7	35.5	33.9	33.7	33.6	33.4	33.4
Mozambique	24.0	26.1	27.3	27.0	31.4	31.8	28.1	26.1	26.6	23.4	23.2	22.6	22.5	22.3	22.1
Myanmar	9.3	9.1	9.8	19.0	20.1	22.0	18.7	18.8	18.2	17.4	18.3	18.3	17.8	17.8	18.0
Nepal	16.8	18.0	17.8	18.0	19.6	20.4	20.8	23.4	26.3	23.6	23.8	23.7	23.6	23.4	23.6
Nicaragua	21.3	22.5	23.5	23.9	23.5	23.3	23.9	25.2	25.5	25.1	25.1	25.1	25.0	25.1	25.2
Niger	18.6	18.2	17.9	21.4	24.6	23.0	23.5	20.5	21.3	22.1	23.1	24.0	23.5	23.9	23.8
Nigeria	10.1	12.4	17.7	14.3	11.0	10.5	7.6	5.6	6.0	7.6	7.3	7.2	6.9	7.0	7.2
Papua New Guinea	19.2	21.5	21.9	21.2	20.7	21.0	17.2	14.8	13.9	14.9	13.5	13.6	13.7	13.7	13.7
Rwanda	23.8	24.6	25.3	23.2	25.5	24.2	24.6	23.5	22.9	23.4	22.0	22.1	22.2	22.2	22.1
Senegal	22.0	22.1	22.7	23.3	22.6	24.8	25.1	26.8	24.1	25.5	25.3	25.3	25.3	25.3	25.4
Somalia	...	...	...	...	1.8	2.2	2.1	2.5	3.4	3.2	3.5	3.9	4.0	4.1	4.2
Sudan	14.6	17.4	16.5	9.2	10.3	10.8	10.0	8.7	8.5	8.1	6.5	5.7	5.1	4.8	4.6
Tajikistan	23.4	23.2	24.9	25.1	26.9	28.4	29.9	29.9	29.1	28.0	28.2	28.1	28.1	28.1	28.1
Tanzania	15.7	15.5	15.6	15.7	15.5	14.9	14.5	15.5	15.9	15.8	16.2	16.4	16.5	16.8	17.2
Timor-Leste	68.4	67.9	68.1	62.4	65.4	63.2	53.9	36.7	42.8	39.6	36.1	31.3	29.2	30.6	28.2
Uganda	13.2	13.2	14.5	13.6	12.7	13.5	14.8	15.0	15.8	16.1	16.6	16.6	17.7	18.7	20.5
Uzbekistan	36.5	37.3	39.7	41.0	35.6	35.0	34.3	32.1	31.6	31.7	31.6	32.2	32.2	32.1	32.2
Vietnam	25.6	27.3	25.9	22.6	23.1	22.2	23.8	23.7	23.5	23.0	23.0	23.0	23.0	23.1	23.1
Yemen	25.0	26.1	25.3	29.9	23.9	23.6	14.1	11.7	6.6	15.2	19.7	24.4	25.2	25.9	26.2
Zambia	15.7	15.6	17.7	18.7	17.6	18.9	18.8	18.2	17.9	18.8	18.4	18.8	19.2	19.2	19.1
Zimbabwe	11.7	21.8	24.2	24.9	24.6	23.8	24.3	21.7	22.5	23.0	22.8	22.6	22.5	19.4	19.4
Average	16.1	17.4	19.3	18.3	17.1	16.8	15.5	15.1	15.2	15.7	15.6	15.5	15.3	15.2	15.2
Oil Producers	13.1	15.1	19.3	17.0	14.0	13.2	9.9	8.2	8.5	10.3	10.0	10.0	9.6	9.5	9.5
Asia	16.9	17.9	17.9	18.6	18.8	18.4	17.5	17.2	17.2	17.0	17.1	17.1	17.1	17.1	17.1
Latin America	21.4	22.2	22.9	23.4	23.1	23.1	23.6	24.9	25.0	24.9	24.8	24.7	24.6	24.6	24.5
Sub-Saharan Africa	13.8	15.2	18.3	16.6	14.9	14.5	12.9	12.2	12.8	13.9	13.6	13.4	13.2	13.1	13.1
Others	24.0	25.2	26.0	25.5	23.8	23.8	21.4	20.7	19.1	20.8	21.0	21.7	21.8	21.9	22.1

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table D.

Table A20. Low-Income Developing Countries: General Government Expenditure, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bangladesh	12.7	12.7	14.0	14.2	14.6	14.0	13.8	13.4	13.6	14.8	15.3	15.0	14.9	15.0	14.9
Benin	23.2	19.2	20.1	19.5	20.4	19.4	24.9	21.3	24.4	23.6	21.1	20.4	19.7	19.2	18.8
Burkina Faso	24.2	24.4	23.0	25.5	28.4	23.5	23.1	24.5	29.9	28.1	27.0	27.2	27.4	27.5	27.6
Cambodia	19.9	19.9	19.7	20.7	20.7	21.0	20.4	21.5	23.1	24.4	24.4	24.4	24.4	24.5	24.7
Cameroon	15.7	16.0	18.6	17.8	20.0	20.8	20.9	21.2	19.2	17.9	17.8	17.6	17.6	17.8	17.9
Chad	24.1	24.4	22.4	23.9	22.8	22.0	18.3	14.5	15.0	14.7	14.9	14.5	14.1	13.8	13.9
Congo, Democratic Republic of the	12.6	16.5	14.6	14.5	12.7	18.5	17.0	12.7	12.9	11.1	11.1	11.4	11.6	11.8	12.0
Congo, Republic of	25.3	21.1	26.1	35.2	50.1	56.4	53.2	50.0	30.3	23.8	23.2	24.8	27.8	28.4	30.3
Côte d'Ivoire	19.9	20.0	18.2	22.3	21.9	21.0	22.8	23.3	23.4	23.1	23.0	22.9	23.1	22.8	22.9
Ethiopia	17.1	18.5	18.2	16.6	17.8	17.5	17.3	18.2	18.2	17.6	17.9	17.9	18.1	18.4	19.5
Ghana	23.6	26.8	26.6	29.8	28.7	29.4	25.0	26.1	22.5	23.0	21.7	21.3	21.4	21.1	17.4
Guinea	16.2	20.5	16.0	20.0	18.6	20.2	21.8	16.4	17.1	20.2	20.5	20.8	20.8	21.0	21.0
Haiti	20.3	22.7	24.5	28.6	28.1	25.3	21.9	18.7	18.6	22.8	21.0	20.6	20.2	19.9	19.3
Honduras	28.4	26.5	25.9	26.4	29.6	27.6	26.0	27.5	27.5	27.4	27.6	27.5	27.4	27.4	26.9
Kenya	23.1	24.2	23.6	24.2	25.4	27.2	27.3	27.2	27.2	26.5	25.0	24.3	23.7	23.4	23.3
Kyrgyz Republic	34.4	37.1	37.4	40.6	38.1	34.9	36.8	39.3	41.1	37.6	36.0	35.6	36.1	35.9	36.1
Lao P.D.R.	18.6	23.0	21.6	21.9	26.1	24.9	23.5	21.0	21.9	21.7	22.0	22.1	22.1	22.1	22.2
Madagascar	14.1	14.0	14.1	13.4	14.9	14.7	15.1	16.0	18.5	18.0	20.1	19.5	19.3	18.9	17.3
Mali	22.8	20.3	20.6	15.5	19.7	20.0	20.9	22.2	23.0	23.9	23.3	23.7	24.2	24.7	25.2
Moldova	45.3	40.9	39.1	40.3	38.6	39.8	37.9	36.1	36.7	38.7	37.7	37.3	36.4	36.2	36.2
Mozambique	28.9	29.9	32.2	30.8	34.1	42.5	35.2	32.4	32.1	30.9	34.0	32.5	32.1	33.0	32.1
Myanmar	13.7	14.6	13.4	18.1	21.4	22.9	23.2	21.3	21.7	21.3	22.3	22.4	21.9	21.9	22.1
Nepal	19.4	18.8	18.7	19.3	17.8	18.8	20.1	22.0	27.7	27.3	27.0	26.5	26.4	26.2	26.3
Nicaragua	22.5	22.4	23.3	24.0	24.2	24.5	25.3	26.8	27.1	27.1	27.2	27.1	27.2	27.4	27.5
Niger	23.9	20.6	19.4	22.5	27.2	31.1	32.5	26.6	26.4	28.2	28.8	28.2	26.3	26.8	26.6
Nigeria	15.5	16.6	17.4	14.1	13.4	12.7	11.1	9.5	11.7	12.4	11.9	11.4	11.2	11.2	11.4
Papua New Guinea	24.7	18.4	19.7	22.4	27.6	27.3	21.2	19.2	16.9	17.2	15.7	15.7	15.8	15.8	15.7
Rwanda	23.5	25.3	26.2	25.7	26.8	28.3	27.4	25.8	25.4	25.3	24.0	23.5	23.0	22.9	22.6
Senegal	26.6	27.0	28.8	28.5	28.1	29.8	29.9	31.0	28.6	29.0	28.2	28.3	28.3	28.4	28.4
Somalia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sudan	18.3	17.2	16.5	12.3	13.0	12.1	11.7	10.3	9.9	11.2	9.4	8.5	8.0	7.9	7.6
Tajikistan	28.6	26.1	27.0	24.6	27.7	28.4	31.8	39.7	31.5	35.4	33.6	30.6	30.6	30.6	30.6
Tanzania	20.2	20.2	19.1	19.8	19.4	17.9	17.8	17.7	18.6	20.2	20.8	20.5	19.9	19.5	19.5
Timor-Leste	27.7	26.7	24.5	22.5	23.7	40.3	50.2	69.7	52.5	63.4	72.1	60.6	54.4	50.0	46.3
Uganda	15.3	18.8	17.2	16.6	16.7	18.2	19.4	19.9	19.0	21.4	23.0	23.6	20.5	21.1	22.2
Uzbekistan	34.2	34.0	32.3	32.8	33.0	32.0	33.9	31.8	33.3	31.0	30.3	30.2	30.1	30.0	29.9
Vietnam	31.6	30.0	27.0	29.5	30.5	28.5	30.0	30.0	28.2	27.6	27.7	27.7	27.6	27.6	27.6
Yemen	35.2	30.2	29.8	36.2	30.8	27.8	25.6	29.2	15.1	29.5	28.5	27.4	27.1	27.6	27.1
Zambia	17.8	18.1	19.5	21.5	23.8	24.6	28.1	24.0	25.2	26.6	25.8	26.2	25.8	25.7	25.2
Zimbabwe	13.7	21.2	24.7	24.8	26.2	25.2	25.3	30.2	32.1	26.2	24.7	24.4	24.3	20.9	20.9
Average	20.1	20.2	20.2	20.0	20.5	20.0	19.6	19.3	19.6	20.0	19.7	19.3	19.0	18.8	18.6
Oil Producers	17.6	17.9	18.6	16.8	16.5	15.8	14.1	13.2	14.1	14.9	14.3	13.8	13.5	13.3	13.3
Asia	20.9	20.1	19.5	21.6	22.8	22.1	22.0	21.5	21.0	21.4	21.7	21.5	21.4	21.4	21.3
Latin America	24.9	24.5	24.9	26.2	27.7	26.2	24.9	25.6	25.7	26.4	26.2	26.0	25.9	25.9	25.6
Sub-Saharan Africa	17.9	18.8	19.3	17.9	18.1	17.9	17.0	16.7	18.0	18.2	17.6	17.1	16.7	16.5	16.3
Others	27.5	25.5	25.2	25.9	26.4	24.9	24.9	24.8	22.3	25.2	24.5	24.0	23.8	23.9	23.8

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table D.

Table A21. Low-Income Developing Countries: General Government Gross Debt, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bangladesh	39.5	35.5	36.6	36.2	35.8	35.3	32.4	32.1	32.4	32.7	33.4	33.6	33.9	34.2	34.5
Benin	25.6	28.7	29.9	26.7	25.3	30.5	42.4	49.7	54.6	55.1	52.6	48.2	44.1	40.4	36.4
Burkina Faso	29.1	30.7	28.1	28.2	28.8	30.4	35.8	38.3	38.3	41.0	41.3	41.8	41.6	41.5	41.6
Cambodia	32.1	33.5	34.9	34.7	35.4	34.1	32.5	33.7	35.1	35.8	36.2	36.7	37.9	38.6	39.2
Cameroon	12.0	14.7	15.7	15.4	18.2	21.5	30.9	31.5	33.8	34.3	34.1	33.4	32.4	31.4	30.4
Chad	31.6	30.1	30.6	28.8	30.5	41.5	43.8	52.4	52.5	48.1	45.4	41.7	38.6	35.3	32.6
Congo, Democratic Republic of the	84.5	30.9	24.5	22.7	20.0	17.5	16.1	16.8	15.7	14.5	13.3	12.4	11.6	10.8	9.2
Congo, Republic of	63.3	22.2	23.8	28.6	34.2	47.6	97.1	114.6	119.1	110.4	105.0	109.4	114.4	111.5	108.3
Côte d'Ivoire	64.2	63.0	69.2	45.0	43.4	44.8	47.3	47.0	46.4	48.0	46.9	46.0	45.3	44.5	43.8
Ethiopia	37.8	40.5	45.3	37.7	42.9	46.8	54.0	55.0	56.2	58.3	56.7	54.0	51.3	48.8	47.5
Ghana	36.1	46.3	42.6	47.9	57.2	70.2	72.2	73.4	71.8	69.1	65.9	63.6	61.8	60.3	54.8
Guinea	61.3	68.8	58.1	27.2	34.0	35.1	42.1	42.9	39.7	43.7	44.7	44.3	42.4	41.2	40.0
Haiti	27.8	17.3	11.8	16.3	21.5	26.3	30.2	33.9	31.1	33.2	34.3	34.2	33.5	32.5	31.8
Honduras	27.2	24.5	25.1	32.1	40.1	39.9	39.8	41.2	43.9	43.8	44.1	43.1	40.9	38.7	35.4
Kenya	41.1	44.4	43.0	43.9	44.0	48.6	51.6	53.5	55.6	58.1	56.9	54.6	52.8	52.0	51.0
Kyrgyz Republic	58.1	59.7	49.4	49.0	46.2	52.3	64.9	58.1	59.1	55.1	55.1	52.7	51.7	50.0	48.9
Lao P.D.R.	55.2	55.1	50.8	55.2	54.3	58.6	58.1	58.4	62.8	65.5	66.7	67.2	67.7	68.3	68.8
Madagascar	33.7	31.7	32.2	33.0	33.9	34.7	35.5	38.4	37.3	37.2	38.0	37.8	37.2	36.5	34.9
Mali	21.9	25.3	24.0	25.4	26.4	27.3	30.7	35.9	35.6	35.9	36.6	37.7	38.7	39.9	40.6
Moldova	32.4	30.5	29.0	30.9	29.6	36.0	44.8	42.1	37.7	39.8	42.0	41.9	41.8	41.9	41.7
Mozambique	41.9	43.3	38.0	40.1	53.1	62.4	88.1	118.8	102.2	110.1	116.6	122.1	126.7	130.3	112.5
Myanmar	55.1	49.6	46.1	40.7	33.2	29.9	34.5	35.7	34.7	35.6	34.9	35.0	35.1	35.3	35.5
Nepal	38.5	34.0	31.7	33.9	31.9	28.3	25.0	27.3	27.2	27.4	28.8	30.1	31.1	32.2	33.7
Nicaragua	29.3	30.3	28.8	27.9	28.8	28.7	28.9	31.0	33.6	34.1	34.6	35.0	35.7	36.3	36.9
Niger	27.7	24.3	27.8	26.9	26.3	32.0	41.0	45.1	46.5	46.2	47.5	47.6	46.7	45.9	45.3
Nigeria	8.6	9.6	12.1	12.7	12.9	13.1	16.0	19.6	23.4	26.8	27.4	27.3	27.8	28.1	28.3
Papua New Guinea	21.7	17.3	16.3	19.1	24.9	27.1	28.9	31.7	32.6	30.5	30.7	30.7	31.3	31.8	32.2
Rwanda	19.5	20.0	19.9	20.0	26.7	29.1	33.4	37.3	40.6	41.3	43.1	42.5	41.9	40.8	39.5
Senegal	34.2	35.5	40.7	42.8	46.9	54.5	56.9	60.4	61.2	60.6	58.8	57.1	55.8	54.6	53.4
Somalia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sudan	64.0	64.4	62.9	87.4	84.9	56.0	116.9	91.4	126.0	176.5	176.0	176.8	176.9	173.7	173.2
Tajikistan	36.9	36.8	35.9	32.4	29.1	27.5	34.3	41.8	47.8	50.2	49.9	46.8	44.4	42.8	41.4
Tanzania	24.4	27.3	27.8	29.2	30.9	33.8	37.2	38.0	38.2	39.3	40.7	41.3	40.8	39.6	38.2
Timor-Leste	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Uganda	19.2	22.4	23.4	24.6	27.7	30.8	33.5	37.2	39.0	41.5	44.5	46.6	46.4	44.7	42.3
Uzbekistan	10.9	10.0	10.0	10.6	11.2	10.9	9.2	10.5	24.5	20.1	20.6	21.3	22.0	22.7	23.4
Vietnam	45.2	48.1	44.6	48.4	51.8	55.0	57.0	59.8	58.2	58.4	58.1	58.2	58.3	58.5	58.8
Yemen	49.8	42.4	45.7	47.3	48.2	48.7	72.7	118.7	141.0	128.8	96.1	75.9	70.0	64.4	58.9
Zambia	20.5	18.9	20.8	25.4	27.1	36.1	62.3	60.7	62.2	65.5	68.0	69.1	70.9	72.1	72.4
Zimbabwe	71.7	59.3	48.3	45.3	48.3	49.6	51.9	69.8	78.4	75.2	72.6	70.8	68.7	66.4	63.9
Average	31.8	30.3	30.2	31.1	31.5	31.8	38.0	40.8	44.3	45.5	44.9	44.1	43.5	42.8	41.9
Oil Producers	16.6	15.3	17.6	17.0	17.7	18.3	23.1	28.1	31.9	33.5	32.9	32.0	31.7	31.4	31.1
Asia	42.9	41.5	40.0	40.9	41.3	41.9	41.9	43.0	42.6	42.9	43.2	43.4	43.7	44.0	44.3
Latin America	27.9	24.6	23.3	27.5	32.7	33.7	34.6	36.7	38.4	38.8	39.2	38.8	37.8	36.7	35.2
Sub-Saharan Africa	24.0	22.3	23.3	23.0	24.4	26.2	31.5	36.7	40.0	42.0	41.5	40.4	39.6	38.7	37.5
Others	45.5	44.7	42.8	50.6	46.0	37.3	62.3	56.8	82.1	92.5	85.7	82.3	80.6	78.1	76.5

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table D.

Table A22. Low-Income Developing Countries: General Government Net Debt, 2009–23
(Percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bangladesh
Benin
Burkina Faso
Cambodia
Cameroon	8.1	10.5	12.6	13.1	15.9	19.9	26.6	29.8	30.4	30.6	30.2	29.5	28.7	27.8	27.1
Chad
Congo, Democratic Republic of the
Congo, Republic of
Côte d'Ivoire
Ethiopia	29.2	32.4	40.0	32.5	37.3	42.2	49.2	50.9	52.2	55.0	53.9	51.6	49.3	47.1	46.0
Ghana	32.6	43.0	38.8	45.8	53.2	63.4	66.7	66.8	65.3	63.0	60.5	58.7	57.3	56.2	51.1
Guinea
Haiti
Honduras
Kenya	36.9	40.2	39.1	40.1	40.1	44.4	46.5	48.2	50.4	53.7	54.1	52.8	51.1	50.2	49.3
Kyrgyz Republic
Lao P.D.R.
Madagascar
Mali	12.4	16.9	17.1	21.2	20.5	19.9	24.7	29.6	29.9	32.4	32.5	33.1	33.5	34.1	35.3
Moldova
Mozambique
Myanmar
Nepal
Nicaragua
Niger	23.2	20.2	24.1	21.9	20.6	25.6	35.7	40.5	40.9	41.1	42.6	42.7	41.1	39.4	37.7
Nigeria	4.1	6.3	7.2	5.8	6.1	9.3	11.5	15.4	19.6	23.7	24.7	25.0	25.7	26.1	26.7
Papua New Guinea
Rwanda
Senegal
Somalia
Sudan
Tajikistan
Tanzania
Timor-Leste
Uganda
Uzbekistan
Vietnam
Yemen	43.6	38.3	42.3	45.3	46.7	47.8	71.5	117.0	139.4	127.5	95.3	75.3	69.4	63.9	58.4
Zambia	16.5	15.9	16.4	20.1	25.2	31.8	56.1	51.3	56.3	61.3	64.8	68.0	69.9	71.2	71.6
Zimbabwe
Average
Oil Producers
Asia
Latin America
Sub-Saharan Africa
Others

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see "Fiscal Policy Assumptions" in text).

Note: For country-specific details, see "Data and Conventions" in text, and Table D.

Table A23. Advanced Economies: Structural Fiscal Indicators
(Percent of GDP, except where otherwise indicated)

	Pension Spending Change, 2015–30 ¹	Net Present Value of Pension Spending Change, 2015–50 ^{1,2}	Health Care Spending Change, 2015–30	Net Present Value of Health Care Spending Change, 2015–50 ²	Gross Financing Need, 2018 ³	Average Term to Maturity, 2018 (years) ⁴	Debt-to-Average Maturity, 2018	Projected Interest Rate–Growth Differential, 2018–23 (percent)	Pre-crisis Overall Balance, 2000–07	Projected Overall Balance, 2018–23	Nonresident Holding of General Government Debt, 2017 (percent of total) ⁵
Australia	0.8	25.3	1.6	59.6	3.3	7.4	5.6	-1.3	1.1	-0.4	42.0
Austria	0.5	14.3	1.5	59.0	6.2	8.3	9.1	-1.4	-2.2	-0.3	81.2
Belgium	0.5	17.9	2.0	76.8	18.3	9.4	10.8	-1.1	-0.5	-1.3	60.5
Canada	1.1	29.0	1.2	46.8	9.4	5.4	15.9	-0.1	1.1	-0.7	25.4
Cyprus	0.5	0.6	...	...	6.2	4.9	19.7	-2.6	-2.3	1.8	87.4
Czech Republic	0.0	2.0	0.7	25.1	6.4	5.0	22.7	-1.9	-3.8	0.7	54.8
Denmark	-1.1	-45.0	1.3	46.0	4.8	7.8	4.6	-0.6	2.5	-0.2	34.7
Estonia	-0.5	-14.2	0.4	21.1	...	...	...	-5.7	1.4	-0.1	74.6
Finland	1.3	23.0	1.6	50.8	7.7	6.2	9.8	-1.9	4.0	-0.5	73.1
France	-0.1	-17.6	0.8	30.6	12.8	7.4	13.1	-0.9	-2.7	-1.7	60.8
Germany	1.4	41.7	1.0	47.8	3.5	5.8	10.3	-2.2	-2.4	1.5	55.5
Hong Kong SAR	1.8	55.1	...	...	...	...	...	-0.4	0.0	1.6	...
Iceland	0.3	7.5	2.6	94.0	1.9	13.4	2.9	1.0	1.2	1.2	22.4
Ireland	1.1	38.9	1.0	38.3	6.7	10.7	6.3	-2.2	1.5	0.4	59.6
Israel	0.6	26.1	0.4	15.4	...	7.4	10.4	0.5	-4.4	-3.3	14.0
Italy ⁶	0.2	-1.9	1.0	40.8	22.2	6.9	18.9	0.6	-3.0	-0.5	35.6
Japan	-1.2	-31.7	2.2	72.0	40.7	7.7	30.8	-0.9	-6.0	-2.4	10.3
Korea	2.0	75.4	2.1	84.3	0.6	6.4	6.1	-1.4	2.0	1.9	12.8
Latvia	-1.2	-48.7	0.9	32.8	...	7.8	4.2	-2.9	-1.3	-0.4	90.5
Lithuania	1.7	36.1	0.7	27.5	6.2	6.3	5.5	-0.2	-1.8	0.8	95.0
Luxembourg	1.9	59.9	1.7	74.1	...	6.9	3.3	-3.8	2.4	0.4	48.6
Malta	-0.1	6.0	...	...	3.2	9.0	5.4	-2.2	-4.9	0.8	11.1
Netherlands	0.7	24.7	2.8	94.6	6.8	6.9	7.8	-1.9	-0.6	0.8	51.7
New Zealand	1.6	53.8	2.0	66.4	0.3	6.8	3.5	0.5	3.3	2.0	74.0
Norway	0.7	24.0	1.9	78.2	...	5.0	7.3	-1.6	13.2	3.9	51.2
Portugal	0.8	22.6	2.0	74.3	13.7	6.2	19.4	-0.3	-4.4	-0.8	62.7
Singapore ⁷	0.8	27.8	...	...	...	3.7	29.7	...	5.6	2.0	...
Slovak Republic	-0.5	-1.0	0.6	26.5	8.4	7.5	6.5	-3.0	-5.0	-0.3	66.6
Slovenia	0.9	39.2	1.0	42.9	5.2	8.5	8.5	-1.9	-1.0	-0.5	74.3
Spain	-0.6	-1.3	1.7	60.0	18.4	7.0	13.9	-0.9	0.4	-2.2	50.3
Sweden	-0.6	-26.0	0.6	25.0	3.0	4.7	8.1	-2.9	1.2	0.6	35.6
Switzerland	0.4	15.8	3.1	116.1	1.6	10.4	4.0	-1.5	-0.3	0.3	11.6
United Kingdom	0.3	8.7	1.9	65.0	8.5	14.9	5.8	-0.4	-1.9	-1.2	35.2
United States	1.5	31.4	3.6	122.3	24.0	5.8	18.6	-0.6	-3.1	-5.4	31.3
Average	0.8	18.5	2.4	83.7	18.8	6.9	16.2	-0.9	-2.2	-2.4	36.0
G7	0.9	17.2	2.5	88.9	21.7	6.9	18.0	-0.7	-3.1	-3.2	33.7
G20 Advanced	0.9	19.8	2.5	87.7	20.3	6.9	17.2	-0.8	-2.8	-2.9	33.3

Sources: Bloomberg Finance L.P.; Joint External Debt Hub, Quarterly External Debt Statistics; national authorities; and IMF staff estimates and projections.

Note: All 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.

¹ Pension projections rely on authorities' estimates when these are available. For the European Union countries, pension projections are based on *The 2015 Ageing Report of the European Commission*. When authorities' estimates are not available, staff projections use the methodology described in Clements, Eich, and Gupta, *Equitable and Sustainable Pensions: Challenges and Experience* (IMF 2014). Staff projections for health care spending are driven by demographic and other factors. The difference between the growth of health care spending and real GDP growth that is not explained by demographics ("excess cost growth") is assumed to start at the country specific historic average and converge to the advanced economy historic average by 2050 (0.8 percent).

² For net present value calculations, a discount rate of 1 percent a year in excess of GDP growth is used for each country.

³ Gross financing need is defined as the projected overall deficit and maturing government debt in 2018. Data are from Bloomberg Finance L.P. and IMF staff projections.

⁴ For most countries, average term to maturity data refer to central government securities; the source is Bloomberg Finance L.P.

⁵ Nonresident holding of general government debt data are for the fourth quarter of 2017 or latest available from the Joint External Debt Hub (JEDH), Quarterly External Debt Statistics, which include marketable and nonmarketable debt. For some countries, tradable instruments in the JEDH are reported at market value. External debt in US dollars is converted to local currency, then taken as a percentage of 2017 gross general government debt.

⁶ Italy's pension projections do not reflect the new demographic assumptions. Taking more prudent assumptions for the employment rate, productivity growth, and demographics, staff calculations show that the change in pension spending over 2015–30 would be about 3 percent of GDP, see Italy 2017 Article IV Staff Report, Box 4.

⁷ Singapore's general government debt is covered by financial assets and issued to develop the bond market.

Table A24. Emerging Market and Middle-Income Economies: Structural Fiscal Indicators
(Percent of GDP, except where otherwise indicated)

	Pension Spending Change, 2015–30 ¹	Net Present Value of Pension Spending Change, 2015–50 ^{1,2}	Health Care Spending Change, 2015–30	Net Present Value of Health Care Spending Change, 2015–50 ²	Gross Financing Need, 2018 ³	Average Term to Maturity, 2018 (years) ⁴	Debt-to-Average Maturity, 2018	Projected Interest Rate-Growth Differential, 2018–23 (percent)	Pre-crisis Overall Balance, 2000–07	Projected Overall Balance, 2018–23	Nonresident Holding of General Government Debt, 2017 (percent of total) ⁵
Algeria	3.0	122.4	1.0	44.4	...	...	...	-7.0	7.4	-3.0	3.7
Angola	0.4	16.2	0.2	7.7	...	...	...	-9.4	3.1	-2.2	...
Argentina	0.8	40.7	0.9	37.1	11.4	9.7	5.6	-8.0	-0.2	-4.6	40.0
Azerbaijan	5.1	148.9	0.3	11.7	...	...	...	-3.5	6.3	0.8	...
Belarus	3.8	114.7	0.7	27.6	...	2.9	17.3	-2.1	-7.2	-1.4	60.7
Brazil ⁶	5.1	203.8	1.1	44.2	14.0	6.6	13.2	2.2	-3.6	-7.6	8.7
Chile	-0.8	-22.8	1.3	53.3	1.9	9.6	2.5	-2.3	2.4	-0.3	26.4
China	2.0	70.7	0.8	31.9	...	...	...	-5.7	-1.8	-4.3	...
Colombia	-0.6	-37.8	1.2	48.4	4.8	10.1	4.9	0.3	-1.9	-1.3	31.3
Croatia	-1.0	-49.8	1.2	45.5	11.6	4.6	16.5	-0.3	-4.3	0.2	33.7
Dominican Republic	0.3	15.1	0.7	26.9	9.8	8.3	4.5	1.5	-2.0	-3.4	66.6
Ecuador	0.8	33.4	1.0	39.9	16.3	5.8	8.2	3.0	1.2	-2.9	58.9
Egypt	2.3	51.1	0.2	8.7	34.9	2.9	32.0	-6.5	-4.6	-5.4	14.8
Hungary	-1.5	-36.2	1.0	40.1	18.4	3.7	18.1	-1.8	-6.4	-2.1	42.4
India	0.0	-5.7	0.2	9.0	10.6	9.5	7.2	-4.1	-8.6	-6.3	5.9
Indonesia	0.2	9.2	0.3	10.3	4.5	8.5	3.5	-2.8	-0.7	-2.5	58.7
Iran	2.0	109.9	1.0	43.0	...	...	...	-4.3	3.1	-2.6	...
Kazakhstan	1.7	47.5	0.4	14.9	...	6.7	3.2	-2.8	4.7	-1.9	...
Kuwait	7.4	330.1	0.7	31.2	...	6.5	4.1	-4.1	29.0	3.9	...
Malaysia	2.1	82.4	0.5	19.5	10.4	6.5	8.3	-2.4	-3.8	-2.2	27.1
Mexico	0.6	18.6	0.7	31.1	7.1	9.1	5.9	0.4	-2.0	-2.5	32.4
Morocco	1.8	61.4	0.5	22.6	10.4	6.3	10.2	-1.9	-3.3	-2.5	22.2
Oman	0.6	27.8	0.8	36.6	...	8.3	5.7	0.2	10.0	-6.2	...
Pakistan	0.1	5.3	0.1	4.9	30.0	3.8	38.0	-2.9	-2.9	-5.7	...
Peru	0.3	15.3	0.7	30.8	5.3	7.6	3.6	-1.3	-0.4	-1.8	30.7
Philippines	0.2	7.8	0.2	8.8	4.6	9.3	4.0	-4.6	-2.4	-0.7	25.6
Poland	-0.5	-21.7	1.0	40.0	7.5	4.9	10.3	-1.6	-4.1	-1.5	53.1
Qatar	0.9	38.7	0.6	27.5	...	5.9	9.4	-2.0	8.9	5.5	...
Romania	-0.1	1.6	0.9	33.6	8.5	5.3	7.1	-2.7	-2.5	-3.4	50.3
Russia	3.4	96.6	0.6	24.2	1.3	7.3	2.6	-0.3	4.2	0.3	20.4
Saudi Arabia	2.4	92.9	1.0	38.9	...	10.2	2.0	0.6	6.9	-5.2	...
South Africa	0.3	13.2	0.7	26.8	12.7	12.8	4.3	0.5	-0.6	-4.1	36.2
Sri Lanka	1.2	43.2	0.4	14.8	18.5	5.7	13.5	-1.3	-6.9	-3.6	44.9
Thailand	3.8	125.7	0.7	28.7	6.5	6.9	6.0	-2.5	-0.4	-1.1	13.5
Turkey ⁷	-0.1	15.5	0.8	33.6	6.5	6.2	4.5	-3.4	-5.8	-2.6	38.4
Ukraine	1.0	99.8	0.5	21.0	7.9	5.8	13.6	-4.6	-2.3	-2.4	47.1
United Arab Emirates	0.6	29.6	0.7	28.2	...	...	...	-4.4	9.1	-0.3	...
Uruguay	-0.4	-3.9	1.2	47.7	12.6	11.8	5.6	-3.8	-2.1	-2.6	40.2
Venezuela	...	...	...	...	...	...	...	...	0.1	-30.3	...
Average	1.7	61.7	0.7	29.1	9.6	7.1	8.2	-3.9	-1.1	-4.0	25.6
G20 Emerging	1.9	66.2	0.7	29.1	8.7	7.2	7.5	-3.9	-1.9	-4.3	22.7

Sources: Bloomberg Finance L.P.; Joint External Debt Hub, Quarterly External Debt Statistics; national authorities; and IMF staff estimates and projections.

Note: All 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.

¹ Pension projections rely on authorities' estimates when these are available. For the European Union countries, pension projections are based on *The 2015 Ageing Report of the European Commission*. When authorities' estimates are not available, staff projections use the methodology described in Clements, Eich, and Gupta, *Equitable and Sustainable Pensions: Challenges and Experience* (IMF 2014). Staff projections for health care spending are driven by demographic and other factors. The difference between the growth of health care spending and real GDP growth that is not explained by demographics ("excess cost growth") is assumed at the advanced economy historic average by 2050 (0.8 percent).² For net present value calculations, a discount rate of 1 percent a year in excess of GDP growth is used for each country.³ Gross financing need is defined as the projected overall balance and maturing government debt in 2018. Data are from IMF staff projections.⁴ Average term to maturity data refer to government securities; the source is Bloomberg Finance L.P.⁵ Nonresident holding of general government debt data are the fourth quarter of 2017 or latest available from the Joint External Debt Hub (JEDH), Quarterly External Debt Statistics, which include marketable and nonmarketable debt. For some countries, tradable instruments in the JEDH are reported at market value. External debt in US dollars is converted to local currency, then taken as a percentage of 2017 gross general government debt.⁶ IMF staff projects an increase in pension spending in Brazil equivalent to 5.9 percent of GDP by 2030. For more detail, refer to *Fiscal Challenges of an Aging Population in Brazil* (IMF, 2016).⁷ Average Term to Maturity indicator for Turkey is in accordance with the published data for central government debt securities as of January 2018.

Table A25. Low-Income Developing Countries: Structural Fiscal Indicators
(Percent of GDP, except where otherwise indicated)

	Pension Spending Change, 2015–30 ¹	Net Present Value of Pension Spending Change, 2015–50 ^{1,2}	Health Care Spending Change, 2015–30	Net Present Value of Health Care Spending Change, 2015–50 ²	Average Term to Maturity, 2018 (years) ³	Debt-to-Average Maturity, 2018	Projected Interest Rate-Growth Differential, 2018–23 (percent)	Pre crisis Overall Balance, 2000–07	Projected Overall Balance, 2018–23	Nonresident Holding of General Government Debt, 2017 (percent of total) ⁴
Bangladesh	0.3	13.1	0.1	3.5	4.8	6.8	-6.2	-2.8	-4.3	38.3
Benin	0.1	3.4	0.2	9.7	3.5	15.8	-4.2	-2.3	-0.9	...
Burkina Faso	0.0	3.2	0.4	17.6	2.3	17.8	-4.2	-1.8	-4.2	63.5
Cambodia	0.1	3.0	0.3	10.8	...	...	-8.3	-3.2	-4.3	...
Cameroon	0.0	0.6	0.1	6.0	6.4	5.3	-4.0	4.9	-2.1	...
Chad	0.0	-0.1	0.2	7.9	...	...	-4.5	-2.4	0.4	...
Congo, Democratic Republic of the	0.0	0.2	0.3	11.2	...	...	-9.2	-0.7	-0.4	...
Congo, Republic of	0.1	6.0	0.3	10.8	...	...	2.0	4.8	1.6	...
Côte d'Ivoire	0.0	2.4	...	...	...	...	-3.8	-1.0	-3.3	...
Ethiopia	0.0	0.9	0.2	9.3	...	...	-14.2	-4.8	-2.5	...
Ghana	0.1	3.5	0.5	19.0	3.8	18.0	-4.0	-4.6	-4.1	...
Guinea	0.0	0.3	0.3	10.7	...	...	-9.9	-2.5	-1.6	...
Haiti	...	...	0.2	6.5	...	...	-6.1	-1.9	-1.3	...
Honduras	0.3	8.8	0.7	26.5	3.4	12.8	-2.0	-2.0	-0.8	...
Kenya	0.2	9.6	0.3	11.7	4.5	12.9	-3.9	-1.4	-6.1	...
Kyrgyz Republic	5.2	148.3	0.6	23.6	...	...	-5.5	-5.2	-2.4	93.3
Lao P.D.R.	0.1	2.6	0.3	10.2	...	...	-6.6	-3.6	-4.6	...
Madagascar	0.3	12.3	0.4	17.3	...	...	-7.8	-3.4	-4.3	74.6
Mali	-0.2	-2.6	0.2	9.0	2.4	15.0	-3.7	1.3	-3.0	...
Moldova	3.7	115.3	0.9	34.4	8.3	4.8	-5.4	-0.4	-2.9	55.3
Mozambique	-0.1	0.1	0.4	17.3	3.3	33.0	-5.3	-3.3	-9.0	...
Myanmar	0.3	11.7	...	...	...	...	-5.9	-4.1	-4.0	...
Nepal	0.1	4.9	0.3	10.9	...	...	-7.0	-1.0	-2.8	...
Nicaragua	1.0	47.6	0.9	36.3	1.3	26.0	-8.1	-1.3	-2.0	80.1
Niger	0.0	-0.4	0.3	13.2	...	...	-5.2	2.6	-4.5	...
Nigeria	0.0	0.2	0.1	4.3	4.6	5.8	-7.2	2.3	-4.6	...
Papua New Guinea	0.0	0.7	0.5	18.1	...	...	-0.4	1.8	-2.3	27.7
Rwanda	0.1	2.7	0.8	32.0	...	...	-9.0	-0.5	-1.6	...
Senegal	0.0	4.6	0.3	10.2	1.5	39.7	-4.6	-1.2	-3.3	...
Somalia	...	...	...	...	...	...	...	...	...	...
Sudan	0.0	1.2	0.3	12.6	...	...	-26.5	-0.9	-2.7	...
Tajikistan	0.5	17.1	0.3	13.6	...	...	-6.2	-2.8	-3.8	...
Tanzania	0.0	4.0	0.4	16.9	3.6	11.0	-5.6	-1.8	-3.6	...
Timor-Leste	...	...	...	...	...	...	10.0	10.0	-23.9	...
Uganda	0.0	1.0	0.3	12.6	3.3	12.6	-3.7	-1.0	-4.5	67.6
Uzbekistan	4.0	132.9	0.6	23.0	...	...	-14.3	-2.9	1.1	...
Vietnam	2.5	93.6	0.5	18.5	6.2	9.5	-6.1	-1.7	-4.7	...
Yemen	0.0	1.3	0.1	6.0	...	...	-14.6	-0.7	-6.4	...
Zambia	1.8	58.6	0.4	15.4	4.8	13.6	-5.4	-0.4	-7.1	...
Zimbabwe	...	...	...	...	...	...	...	...	...	...
Average	0.6	21.7	0.3	10.5	1.1	3.1	-6.9	-0.2	-3.9	0.0

Sources: Bloomberg Finance L.P.; Joint External Debt Hub, Quarterly External Debt Statistics; national authorities; and IMF staff estimates and projections.

Note: All 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.

¹ Pension projections rely on authorities' estimates when these are available. For the European Union countries, pension projections are based on *The 2015 Ageing Report of the European Commission*. When authorities' estimates are not available, staff projections use the methodology described in Clements, Eich, and Gupta, *Equitable and Sustainable Pensions: Challenges and Experience* (IMF 2014). Staff projections for health care spending are driven by demographic and other factors. The difference between the growth of health care spending and real GDP growth that is not explained by demographics ("excess cost growth") is assumed at the advanced economy historic average by 2050 (0.8 percent).

² For net present value calculations, a discount rate of 1 percent a year in excess of GDP growth is used for each country.

³ Average term to maturity data refer to government securities; the source is Bloomberg Finance L.P.

⁴ Nonresident holding of general government debt data are the fourth quarter of 2017 or latest available from the Joint External Debt Hub (JEDH), Quarterly External Debt Statistics, which include marketable and nonmarketable debt. For some countries, tradable instruments in the JEDH are reported at market value. External debt in US dollars is converted to local currency, then taken as a percentage of 2017 gross general government debt.

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IMF EXECUTIVE BOARD DISCUSSION OF THE OUTLOOK, APRIL 2018

The following remarks were made by the Chair at the conclusion of the Executive Board's discussion of the Fiscal Monitor, Global Financial Stability Report, and World Economic Outlook on April 2, 2018.

Executive Directors broadly shared the key messages of the flagship reports and found the analytical chapters topical, relevant, and insightful. They welcomed the broadbased recovery of the global economy, supported by a pickup in investment and trade. Directors observed that global growth is expected to rise further in the near term. Meanwhile, inflation remains muted in many countries. Subdued labor productivity growth and population aging continue to hold back growth in advanced economies. While the recent commodity price increase has supported a recovery in commodity-dependent emerging market and developing economies, the ongoing adjustment processes continue to weigh on growth.

Directors agreed that risks around the short-term outlook are broadly balanced, but beyond the next several quarters, risks are tilted to the downside. On the upside, the cyclical pickup in advanced economy growth may prove stronger than expected as slack in labor markets may be larger than currently assessed. On the downside, a sharp tightening of global financial conditions could have negative repercussions for growth, while financial vulnerabilities accumulated over years of low interest rates could amplify the impact of asset price movements on the financial system, putting growth at risk in the medium term. Most Directors noted that the tax reform in the United States is procyclical and may trigger inflation pressure and a faster-than-anticipated withdrawal of monetary accommodation, as well as widen global imbalances, although the view was also expressed that the reform would boost investment and efficiency, and thus move the US economy to a higher, sustainable growth path. An abrupt tightening of global financial conditions, especially if accompanied by capital flow reversals, could be challenging for several emerging markets and low-income developing countries, notwithstanding improved resilience of their financial systems. Downside risks are particularly evident from escalating trade

protectionism and inward-looking policies. Record-high levels of global debt, geopolitical tensions, and climate events also threaten global growth prospects.

Against this backdrop, Directors underscored that the cyclical upswing provides a golden opportunity to advance policies and reforms to strengthen medium-term prospects and reduce vulnerabilities. Priorities are to raise potential output, ensure the gains are widely shared, enhance economic and financial resilience, and safeguard debt sustainability. Directors stressed that a multilateral framework that is open, resilient, and adhered to by all can support growth and benefit the global economy. Enhanced commitment to multilateral cooperation is particularly needed to reduce trade barriers and distortionary trade practices, and to promote a rule-based multilateral trading system that works for all. Directors also called for multilateral cooperation to further reduce incentives for cross-border profit shifting and tax evasion, avoid tax competition, implement the postcrisis financial regulatory reform agenda, and address other shared challenges such as refugees, security threats, cyber risks, and climate change. Reducing excess external imbalances requires policy efforts to lift the contribution of domestic sources of growth above overall GDP growth in surplus countries and to boost potential output and saving in deficit countries.

Directors concurred that monetary accommodation should continue in advanced economies with inflation below target. Where output is close to potential and inflation is rising toward target, a gradual, data-dependent, and well-communicated withdrawal of monetary support is warranted. Directors supported the call for fiscal policy to start rebuilding buffers now, where appropriate, to create room for an eventual downturn and prevent fiscal vulnerabilities from becoming a source of stress. Fiscal adjustment is warranted in most countries, calibrated to avoid procyclicality and anchored on fiscal reforms that increase productivity and promote human and physical capital.

In countries that have ample fiscal space and are operating at or close to capacity, fiscal policy should be used to facilitate growth-enhancing structural reforms. Directors also saw a role for fiscal policy in promoting equality, and for labor and immigration policies in boosting labor supply.

Directors agreed that digitalization presents both opportunities and risks. Digitalization can reduce tax compliance costs, improve spending efficiency, and enhance social protection. At the same time, it creates challenges for fiscal policy and the international tax system. Directors noted that mitigating risks from digitalization would require a comprehensive reform agenda, adequate resources, and a coordinated approach toward a long-term vision of the international tax architecture.

Directors welcomed the increased resilience of the banking system and stressed the importance of completing and implementing the postcrisis regulatory reform agenda. They encouraged policymakers to develop and deploy micro and macroprudential tools to address financial vulnerabilities, and to closely monitor risks related to credit allocation and increasingly synchronized house prices across countries. The global implications of Brexit-related challenges also call for close cross-border cooperation. Directors concurred that, while crypto assets do not pose an immediate threat to financial stability, if widely used, they may raise issues about investor and consumer protection, money laundering, and tax evasion.

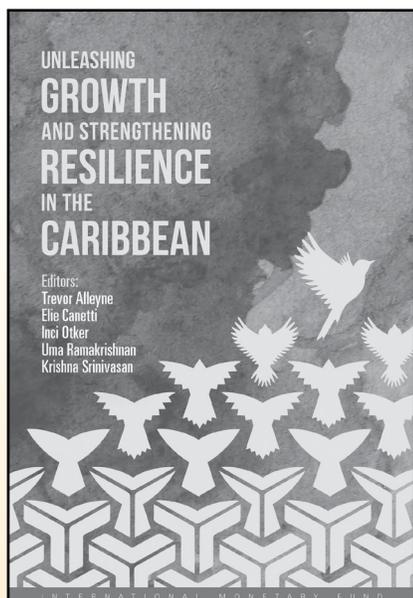
Directors agreed that enhancing the quality of credit intermediation, avoiding credit booms that lead to excessive risk taking, and, where feasible, permitting exchange rate flexibility can help emerg-

ing market and developing economies enhance their resilience to external shocks. Directors welcomed China's progress in reducing financial vulnerabilities and encouraged further efforts to strengthen its regulatory and supervisory frameworks, particularly in the shadow banking sector.

Directors noted that low-income developing countries face multiple challenges in their effort to progress toward the 2030 Sustainable Development Goals. They expressed concern over the broad-based increase in public debt burdens, the increasing number of countries at high risk of debt distress, and data gaps. These underscore the urgent need for fiscal prudence, improved debt management capacity, and greater debt transparency on the part of both debtors and creditors, as well as concerted efforts from the international community. Several countries need to make room in their budgets to accommodate higher spending on social services such as health care and education, and public investment, by mobilizing domestic revenues and improving spending efficiency. Commodity exporters and those vulnerable to climate-related events face additional complex challenges of diversifying their economies. While country circumstances differ, common priorities for promoting economic diversification and employment include increasing access to credit, expanding vocational skills training, and improving the quality of infrastructure.

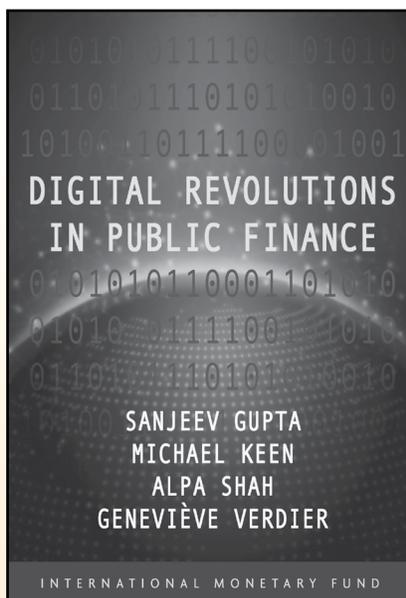
Directors expressed concern over the stalled progress in the catching-up process of emerging market and developing economies. They noted that, to facilitate income convergence, policies should aim to strengthen governance, improve educational and health outcomes, and lower entry barriers for new firms.

Highlights from IMF Publications



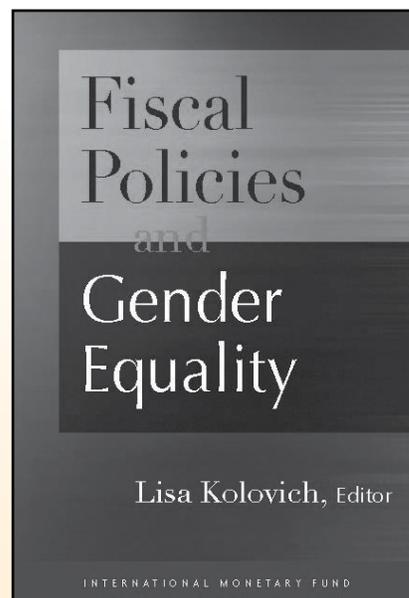
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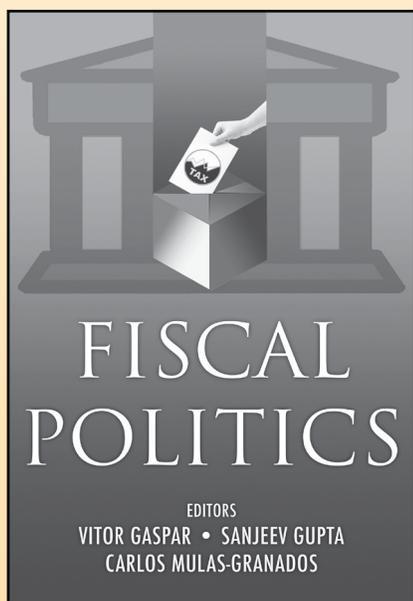
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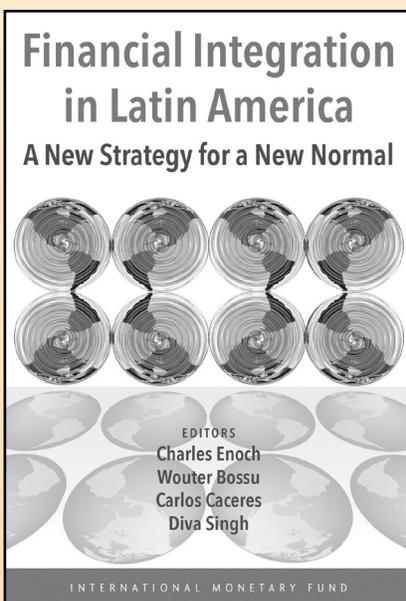
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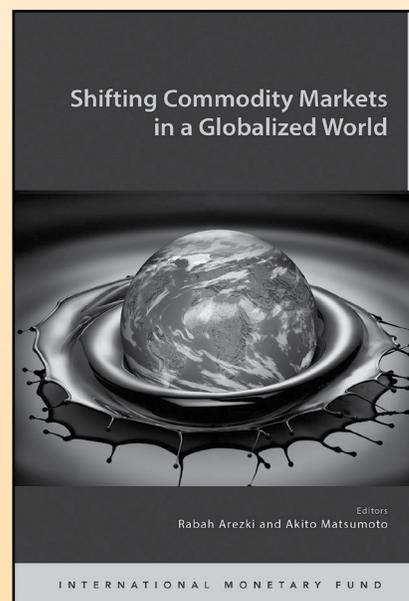
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