World Economic and Financial Surveys

Fiscal Monitor

Acting Now, Acting Together

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CONTENTS

Figures

Tables

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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 ¼ 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 and Data

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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 2016 *World Economic Outlook* and *Global Financial Stability Report* (and are referred to as "IMF staff projections"). Fiscal projections refer to the general government unless indicated otherwise. 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 Benedict Clements, Division Chief. The main authors of this issue are Luc Eyraud (team leader), Paolo Dudine, Priscilla Sheshma Muthoora, Sampawende J.-A. Tapsoba, and Elif Ture for Chapter 1, which also benefited from contributions by Serhan Cevik, Jason Harris, Samba Mbaye, Brian Olden, Frederik Giancarlo Toscani, and Philippe Wingender; Ruud De Mooij (team leader), Steven Clark, Paolo Dudine, Davide Furceri, Shafik Hebous, Estelle Liu, Carlos Mulas Granados, Ian Parry, Tigran Poghosyan, Christine Jane Richmond, and Sampawende J.-A. Tapsoba for Chapter 2, which also benefited from comments by Estelle Dauchy, Ramana Nanda, Emilio Ontiveros, Bas Straathof, and Daniel Wilson. Excellent research contributions were provided by Young Kim and Tafadzwa Mahlanganise. Nadia Malikyar, Jeffrey Pichocki, and Erin Yiu provided excellent coordination and editorial support. Gemma Diaz from the Communications Department led the editorial team and managed the report's production, with support from Linda Griffin Kean and Michael Harrup and editorial assistance from Sherrie Brown, Lorraine Coffey, Susan Graham, Linda Long, Lucy Morales, Nancy Morrison, Kia Penso, EEI Communications, and AGS.

Input, 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 from the Institute for Capacity Development, Monetary and Capital Markets Department, Research Department, Statistics Department, and Strategy, Policy, and Review Department. 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

Navigating a Risky World

The weakening of the global recovery and concerns about the ability of policymakers to provide an adequate and swift policy response have clouded economic prospects. As a result, risks to the global economy (April 2016 *World Economic Outlook*) and financial systems (April 2016 *Global Financial Stability Report*) have substantially increased. In this difficult environment, fiscal policies must be prepared to respond promptly to support growth and reduce vulnerabilities.

Worsening Fiscal Trends

Fiscal positions have worsened significantly since the April 2015 *Fiscal Monitor*, with public debt ratios being revised upward in most countries. The revisions have been the largest in *emerging market and middle-income economies*, where fiscal deficit ratios in 2015–16 are now expected to exceed the levels observed at the beginning of the global financial crisis. The fiscal positions of *commodity exporters* have been especially hard hit. In the Middle East and North Africa, the cumulative fiscal balances of oil exporters alone are expected to deteriorate by over $2 trillion in the next five years relative to 2004–08, when oil prices peaked. *Advanced economies* remain vulnerable in a context of high public debt (greater than 100 percent of GDP, on average), low inflation, and sluggish growth.

Rising Fiscal Risks

Fiscal risks are rising almost everywhere. In *advanced economies*, the risk of persistently weak growth and low inflation makes a reduction in debt ratios even more challenging. In *emerging market and developing economies,* tighter and more volatile global financial conditions could significantly increase the interest bill at a time when gross financing needs are rising. The weak economic outlook also raises the likelihood that contingent liabilities will materialize. Finally, the electoral calendar or political gridlock could complicate policy implementation or discourage bold policy action in 2016 in a number of major economies.

Hence, the outlook remains very uncertain and the likelihood of a protracted lower-growth scenario has increased. In this environment of high risks, a comprehensive policy response is urgently needed to improve growth prospects and build resilience.

Supporting Growth and Securing Long-Term Debt Sustainability

With policy rates near zero in many *advanced economies*, fiscal policy should stand ready to support demand and bolster monetary policy where needed and where fiscal space is available. The focus should be on fiscal measures that boost both short- and medium-term growth (such as infrastructure investment) and policy actions that support the implementation of structural reforms. To preserve debt sustainability and anchor expectations, any fiscal relaxation should be accompanied by a medium-term plan clarifying the long-term objectives of fiscal policy. In the euro area, member states should make full use of the existing room within the Stability and Growth Pact, in particular to increase public investment. In Japan and the United States, commitments to credible medium-term consolidation plans can create policy space in the short term. In countries where fiscal consolidation cannot be postponed, its pace and composition should be calibrated to reduce the short-term drag on economic activity.

A lasting solution to the debt overhang problem is not possible without higher medium-term growth. A sustained increase in growth of 1 percentage point could bring debt ratios in advanced economies to their precrisis levels within a decade. This underscores the need to accelerate structural reforms, including tax and expenditure policies that reinforce incentives to work and invest, and spur productivity growth.

If a significant decline in global growth materializes, a swift and bold multilateral policy response would be needed involving both demand and supply policies in the larger economies to help short-circuit the downward spiral of economic stagnation, low inflation, and rising public debt ratios. The policy package should be coordinated to generate positive spillover effects. It would also benefit other economies that cannot participate given market pressures, credibility challenges, or sustainability concerns.

In *China*, fiscal reforms should facilitate the rebalancing of growth by increasing on-budget support for household consumption while scaling down off-budget public investment. In *commodity exporters*, public spending has to be realigned with tighter resources. Nonetheless, the unavoidable adjustment can be made less painful by improving revenue diversification and cutting poorly targeted and wasteful spending, including

by reforming fuel subsidies. The availability of financial buffers and the intensity of market pressures will determine the pace of consolidation. Commodity exporters also need to devise long-term fiscal strategies to avoid procyclical fiscal policy and build sufficient savings to protect against the high volatility of revenues.

In *other emerging market and developing economies*, key challenges are to create budgetary room to respond to rising demand for public services, improve the provision of health and education, and develop infrastructure. These objectives can be achieved by implementing pro-growth structural reforms, better mobilizing revenue, and improving expenditure efficiency. Building capacity in the area of revenue mobilization is also essential for reaching the Sustainable Development Goals. In some oil importers with large fuel subsidies, windfall gains from lower oil prices could be used to finance growth-enhancing reforms.

Reducing Vulnerabilities

The global financial crisis has exposed limitations in current fiscal risk management frameworks, which fail to effectively capture the nature of risks and do not offer specific measures to mitigate them. Countries should develop risk management strategies to reduce their exposure to risks and create adequate buffers to absorb them.

Fiscal frameworks of *emerging market and developing economies* need to adapt to a more volatile environment with possibly large shifts in commodity prices, capital flows, and exchange rates. Strong multiyear budget and debt management frameworks with effective commitment controls are crucial to enforcing discipline, guiding annual budgets, and dealing with unexpected shocks. *Oil exporters*, in particular, need to strengthen their fiscal frameworks to avoid procyclical fiscal policy, while generating adequate buffers to cope with the high volatility of fiscal revenue.

Comprehensive, reliable, and timely public reporting on the state of public finances can also reduce fiscal vulnerabilities by fostering more precautionary, informed, and accountable fiscal policy. In *China*, fiscal transparency could be enhanced by bringing on-budget more projects undertaken by local government financing vehicles and by continuing reforms to government accounting and financial reporting. In *emerging market and developing economies,* close monitoring of the rapid increase in corporate debt—which has quadrupled during the past decade—is warranted. Tax policy can complement macroprudential measures to limit excessive leverage.

Fiscal Policies for Innovation and Growth

Productivity has moved to the top of the global policy agenda. The analysis in Chapter 2 shows that fiscal policy is a potent instrument for productivity growth through innovation. The analysis focuses on three channels of innovation: research and development (R&D), technology transfers, and entrepreneurship. The key policy messages are the following:

- *Governments in many countries should do more to promote R&D.* Private firms do not invest enough in R&D for two reasons. First, firms often find it difficult to finance these risky investment projects, especially during recessions. New analysis finds that fiscal policies that help stabilize output can effectively contribute to overcoming this problem. Second, R&D investments have beneficial effects for the wider economy as a result of knowledge spillovers. Firms do not take these effects into account in their decisions. If they did, R&D would be 40 percent higher than it currently is. Such an increase could lift GDP in individual economies by 5 percent in the long term—and globally by as much as 8 percent due to international spillovers. Fiscal policy can play an important role in promoting private R&D, for example, by providing subsidies and tax incentives. The design and implementation of these instruments are critical for their effectiveness. Best practices include payroll tax relief for researchers and refundable R&D tax credits.
- *In emerging market and developing economies, governments should invest in education, infrastructure, and institutions* to facilitate imitation and absorption of technologies from advanced economies. Many countries sacrifice their tax base by granting costly tax incentives to lure foreign investment, but the evidence suggests that these incentives are not very effective.
- *Fiscal policies to foster innovative entrepreneurship should be targeted to new firms rather than small firms.* High income tax rates exert only modest distortions to the entrepreneurial process. Yet innovation can be promoted by certain features in the design of taxes—in particular, generous provisions to offset taxable losses. To encourage entrepreneurship, many governments offer special tax incentives for small companies. However, these incentives are not cost-effective and can even discourage such firms from growing. It is more important to facilitate the entry of new firms, including by simplifying taxes.

In sum, fiscal policies can contribute significantly to innovation. With appropriate design, they can generate a meaningful impact on productivity growth.

CHAPTER 1

NAVIGATING A RISKY WORLD

The global economy remains fragile at this time. While the recovery in advanced economies is softening, many emerging market and developing economies have experienced a significant economic slowdown and some large countries show signs of distress. Global risk aversion has risen, and commodity prices have continued to fall since the April 2015 *Fiscal Monitor*. The weaker outlook and concerns about the ability of policymakers to provide an adequate and swift policy response have amplified downward risks and clouded global prospects. In this challenging environment, a comprehensive policy package is urgently needed to boost growth and reduce vulnerabilities.

Worsening Fiscal Trends

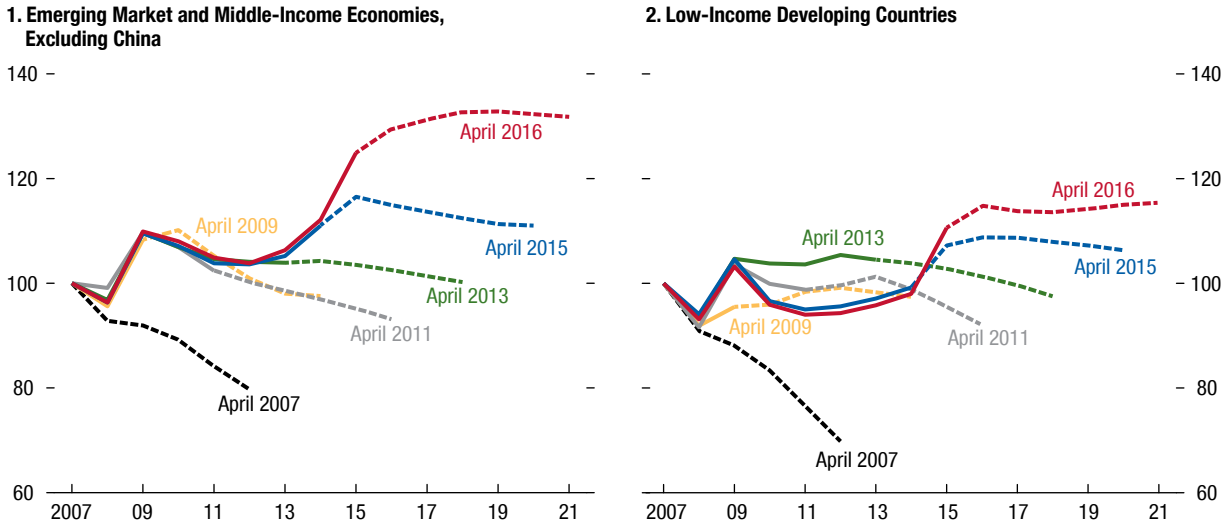
Fiscal positions have worsened significantly in the past year. Many of the risks identified in previous *Fiscal Monitors* have materialized, including the steep decline in oil prices, the change in investor sentiment toward emerging market and middle-income economies, and the intensification of geopolitical tensions. As a result, debt trajectories have been revised upward in most countries (Figure 1.1). Nowhere have the revisions been more pronounced than in emerging market and middle-income economies, where fiscal deficit ratios in 2015–16 are now expected to exceed, on average, the levels observed in 2009 at the beginning of the global financial crisis (Tables 1.1a and 1.1b). In low-income developing countries, debt revisions have generally been less significant, but the debt ratio increase in 2015 is the largest since the launch of various debt relief initiatives at the end of the 1990s (Table 1.2). Among emerging market and developing economies, commodity exporters experienced the largest deterioration in their fiscal positions. Advanced economies have also been affected in the past year, and remain vulnerable in a context of high debt, low inflation, and low growth. In these countries, the turning point of the debt ratio has been delayed by one year to 2016.

While idiosyncratic and transitory factors are also at play, the main forces driving the deterioration of debt dynamics are ongoing adjustments in the global economy. The April 2016 *World Economic Outlook* (Chapter 1) identifies a number of major economic "realignments" that are shaping the global outlook, including continued weakness in global economic activity, the decline in commodity prices, the slowdown in trade, and the tightening of financial conditions and dwindling capital inflows to emerging market and developing economies. These key adjustments, combined with geopolitical factors, are creating persistent strains on fiscal positions, with varying impacts on each country (Figure 1.2):

- *Weaker global growth.* Estimates of potential output growth have decreased in recent years for most countries (April 2015 *World Economic Outlook*, Chapter 3). In advanced economies, the decline, which started in the early 2000s, has accelerated during the global financial crisis. In emerging markets, in contrast, it began only after the crisis (Figure 1.2, panel 1). In both cases, growth is unlikely to revert to precrisis levels, slowing the pace of increase in fiscal revenues and also affecting the denominator of fiscal ratios. As a result, debt-to-GDP ratios are expected to remain durably high, especially in advanced economies.
- *Commodity price decline.* Reflecting China's economic slowdown and rebalancing, and supply factors, commodity prices have plummeted, dragging down the fiscal revenues of commodity producers (Figure 1.2, panel 2). In addition, persistently low prices have exerted downward pressures on producers' currencies, raising the value of their public debt denominated in foreign currency (Figure 1.2, panel 3). In commodity importers, the price decline has not translated into significant improvements of fiscal positions due to concomitant offsetting factors.[1]
- *Trade slowdown.* Global trade growth in volume terms has slowed since 2009, partly driven by China's

[1] The positive effect of lower commodity prices has been muted for a number of reasons, including: exchange rate depreciations that have partly offset the reduction in the oil bill in dollar terms; the partial pass-through of lower oil prices to consumers; and the drag on growth due, in particular, to lower investment in the energy and mining sectors (IMF 2015a; April 2016 *World Economic Outlook,* Chapter 1).

Figure 1.1. Revisions to General Government Gross Debt-to-GDP Ratio, 2007–21
(Rebased debt ratio, index 2007 = 100)



Source: IMF staff estimates.
Note: For a list of countries in each group of economies, see Table A in the Methodological and Statistical Appendix.

economic deceleration and the sharp contraction of private investment during the global financial crisis (Figure 1.2, panel 4). This trade slowdown has eroded the fiscal positions of many emerging market and developing economies for which trade is still an important source of tax revenues (Box 1.1).

- *Tighter financial conditions.*[2] In many emerging market and developing economies, external funding conditions for the government have become more difficult as a result of weaker economic prospects, the U.S. Federal Reserve policy rate lift-off, concerns about China's outlook, higher geopolitical risks, and, more generally, a rise in global risk aversion (Figure 1.2, panel 5). In most advanced economies, government bond yields are very low, although in selected European countries sovereign spreads have picked up in early 2016.
- *Geopolitical tensions.* Geopolitical uncertainties are on the rise, as shown by the growing number of armed conflicts, terrorist acts, and countries affected by terrorism in the world (Figure 1.2, panel 6). The intensification of conflicts has large negative impacts on the countries directly affected, for both their economic prospects and their fiscal outcomes. Geopolitical tensions can also spill over to the fiscal positions of other countries through various channels, including higher security-related spending, the need to accommodate refugee flows, and changes in perception of risk and confidence. In Europe, for instance, the surge of refugees is testing the flexibility of the fiscal rules framework and the ability of countries to integrate migrants into the labor force (Box 1.2).

Advanced Economies: Growing Divergences in Fiscal Policy

Advanced economies, as a whole, adopted a neutral fiscal stance in 2015: their structural primary balance[3] remained broadly constant after four years of sustained improvement (Figure 1.3, panel 1). Against a backdrop of weak growth, sizable output gaps, and inflation rates close to zero, the fiscal stance is expected to remain neutral in 2016. As a result, the average debt-to-GDP ratio was stable in 2015 (at 106 percent), and the debt ratio is now projected to peak in 2016, one year later than projected in the April 2015 *Fiscal Monitor.*

However, the neutral aggregate stance masks rising divergences among advanced economies. Countries are taking different approaches to debt reduction

[2] In the text, the term "tightening of financial conditions" refers to the increase in the governments' borrowing costs.

[3] The structural primary balance is a measure that filters out the impact of cyclical movements and one-off factors, and allows making an assessment of the "underlying" fiscal stance.

Table 1.1a. Fiscal Balances, 2009–17: Overall Balance

(Percent of GDP)

								Projections		Difference from April 2015 *Fiscal Monitor*		
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2015	2016	2017
World	**–7.2**	**–5.7**	**–4.3**	**–3.8**	**–2.9**	**–2.9**	**–3.6**	**–3.6**	**–3.1**	**–0.1**	**–0.7**	**–0.7**
Advanced Economies	**–8.8**	**–7.6**	**–6.3**	**–5.5**	**–3.7**	**–3.3**	**–3.0**	**–2.9**	**–2.5**	**0.3**	**–0.2**	**–0.3**
United States[1]	–13.1	–10.9	–9.6	–7.9	–4.4	–4.1	–3.7	–3.8	–3.7	0.5	0.0	–0.3
Euro Area	–6.3	–6.2	–4.2	–3.7	–3.0	–2.6	–2.0	–1.9	–1.5	0.2	–0.3	–0.2
France	–7.2	–6.8	–5.1	–4.8	–4.1	–3.9	–3.6	–3.4	–2.9	0.3	0.1	–0.1
Germany	–3.0	–4.1	–0.9	0.1	0.1	0.3	0.6	0.1	0.1	0.4	–0.3	–0.3
Italy	–5.3	–4.2	–3.5	–2.9	–2.9	–3.0	–2.6	–2.7	–1.6	0.0	–1.0	–0.5
Spain[2]	–11.0	–9.4	–9.5	–10.4	–6.9	–5.9	–4.5	–3.4	–2.5	–0.2	–0.5	0.0
Japan	–10.4	–9.3	–9.8	–8.8	–8.5	–6.2	–5.2	–4.9	–3.9	1.0	0.1	0.4
United Kingdom	–10.7	–9.6	–7.7	–7.7	–5.6	–5.6	–4.4	–3.2	–2.2	0.4	–0.2	–0.7
Canada	–3.9	–4.7	–3.3	–2.5	–1.9	–0.5	–1.7	–2.4	–1.8	0.0	–1.2	–0.9
Others	–0.8	–0.2	0.4	0.4	0.2	0.1	–0.5	–0.4	–0.1	–0.2	–0.4	–0.4
Emerging Market and Middle-Income Economies	**–3.7**	**–1.9**	**–0.9**	**–1.1**	**–1.5**	**–2.4**	**–4.5**	**–4.7**	**–4.1**	**–0.8**	**–1.4**	**–1.3**
Excluding MENAP Oil Producers	–4.0	–2.5	–1.8	–2.1	–2.4	–2.7	–4.1	–4.2	–3.7	–0.8	–1.0	–0.8
Asia	–3.4	–1.5	–1.6	–1.9	–1.9	–1.9	–3.2	–3.5	–3.2	–0.5	–0.6	–0.5
China	–1.8	0.6	–0.1	–0.7	–0.8	–0.9	–2.7	–3.1	–2.7	–0.8	–0.9	–0.8
India	–9.8	–8.4	–8.2	–7.5	–7.7	–7.0	–7.2	–7.0	–6.7	0.0	0.1	0.2
Europe	–5.7	–3.7	–0.1	–0.6	–1.4	–1.4	–2.7	–3.4	–2.7	0.2	–1.4	–1.3
Russia	–5.9	–3.2	1.4	0.4	–1.2	–1.1	–3.5	–4.4	–3.0	0.2	–1.9	–1.7
Latin America	–3.8	–3.1	–2.8	–3.2	–3.2	–5.1	–7.3	–6.5	–5.9	–2.5	–2.1	–1.8
Brazil	–3.2	–2.7	–2.5	–2.5	–3.0	–6.0	–10.3	–8.7	–8.5	–5.0	–3.9	–4.3
Mexico	–5.0	–3.9	–3.4	–3.8	–3.7	–4.6	–4.1	–3.5	–3.0	0.0	0.0	0.0
MENAP	–1.1	2.3	4.3	5.6	3.8	–0.6	–8.6	–10.0	–8.7	–1.1	–5.3	–5.6
Saudi Arabia	–5.4	3.6	11.2	12.0	5.8	–3.4	–16.3	–13.5	–11.8	–2.1	–5.4	–6.4
South Africa	–4.7	–4.8	–3.9	–4.1	–4.0	–3.8	–4.0	–3.8	–3.6	0.1	–0.3	–0.5
Low-Income Developing Countries	**–4.2**	**–2.7**	**–1.1**	**–2.0**	**–3.4**	**–3.2**	**–4.1**	**–4.5**	**–4.0**	**–0.6**	**–1.3**	**–1.1**
Nigeria	–6.0	–4.2	0.4	0.2	–2.3	–2.1	–4.0	–4.7	–4.3	–2.0	–3.0	–2.5
Oil Producers	**–2.9**	**–1.1**	**1.4**	**1.5**	**0.4**	**–1.0**	**–4.7**	**–5.6**	**–4.6**	**…**	**…**	**…**
Memorandum												
World Output (percent)	**–0.1**	**5.4**	**4.2**	**3.5**	**3.3**	**3.4**	**3.1**	**3.2**	**3.5**	**–0.4**	**–0.6**	**–0.3**

Source: IMF staff estimates and projections.

Note: All fiscal data country averages are weighted by nominal GDP converted to U.S. dollars at average market exchange rates in the years indicated and based on data availability. In many countries, 2015 data are still preliminary. Projections are based on IMF staff assessments of current policies. For country-specific details, see Data and Conventions and Tables A, B, C, and D in the Methodological and Statistical Appendix. MENAP = Middle East, North Africa, and Pakistan.

[1] For cross-country comparability, 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.

[2] Including financial sector support.

Table 1.1b. Fiscal Balances, 2009–17: Cyclically Adjusted Primary Balance
(Percent of potential GDP)

								Projections		Difference from April 2015 *Fiscal Monitor*		
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2015	2016	2017
Advanced Economies	**–4.3**	**–5.0**	**–3.8**	**–2.6**	**–1.5**	**–1.1**	**–0.9**	**–1.0**	**–0.8**	**–0.9**	**–1.0**	**–0.8**
United States[1,2,3]	–5.8	–7.5	–5.8	–4.0	–2.0	–1.5	–1.1	–1.4	–1.4	–1.1	–1.4	–1.4
Euro Area	–2.2	–2.4	–1.1	0.1	1.1	1.1	1.1	0.8	0.8	–0.1	–0.4	–0.4
France	–3.4	–3.6	–2.2	–1.6	–1.0	–0.6	–0.6	–0.6	–0.5	0.0	–0.2	–0.4
Germany	1.4	–1.2	0.7	1.8	2.0	1.8	1.9	1.1	0.8	0.5	0.0	–0.1
Italy	0.4	0.4	1.1	3.3	3.5	3.4	3.0	2.6	3.0	–0.4	–1.1	–0.7
Spain[2,3]	–9.1	–6.7	–5.2	–1.2	0.0	0.4	0.3	0.5	0.6	0.0	–0.4	–0.2
Japan	–7.0	–7.3	–7.7	–7.0	–7.5	–5.2	–4.6	–4.4	–3.5	0.9	0.0	0.2
United Kingdom[2]	–7.7	–5.1	–3.3	–3.8	–2.9	–3.1	–2.6	–1.4	–0.5	–0.2	–0.5	–1.1
Canada	–1.3	–2.9	–2.3	–1.3	–0.9	0.2	–0.4	–1.4	–1.3	0.8	–0.6	–0.7
Others	–1.7	–1.5	–1.2	–1.1	–1.0	–0.8	–1.0	–0.9	–0.6	0.1	0.0	0.0
Emerging Market and Middle-Income Economies	**–1.8**	**–0.6**	**–0.1**	**–0.4**	**–0.6**	**–0.6**	**–1.6**	**–1.8**	**–1.3**	**–0.7**	**–0.8**	**–0.6**
Asia	–1.9	–0.2	–0.3	–0.5	–0.4	–0.3	–1.8	–2.0	–1.6	–0.5	–0.5	–0.3
China	–1.4	1.0	0.4	0.0	0.0	0.1	–1.9	–2.2	–1.7	–0.8	–0.7	–0.5
India	–5.0	–4.5	–4.1	–3.1	–3.0	–2.4	–2.5	–2.4	–2.1	–0.4	0.0	0.1
Europe	–4.1	–2.5	0.4	0.1	–0.7	0.2	–0.6	–1.7	–1.0	–0.2	–1.4	–1.3
Russia	–6.2	–3.1	1.5	0.2	–1.3	0.2	–2.0	–3.6	–2.1	0.0	–1.7	–1.7
Latin America	0.4	0.1	0.3	–0.1	–0.6	–1.9	–1.7	–0.9	–0.2	–1.6	–1.4	–1.0
Brazil	2.1	1.2	1.6	0.7	0.2	–1.9	–0.9	–0.5	–0.1	–2.6	–2.9	–2.6
Mexico	–1.4	–1.1	–0.9	–1.4	–1.2	–1.8	–1.2	–0.4	0.2	0.1	0.2	0.2
South Africa	–0.8	–1.0	–0.9	–1.2	–0.9	–0.4	–0.4	0.3	0.7	0.1	0.0	0.1
MENAP	…	…	…	…	…	…	…	…	…	…	…	…
Saudi Arabia	…	…	…	…	…	…	…	…	…	…	…	…
Nigeria	…	…	…	…	…	…	…	…	…	…	…	…

Source: IMF staff estimates and projections.
Note: All fiscal data country averages are weighted by nominal GDP converted to U.S. 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, 2015 data are still preliminary. For country-specific details, see Data and Conventions and Tables A, B, C, and D in the Methodological and Statistical Appendix. MENAP = Middle East, North Africa, and Pakistan.
[1] For cross-country comparability, expenditure and fiscal balances of the United States are adjusted to exclude the imputed interest on unfunded pension liabilities and the imputed compensation of employees, which are counted as expenditures under the 2008 System of National Accounts (2008 SNA) adopted by the United States, but not in countries that have not yet adopted the 2008 SNA. Data for the United States in this table may thus differ from data published by the U.S. Bureau of Economic Analysis.
[2] Excluding financial sector support.
[3] Data refer to structural primary balance.

depending on their initial fiscal position (Figure 1.3, panels 2 and 3):

- Countries with the most unfavorable initial conditions generally pursue fiscal consolidation, in some cases at a slower pace (Figure 1.3, panel 4): their structural primary balance is expected to keep improving by at least ½ percent of GDP in 2016 relative to 2014. This first group of countries is, predominantly, characterized by either high public debt (Japan) or a large primary deficit (United Kingdom). However, except for Japan, all these countries are expected to enjoy an annual GDP growth rate greater than 1½ percent in 2015–16.
- Other countries are relaxing their fiscal stance: their structural primary balance is expected to loosen by at least ½ percent of GDP in 2016 relative to 2014. Initial conditions were somewhat more favorable in these countries: the ratio of debt to GDP was in general lower and was either on a steady downward path (Germany) or close to peak (Austria), and the structural primary balance was already in surplus (Italy). As a result of these favorable initial conditions, the fiscal relaxation is not expected to reverse the debt decline.
- A third group of countries pauses fiscal consolidation, maintaining a broadly neutral stance in 2015–16 and effectively postponing the debt

Table 1.2. General Government Debt, 2009–17

(Percent of GDP)

								Projections		Difference from April 2015 *Fiscal Monitor*		
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2015	2016	2017
Gross Debt												
World	**75.1**	**77.2**	**78.2**	**79.9**	**79.1**	**79.6**	**81.3**	**83.6**	**83.4**	**1.0**	**3.6**	**4.1**
Advanced Economies	**92.0**	**98.5**	**102.6**	**106.9**	**105.7**	**105.6**	**105.8**	**107.6**	**107.0**	**0.4**	**2.5**	**2.8**
United States[1]	86.0	94.7	99.0	102.5	104.8	105.0	105.8	107.5	107.5	0.8	2.6	3.2
Euro Area	78.3	84.0	86.6	91.3	93.4	94.5	93.2	92.5	91.3	–0.4	0.1	0.5
France	78.8	81.5	85.0	89.4	92.3	95.6	96.8	98.2	98.8	–0.2	0.1	0.9
Germany	72.5	81.0	78.4	79.7	77.4	74.9	71.0	68.2	65.9	1.5	1.6	1.8
Italy	112.5	115.4	116.5	123.3	128.9	132.5	132.6	133.0	131.7	–1.2	0.2	0.6
Spain	52.7	60.1	69.5	85.4	93.7	99.3	99.0	99.0	98.5	–0.5	–1.0	–1.7
Japan	210.2	215.8	231.6	238.0	244.5	249.1	248.1	249.3	250.9	1.9	2.4	2.3
United Kingdom	65.7	76.6	81.8	85.3	86.2	88.2	89.3	89.1	87.9	–1.8	–2.5	–2.8
Canada[1]	79.3	81.1	81.5	84.8	86.1	86.2	91.5	92.3	90.6	4.5	7.3	7.5
Emerging Market and Middle-Income Economies	**39.7**	**38.7**	**37.9**	**38.1**	**39.5**	**41.5**	**45.4**	**47.5**	**49.0**	**1.5**	**2.9**	**3.9**
Excluding MENAP Oil Producers	42.1	41.1	40.5	40.8	42.1	44.2	47.8	49.5	50.7	1.3	2.1	2.8
Asia	43.5	41.3	40.8	41.4	42.9	44.2	46.5	48.5	50.3	0.5	0.8	1.3
China	36.9	35.1	35.3	36.9	39.5	41.1	43.9	46.8	49.3	0.4	0.6	1.2
India	72.5	67.5	68.8	67.7	66.2	66.4	67.2	66.5	65.6	2.8	3.2	3.1
Europe	28.8	28.6	27.2	26.3	27.6	29.9	33.4	34.8	34.5	–0.5	2.2	2.2
Russia	10.0	10.6	10.9	11.8	13.1	16.3	17.7	18.4	19.4	–1.1	1.3	2.3
Latin America	49.1	48.2	48.0	47.9	48.7	51.6	57.4	58.4	59.7	5.1	6.2	7.9
Brazil[2]	64.9	63.0	61.2	62.3	60.4	63.3	73.7	76.3	80.5	7.5	10.1	15.2
Mexico	43.9	42.2	43.2	43.2	46.4	49.5	54.0	54.9	54.9	2.6	3.2	3.2
MENAP	25.5	24.5	22.0	23.3	24.2	25.2	31.2	37.9	41.3	3.4	10.0	13.7
Saudi Arabia	14.0	8.4	5.4	3.6	2.2	1.6	5.8	17.2	25.8	4.0	15.5	24.2
South Africa	30.1	34.7	38.2	40.9	44.2	47.1	50.1	51.4	52.1	2.6	3.2	3.3
Low-Income Developing Countries	**33.2**	**30.8**	**30.2**	**30.3**	**30.8**	**31.5**	**35.6**	**36.8**	**36.6**	**1.7**	**2.5**	**2.3**
Nigeria	9.6	9.6	10.2	10.4	10.5	10.6	11.5	13.3	14.0	0.0	2.0	2.9
Oil Producers	**34.2**	**33.5**	**31.5**	**31.7**	**32.8**	**34.4**	**39.8**	**42.0**	**42.5**	**…**	**…**	**…**
Net Debt												
World	**50.6**	**54.1**	**57.2**	**59.2**	**58.3**	**58.7**	**60.6**	**63.1**	**63.3**	**–0.8**	**1.3**	**1.5**
Advanced Economies	**58.0**	**63.1**	**67.8**	**71.1**	**70.1**	**70.2**	**71.1**	**72.8**	**72.6**	–0.8	**0.5**	**0.5**
United States[1]	62.0	69.5	75.9	79.4	80.9	80.6	80.6	82.2	82.2	0.2	1.5	1.6
Euro Area	52.5	56.6	58.8	66.9	69.2	70.3	69.4	69.3	68.6	–0.4	0.1	0.4
France	70.1	73.7	76.4	81.7	84.6	87.9	89.1	90.5	91.1	–0.2	0.1	0.9
Germany	54.3	56.7	55.0	54.4	53.4	51.9	48.8	46.7	44.9	1.8	2.0	2.2
Italy	94.2	98.3	100.4	104.9	109.7	112.6	111.4	111.8	110.7	–0.4	0.7	1.1
Spain	24.2	32.5	39.3	52.1	59.9	64.0	65.0	66.2	66.6	–2.4	–2.6	–3.0
Japan	106.2	113.1	127.2	129.0	124.2	126.2	128.1	129.6	131.2	–1.5	–2.3	–3.0
United Kingdom	58.7	69.2	73.3	76.6	77.8	79.7	80.7	80.6	79.3	–1.9	–2.5	–2.9
Canada[1]	24.4	26.8	27.1	28.2	29.4	28.1	26.7	27.5	25.8	–11.6	–10.4	–11.4
Emerging Market and Middle-Income Economies	**12.4**	**14.0**	**12.7**	**9.8**	**9.1**	**9.9**	**11.2**	**14.5**	**17.9**	**0.3**	**1.7**	**3.8**
Asia	...	...	...	...	...	...	...	...	...	**…**	**…**	**…**
Europe	28.9	29.6	28.1	25.9	26.3	25.5	24.3	27.0	27.1	–2.3	0.0	0.0
Latin America	33.9	33.1	31.2	29.5	29.6	32.5	35.6	39.4	41.6	2.2	5.6	8.0
MENAP	–38.3	–34.9	–33.9	–35.7	–42.9	–42.4	–37.1	–30.5	–22.3	1.9	1.6	5.0
Low-Income Developing Countries	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**

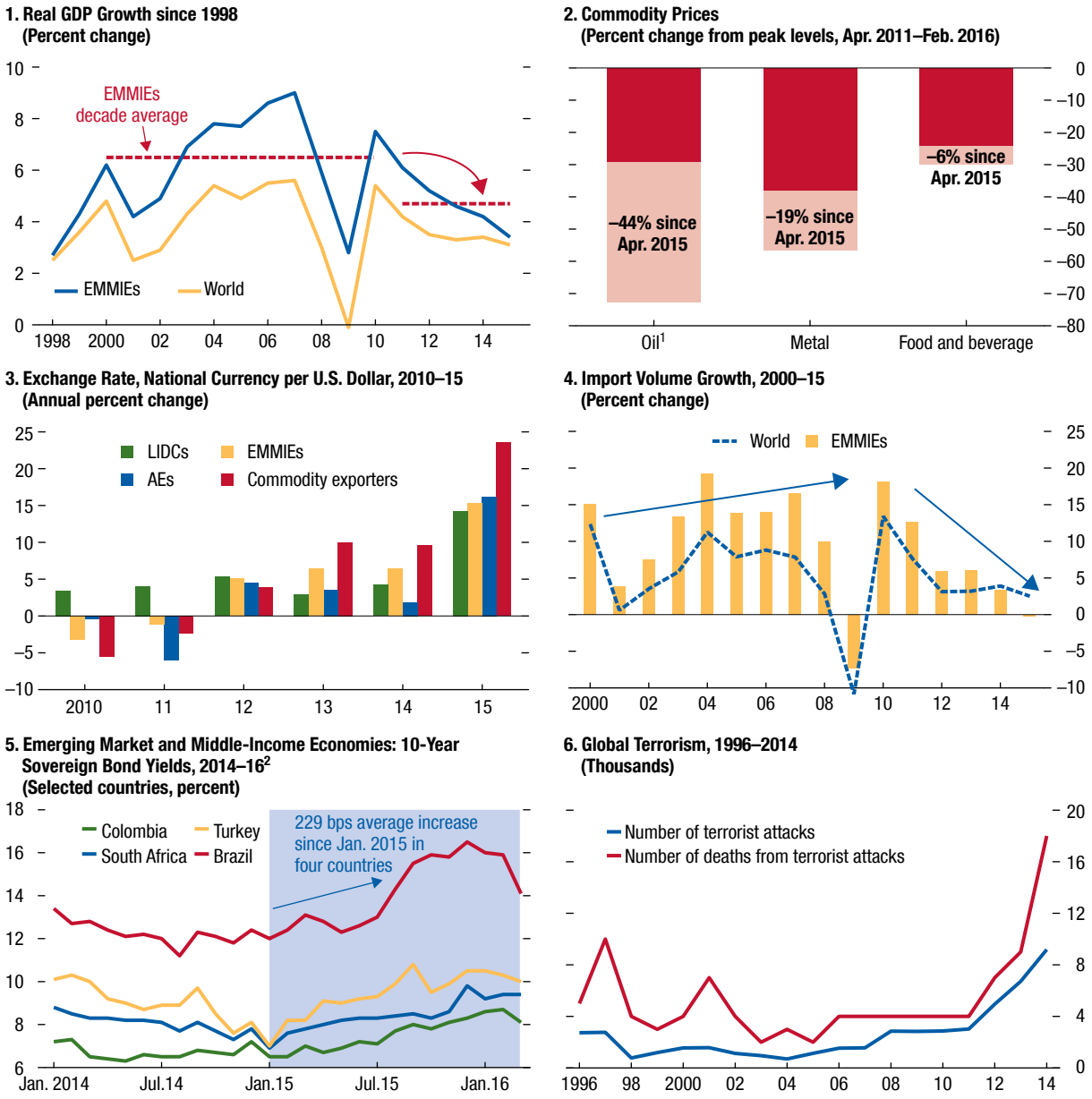
Source: IMF staff estimates and projections.

Note: All fiscal data country averages are weighted by nominal GDP converted to U.S. 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, 2015 data are still preliminary. For country-specific details, see Data and Conventions and Tables A, B, C, and D in the Methodological and Statistical Appendix. MENAP = Middle East, North Africa, and Pakistan.

[1] For cross-country comparability, gross and net debt levels reported by national statistical agencies for countries that have adopted the 2008 System of National Accounts (Australia, Canada, Hong Kong SAR, United States) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans.

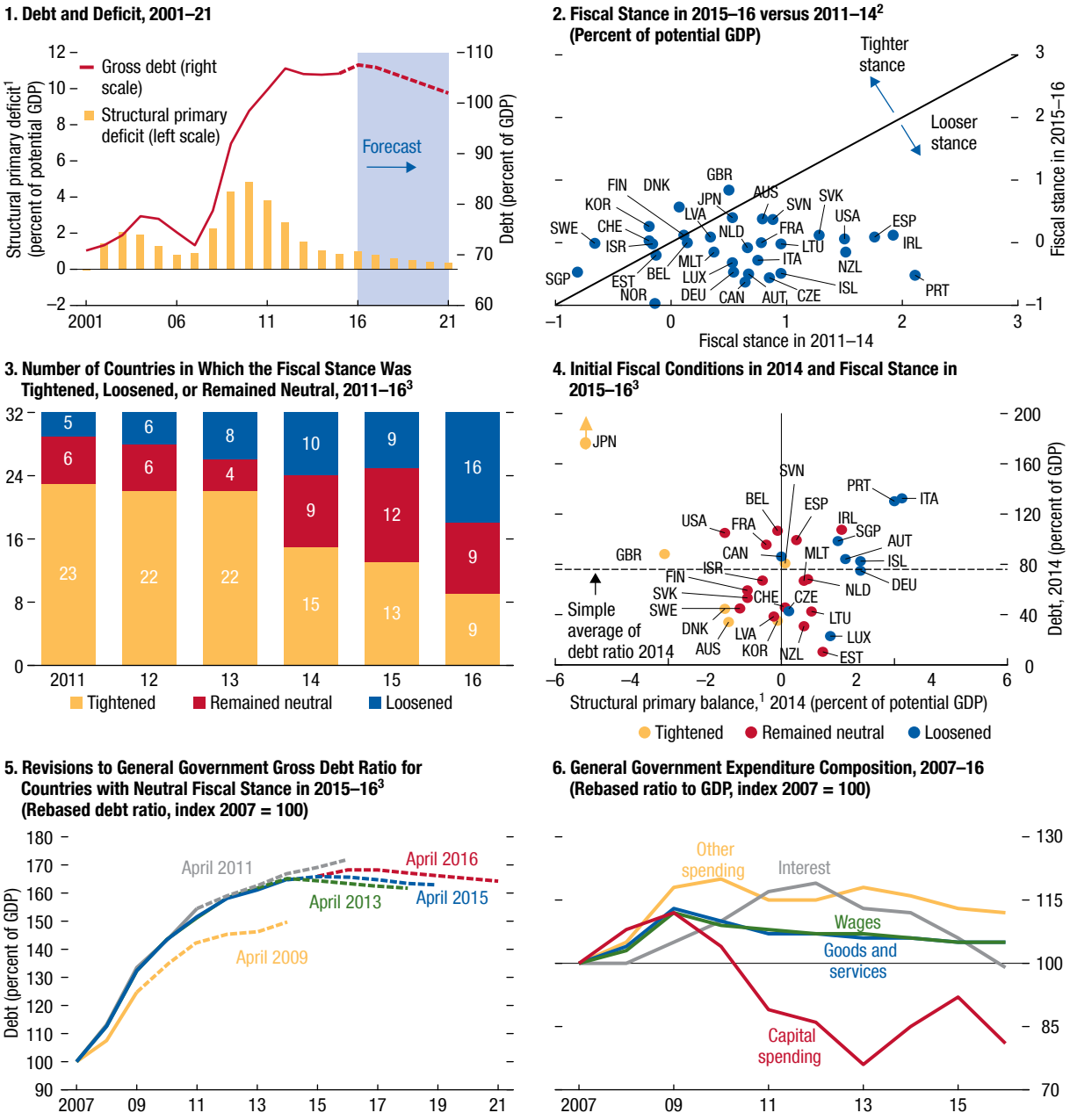
[2] Gross debt refers to the nonfinancial public sector, excluding Eletrobras and Petrobras, and includes sovereign debt held on the balance sheet of the central bank.

Figure 1.2. Major Realignments in the Global Economy



Sources: Thomson Reuters DataStream; Global Terrorism Database; IMF Primary Commodity Price System Database; and IMF staff estimates.
Note: For a list of countries in each group of economies, see Table A in the Methodological and Statistical Appendix. bps = basis points; AEs = advanced economies; EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries.
[1] Oil refers to the Brent crude index.
[2] Data refer to the end of the month.

Figure 1.3. Fiscal Trends in Advanced Economies



Source: IMF staff estimates.

Note: For a list of countries in the advanced economies group, see Table A in the Methodological and Statistical Appendix. For definition and coverage of government subsectors in the advanced economies, see Table B in the Methodological and Statistical Appendix. Data labels in the figure use International Organization for Standardization (ISO) country codes.

[1] Structural primary deficit refers to the difference between the cyclically adjusted primary deficit and 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, assets and commodity prices and output composition effects).

[2] Fiscal stance in 2011–14 (respectively 2015–16) is measured as the average change per year in the structural primary balance between 2010 and 2014 (respectively 2014 and 2016).

[3] Fiscal stance is tightened if the ratio of the structural primary balance to potential GDP improves by at least 0.25 percent per year; it is loosened if it deteriorates by at least 0.25 percent per year, remains neutral otherwise. In panels 4 and 5, the fiscal stance in 2015–16 is based on the change in the structural primary balance to potential GDP between 2014 and 2016.

decrease (Figure 1.3, panel 5). This group is more heterogeneous, with some low-debt countries having relatively small adjustment needs and others balancing the medium-term need for consolidation with the near-term priorities of bolstering growth and job creation (Belgium, France, United States).

Progress has been mixed in implementing fiscal policies that support growth while ensuring fiscal sustainability. After increasing in 2014–15, the average ratio of public investment to GDP in advanced economies is expected to resume its decline in 2016 (Figure 1.3, panel 6). Only a few countries plan to raise their public investment ratio this year. In Canada, the federal government announced in March a pro-growth budget that includes an increase in infrastructure spending by 0.5 percent of GDP over the next two fiscal years. In the euro area, the European Fund for Strategic Investment has started its operations, with about €76 billion of projects approved so far, jointly financed by the public and the private sectors. With regard to fiscal rebalancing, in most countries labor income taxation remains high and gains from cutting inefficiency in public spending have not yet been realized. Austria approved a personal income tax reform starting in 2016 but half of the financing relies on measures to combat tax fraud with uncertain yields. Belgium has implemented a pension reform and a tax shift that reduces the labor tax wedge.

Reforming fiscal institutions and developing credible, clear, and comprehensive medium-term fiscal plans continue to be challenges in most advanced economies. The Japanese authorities announced a new fiscal strategy in June 2015 consisting of stronger growth objectives, greater labor force participation, and a broader and more efficient social security system; however, fiscal policy continues to rely on a one-time stimulus, and further specific measures should be identified to achieve the fiscal year (FY) 2020 primary surplus goal. In the United States, the budget bill passed in October 2015 reduced uncertainty by lifting the debt ceiling until about March 2017 (after the next presidential administration takes over), but it contains mostly one-time measures on the revenue side. The United Kingdom announced a detailed multiyear fiscal plan in December 2015. The authorities have also adopted a new fiscal rule requiring a public sector fiscal surplus starting in FY2019/20, with an escape clause should growth fall below 1 percent. The rule effectively operates on a "comply or explain" basis, adding another degree of flexibility. In October 2015, the European Commission proposed establishing an independent European Fiscal Board that would, among other duties, evaluate the implementation of European Union fiscal rules and assess the appropriateness of the overall euro area fiscal stance. The board's effectiveness will hinge upon its independence from the commission and outside political pressures.

Emerging Market and Middle-Income Economies: Tough Policy Adjustments Ahead

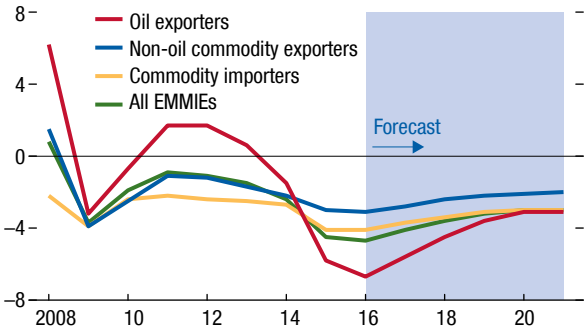
Headline fiscal balances in emerging market and middle-income economies deteriorated sharply, from an average deficit of 2.4 percent of GDP in 2014 to 4.5 percent in 2015. The 2015 number was the largest deficit since the 1990s and the largest yearly deterioration since the beginning of the global financial crisis (Figure 1.4, panel 1). Although China accounted for one-third of the overall deficit increase, this trend was broad-based, affecting about two-thirds of the countries in the sample. Driving this deterioration was a sharp slowdown in growth and several aggravating factors—notably plummeting commodity prices, tighter external funding conditions, and decelerating capital inflows (Figure 1.4, panels 2 and 3). The average debt ratio in this group of countries reached 45.4 percent of GDP in 2015, a jump of 3.9 percentage points from a year ago, amid rising deficits and depreciating currencies (Figure 1.4, panel 4). In this context, sovereign debt ratings have recently been downgraded in a number of countries, including Azerbaijan, Brazil, Russia, Saudi Arabia, South Africa, and Venezuela.

The shift in fiscal positions has been the largest in oil exporters, which experienced a decline in oil prices of more than 40 percent in the past 12 months (Figure 1.2, panel 2). Their revenue ratio dropped by a marked 5.8 percentage points of GDP in 2015. Revenue shortfalls were higher in oil exporters with small or no currency adjustments (Kuwait, Libya, Saudi Arabia), whereas countries that let their currencies depreciate (Colombia, Mexico, Russia) partly recouped the losses in domestic currency (Figure 1.4, panel 5). Countries responded to stumbling revenues in a variety of ways: by cutting current spending (Indonesia, Islamic Republic of Iran) or capital expenditure (Saudi Arabia) or both (Mexico); or by raising taxes (Islamic Republic of Iran) or non-oil non-tax revenues (Saudi Arabia). Several others accommodated the shock by running down financial assets, including foreign exchange reserves, to finance their deficits (Gulf region, Russia, Venezuela) (Figure 1.4, panel 6).

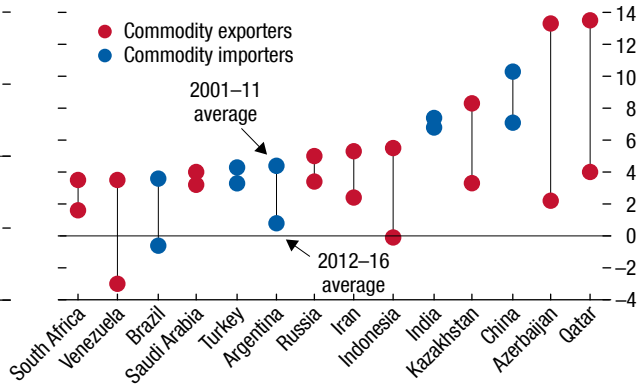
The fiscal positions of other commodity exporters (Chile, Peru, South Africa) and commodity importers deteriorated far less in general. In China, the on-bud-

Figure 1.4. Fiscal Trends in Emerging Market and Middle-Income Economies

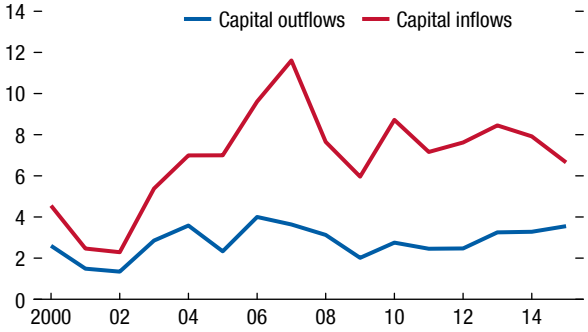
1. General Government Overall Balance, 2008–21
(Percent of GDP)



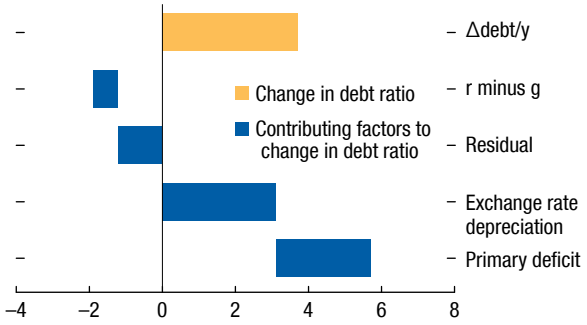
2. Average Real GDP Growth: 2001–11 versus 2012–16
(Percent)



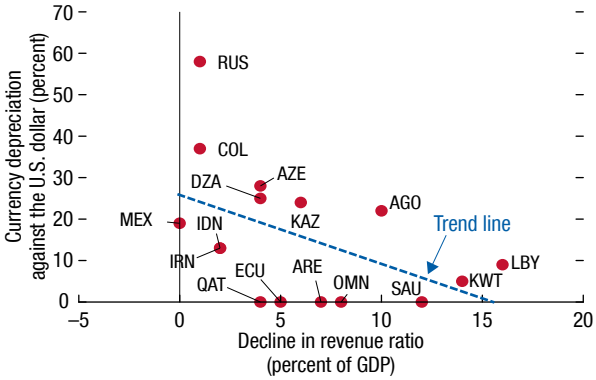
3. Capital Flows in G20 Emerging Market and Middle-Income Economies, 2000–15[1]
(Percent of GDP)



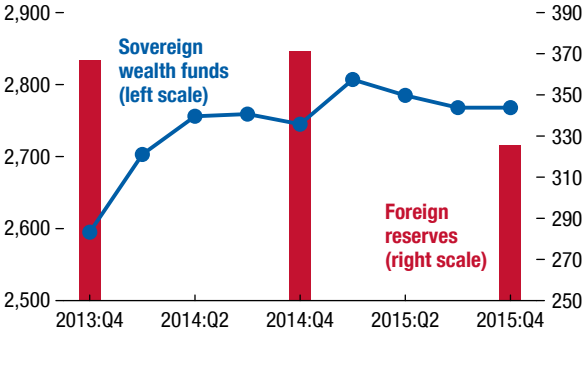
4. Emerging Market and Middle-Income Economies: Decomposition of Change in Debt Ratio between 2014 and 2015[2]
(Percentage points)



5. Oil Exporters in 2015: Currency Depreciation versus Revenue Ratio Decline



6. Gulf Region: Sovereign Wealth Funds and Foreign Reserve Assets[3]
(U.S. dollars, billion)



Sources: Sovereign Wealth Fund Institute; and IMF staff estimates.
Note: For a list of countries in the emerging market and middle-income economies group, see Table A in the Methodological and Statistical Appendix. Data labels in the figure use International Organization for Standardization (ISO) country codes. EMMIEs = emerging market and middle-income economies; G20 = Group of Twenty; Δdebt/y = annual change in gross debt to GDP; r minus g = interest–growth rate differential.
[1] Capital inflows are net purchases of domestic assets by nonresidents. Capital outflows are net purchases of foreign assets by domestic residents. EMMIEs in the G20 include Argentina, Brazil, China, India, Indonesia, Mexico, Russia, Saudi Arabia, South Africa, and Turkey. 2015 figure includes data available up to Q3 and excludes Argentina due to the unavailability of GDP figure. Numbers are aggregated over the sample of G20 EMMIEs using the simple average method.
[2] Average contributions over the sample of EMMIEs using the simple average method.
[3] Gulf region includes Kuwait, Oman, Saudi Arabia, Qatar, and the United Arab Emirates.

get deficit increased to 2.7 percent of GDP from 0.9 percent in 2014, partly because of weaker industrial profits and imports, but restraint in off-budget local spending is likely to have brought down the "augmented" deficit (which includes off-budget activity by local government financing vehicles). Compared with other commodity importers, Brazil experienced a larger deterioration in its headline deficit, which increased by 4.3 percentage points to 10.3 percent of GDP in 2015 driven by weak revenues, a soaring interest bill, and a clean-up of past arrears, in a context of deepening recession and political turbulence. As a result, its debt stock surged by 10.4 percentage points to 73.7 percent of GDP.

In 2016, the outlook remains uncertain, particularly for oil exporters that based their budgets on optimistic oil price assumptions and may have to revise their plans in the course of the year. Under the baseline scenario, the fiscal position in emerging market and middle-income economies is projected to mildly deteriorate, with the overall deficit averaging 4.7 percent of GDP. However, this general trend masks great heterogeneity across countries:

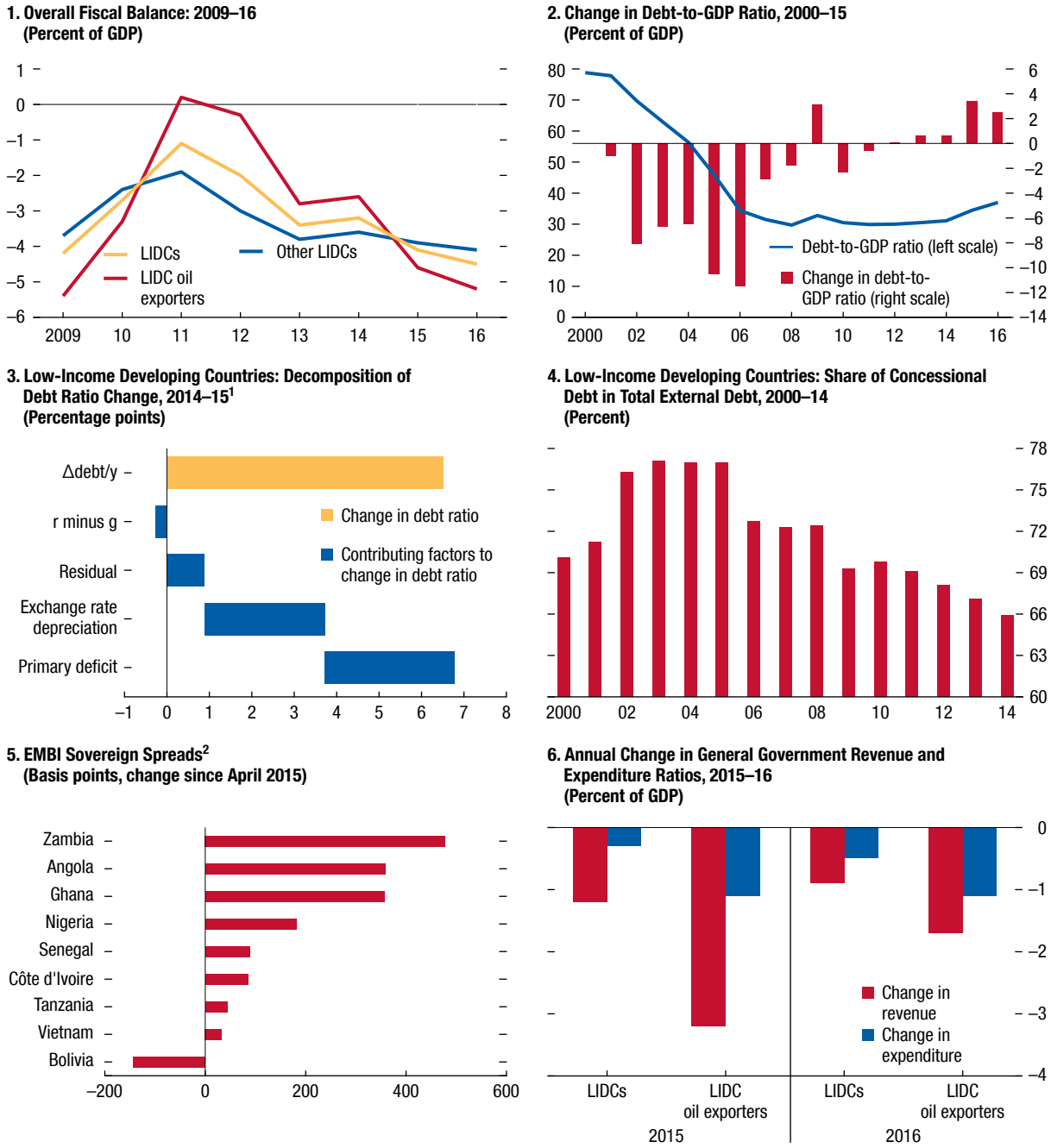
- To manage the economic slowdown and rebalancing, China intends to maintain a stimulatory fiscal position, supported mainly through tax cuts, raising its on-budget deficit target to 3 percent of GDP in 2016. Reforming state-owned enterprises, including through corporate restructuring and downsizing, is a key objective, although the reform's implementation details need to be further clarified. The authorities also plan to complete their value-added tax (VAT) reform bringing all remaining services under the VAT regime.
- In India, following a pause in FY2015/16, fiscal consolidation is expected to resume with the FY2016/17 budget, partly through capital spending restraint and asset sales. The authorities also announced plans to revamp the fiscal responsibility framework to allow for a more countercyclical policy response in the future. India's debt ratio is set to decline gradually in the medium term, in part because of strong growth prospects.
- Even though oil producers are implementing large fiscal consolidation measures, many will experience a deterioration in their headline fiscal position in 2016. Fiscal deficits are set to increase significantly in the Gulf economies except Saudi Arabia. In this country, a mix of spending cuts, energy price reforms, and non-oil revenue measures should bring down the fiscal deficit by almost 3 percent of GDP this year. Reforms are also being undertaken to strengthen the fiscal and debt management frameworks. In Russia, the authorities are considering further reductions in nondefense and social spending, as well as excise tax hikes, in addition to the public wage freeze and partial indexation of pension benefits already included in the initial 2016 budget. The government also plans to adopt a new fiscal rule based on a lower oil price and return to its medium-term budget framework.
- The fiscal position is expected to improve in some countries as a result of measures they are implementing in response to new fiscal pressures. In Brazil, the authorities target a lower primary deficit in 2016 than in 2015—albeit less ambitious than initially planned.[4] The debt ratio is expected to reach 76.3 percent of GDP in 2016. To anchor medium-term fiscal prospects, the authorities plan to introduce a multiyear ceiling on expenditure growth and have been discussing the need to reform the social security system. In Argentina, the authorities have announced multiyear fiscal targets to bring the federal government primary deficit to near zero in 2019. For 2016, they envisage a ½ percentage point of GDP improvement in this deficit as a result of spending cuts, including in energy subsidies. Mexico remains committed to raising the fiscal balance by about ½ percentage point of GDP per year during the period 2015–18 to put the debt-to-GDP ratio on a declining path. In February, the government announced expenditure cuts of 0.7 percent of GDP in response to lower oil prices.

Low-Income Developing Countries: Riding Out the Turning Tide

In low-income developing countries, the average overall deficit increased to 4.1 percent of GDP in 2015, a level last seen at the onset of the global financial crisis (Figure 1.5, panel 1). In addition to lower commodity prices and slowing growth, several factors contributed to large deteriorations in the overall fiscal balance, including conflict (Yemen), the Ebola epidemic (Guinea), and tax shortfalls (Kenya). A notable exception to the trend of rising fiscal deficits is Ghana,

[4] The government has revised downward its initial budget objectives to reflect weaker revenues, higher investment spending, and rising health costs (including those related to the Zika virus).

Figure 1.5. Fiscal Trends in Low-Income Developing Countries



Sources: Thomson Reuters Datastream; World Bank; and IMF staff estimates.
Note: For a list of low-income developing countries, see Table A in the Methodological and Statistical Appendix. EMBI = Emerging Markets Bond Index; LIDCs = low-income developing countries; Δdebt/y = annual change in gross debt-to-GDP ratio; r minus g = interest–growth rate differential.
[1] Average contributions over the sample of low-income developing countries using the simple average method.
[2] Data refer to J.P. Morgan EMBI global stripped spread. Data are from April 1, 2015 through March 24, 2016.

where policy efforts on the revenue and spending sides helped reduce the overall fiscal deficit from a relatively high level of 12.4 percent of GDP in 2014 to 5 percent in 2015.

The average government debt ratio rose by 4 percentage points to 35.6 percent of GDP in 2015—the largest increase since 2000—as a result of widening primary deficits and currency depreciations against the U.S. dollar (Figure 1.5, panels 2 and 3). There are some differences across countries nonetheless. In countries that were early beneficiaries of multilateral debt relief initiatives, debt ratios started increasing much earlier from the second half of the 2000s, as some of these countries accessed international markets and took advantage of favorable borrowing conditions to finance higher deficits (IMF 2014). As for debt composition, an increasing number of low-income developing countries have made debut issuances of international bonds in the past decade, and several have tapped the markets again. Although this new source of finance is welcome, it is more expensive than concessional loans, which have traditionally accounted for the bulk of their external financing (Figure 1.5, panel 4). Moreover, it carries significant refinancing and exchange rate risks, which are compounded by rising sovereign spreads (Baum and others, forthcoming, and Figure 1.5, panel 5).

Policy responses to budgetary pressures in 2015 relied primarily on spending cuts. These cuts exceeded 5 percent of GDP in some cases (Republic of Congo, Mongolia, Mozambique) despite previous spending commitments, including those related to wages (Republic of Congo). In Mongolia, the on-budget structural deficit ceiling under the Fiscal Stability Law was relaxed for the 2015–18 period to enable gradual convergence from the current level of about 5 percent of GDP to 2 percent in 2018.

As in emerging market and middle-income economies, the baseline fiscal scenario for 2016 is very sensitive to assumptions about developments in commodity markets. In 2016, the average overall fiscal deficit is expected to deteriorate further to 4.5 percent of GDP while the average debt is projected to rise by 1.2 percentage points to 36.8 percent of GDP. The increase in the fiscal deficit is larger in oil exporters despite initial budget plans for 2016 that have renewed the focus on revenue mobilization in addition to expenditure reallocations and reductions (Figure 1.5, panel 6). These measures will not be sufficient to reverse the deterioration in the fiscal deficit that has been occurring since 2011. Moreover, the implementation of budget plans is facing increasing difficulties because of further declines in oil prices and public resistance to additional adjustment. For instance, the Nigerian budget targets an increase of 20 percent in non-oil revenue, through mobilization efforts and growth-friendly policies such as higher infrastructure investment, reductions in public spending inefficiencies including fuel subsidies, and anticorruption measures. The overall general government deficit, however, is projected to widen by 0.7 percentage points to 4.7 percent of GDP.

Among countries that do not export oil, the fiscal deficit is expected to continue to increase at a slower pace on average. Higher deficits reflect varying country circumstances such as public sector pay hikes (Bangladesh), implementation of large public investment projects ahead of upcoming elections (Kyrgyz Republic, Uganda), reconstruction following an earthquake (Nepal), and continued support to drought-relief efforts (Ethiopia).

Fiscal Risks on the Rise

Fiscal risks have increased in the past year, particularly in emerging market and developing economies, where vulnerabilities are aggravated by lower commodity prices, tighter financial conditions, and geopolitical tensions. The major realignments shaping the global economy (described in the opening section) are accompanied by heightened macroeconomic volatility, exposing fiscal accounts to important downside risks at a time when fiscal buffers are already low in many countries.

Weak nominal growth. Europe and Japan could experience an extended period of mediocre growth resulting from persistently low inflation, insufficient progress on structural reforms, depressed investment, or failure to deal with legacies of the crisis. In emerging market and middle-income economies, the overleveraged private sector and possible enduringly low commodity prices are weighing on medium-term growth prospects. A deeper economic slowdown in China would also have important international fiscal spillovers by driving commodity prices even lower and raising global risk aversion. Low-income developing countries are particularly vulnerable to a significant slowdown in emerging markets, as they have become more dependent on the BRICS (Brazil, Russia, India, China, South Africa) through trade, investment, and bilateral external

financing linkages (IMF 2011). Overall, the risk is high that growth will remain weak in many countries, which would have large implications for debt dynamics, especially in countries where inflation remains below target and a further decline in oil prices could lower inflation expectations even more. A simulation model by End and others (2015) shows that, for the euro area, a disinflationary shock of 1 percentage point per year over five years would contribute to an increase in the debt-to-GDP ratio of about 6 percentage points at the end of the period.

Disorderly market conditions. Tighter and more volatile global financial conditions, related, for instance, to investors' reassessment of underlying risk, higher risk aversion, or further divergence between the European and U.S. economic and monetary cycles, may significantly push up the interest bill at a time when gross financing needs in emerging market and developing economies are higher (Tables 1.3 and 1.4). Frontier economies with shallow domestic financial markets are particularly exposed. Further portfolio shifts toward safe assets could also raise the borrowing costs of European countries with more fragile debt dynamics. In emerging market and middle-income economies, a larger depreciation of exchange rates would have adverse valuation effects on debt stocks, given that one-third of their debt is in foreign currency, on average.

Contingent liabilities.[5] The deterioration of the global economic outlook has raised the likelihood that contingent liabilities may materialize (Box 1.3). In Europe, weak growth and negative interest rates have squeezed bank profitability and contributed to the recent sell-off in their market shares. Further deterioration in banks' balance sheets could reignite the negative loops between sovereign and bank balance sheets. In emerging market economies, corporate debt of nonfinancial firms has quadrupled in the past decade (October 2015 *Global Financial Stability Report)*. In these countries, weaker growth, higher borrowing costs, and deteriorating corporate balance sheets could put pressure on the debt nexus between corporations, financial institutions, and the government. With the continued decline in commodity prices, resource companies are facing strong headwinds, and state-owned enterprises with links to the resource sector may require government support. In China, the government has recently taken steps to mitigate the fiscal risks stemming from off-budget local borrowing by reducing the use of finance vehicles and converting existing liabilities into municipal bonds with more favorable term and rate conditions. Nevertheless, as in other emerging markets, contingent liability risks remain, particularly in the event of a further slowdown in growth and in real estate, because of high levels of overall credit and the low profitability of state-owned enterprises. In low-income developing countries, contingent liabilities are large and growing, partly driven by a past boom in public-private partnerships. The stock of contingent liabilities in a sample of sub-Saharan African countries ranges from 4 percent to 31 percent of GDP, as estimated by a recent survey (OECD and MEFMI 2015). In a context of financial deepening and infrastructure development, these risks are likely to increase further, posing significant threats to debt sustainability (IMF 2015b).

Political risks. The electoral calendar or political gridlock could complicate policy implementation or discourage bold policy action in 2016 in a number of countries, including advanced economies (Australia, Greece, United States), emerging markets (Brazil, South Africa, Venezuela), and low-income developing countries (Ghana, Zambia). The U.K. referendum on membership in the European Union, which will take place in June 2016, might have large consequences for the future of Europe. Greater political instability in the Middle East would aggravate the fiscal stress in the region but may also have contagion effects on the rest of the world, including increased refugee flows (Box 1.2). In West and Central Africa, violent activities by terrorist and other insurgency groups are on the rise and could exact a toll on economic activity, prospective foreign direct investment, and regional political stability if they persist or expand (October 2015 *Regional Economic Outlook: Sub-Saharan Africa*).

Responding to New Realities

The major realignments in the global economy and the increase in downside risks call for a comprehensive policy response to reduce vulnerabilities and boost growth in the short and in the medium terms. Fiscal policy and fiscal frameworks have an important role to play in supporting the economic recovery, building resilience, and restoring confidence. Success-

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

Table 1.3. Selected Advanced Economies: Gross Financing Need, 2016–18
(Percent of GDP)

	2016			2017			2018		
	Maturing Debt	Budget Deficit	Total Financing Need	Maturing Debt[1]	Budget Deficit	Total Financing Need	Maturing Debt[1]	Budget Deficit	Total Financing Need
Australia	1.3	2.4	3.7	2.6	1.5	4.1	2.6	0.5	3.2
Austria	4.6	1.8	6.4	5.9	1.4	7.3	5.8	1.3	7.1
Belgium	15.1	2.8	17.9	15.7	2.2	17.9	14.1	1.9	16.0
Canada	9.1	2.4	11.6	11.3	1.8	13.1	9.1	1.3	10.4
Czech Republic	6.1	1.6	7.7	7.6	1.5	9.1	6.9	1.2	8.1
Denmark	4.5	2.8	7.3	4.1	2.0	6.1	2.5	1.8	4.3
Finland	5.3	2.8	8.1	8.6	2.6	11.2	5.8	2.2	8.0
France	10.6	3.4	14.0	12.7	2.9	15.6	11.9	2.3	14.2
Germany	4.3	–0.1	4.2	5.1	–0.1	5.0	4.0	–0.3	3.7
Iceland	6.5	–14.3	–7.8	1.1	0.5	1.6	8.0	–0.5	7.5
Ireland	6.2	0.4	6.6	5.2	–0.3	4.8	6.2	–0.4	5.8
Italy	16.0	2.7	18.7	18.4	1.6	20.0	14.1	0.5	14.6
Japan	36.5	4.9	41.4	41.7	3.9	45.6	36.2	3.4	39.6
Korea	2.7	–0.3	2.4	3.5	–0.5	3.0	3.8	–1.1	2.6
Lithuania	6.1	1.2	7.3	5.1	1.0	6.1	5.3	0.8	6.1
Malta	7.7	1.2	8.9	7.6	1.0	8.5	7.5	0.9	8.4
Netherlands	6.6	1.7	8.3	8.2	1.2	9.4	8.6	1.1	9.8
New Zealand	1.4	0.1	1.5	5.9	–0.1	5.8	1.2	–0.4	0.8
Portugal	15.5	2.9	18.4	12.3	2.9	15.2	11.8	2.8	14.6
Slovak Republic	5.8	2.2	8.0	6.2	2.0	8.2	2.7	1.7	4.4
Slovenia	6.1	2.7	8.9	8.2	2.5	10.8	6.9	2.7	9.5
Spain[2]	14.7	3.4	18.1	14.8	2.5	17.2	14.7	2.0	16.7
Sweden	5.1	0.9	6.0	5.4	0.8	6.2	4.7	0.4	5.1
Switzerland	1.7	0.3	1.9	2.2	0.2	2.4	2.2	0.1	2.3
United Kingdom	6.2	3.2	9.4	7.9	2.2	10.1	6.9	1.3	8.2
United States[3]	16.0	3.8	19.8	17.0	3.7	20.6	14.7	3.5	18.2
Average	14.2	3.1	17.2	15.7	2.6	18.3	13.6	2.3	15.8

Sources: Bloomberg, 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 in the Methodological and Statistical Appendix.
[1] Assumes that short-term debt outstanding in 2016 and 2017 will be refinanced with new short-term debt that will mature in 2017 and 2018, respectively. Countries that are projected to have budget deficits in 2016 or 2017 are assumed to issue new debt based on the maturity structure of debt outstanding at the end of 2015.
[2] Data refer to the general government on a consolidated basis.
[3] For cross-country comparability, expenditure and fiscal balances of the United States are adjusted to exclude the imputed interest on unfunded pension liabilities and the imputed compensation of employees, which are counted as expenditures under the 2008 System of National Accounts (2008 SNA) adopted by the United States, but not in countries that have not yet adopted the 2008 SNA. Data for the United States in this table may thus differ from data published by the U.S. Bureau of Economic Analysis.

ful implementation of reforms will require building public consensus around them and adapting them to country-specific institutional and legal settings (October 2013 *Fiscal Monitor*, Chapter 2). Contingency planning is also crucial at the current juncture; additional policy actions need to be identified that could be deployed rapidly should downside risks materialize.

Supporting Growth in the Short and Medium Terms

Using Fiscal Policy Flexibly to Support Demand in the Short Term

Fiscal policy should be used flexibly to support aggregate demand, in particular in advanced economies. The specific form of fiscal support depends on

Table 1.4. Selected Emerging Market and Middle-Income Economies: Gross Financing Need, 2016 and 2017
(Percent of GDP)

	2016			2017		
	Maturing Debt	Budget Deficit	Total Financing Need	Maturing Debt	Budget Deficit	Total Financing Need
Argentina	4.1	6.4	10.5	5.1	5.5	10.6
Brazil	9.3	8.7	18.0	8.8	8.5	17.3
Chile	1.1	3.0	4.1	1.1	3.0	4.1
Colombia	2.2	3.1	5.3	3.2	2.7	5.9
Croatia	15.8	3.3	19.1	17.8	2.8	20.6
Dominican Republic	3.5	3.5	6.9	3.7	3.7	7.4
Ecuador	3.4	2.7	6.2	5.7	–1.3	4.4
Egypt	49.4	11.5	60.8	46.2	10.1	56.3
Hungary	17.2	2.1	19.3	18.9	2.2	21.1
India	4.1	7.0	11.1	4.2	6.7	10.9
Indonesia	1.8	2.7	4.5	1.9	2.8	4.7
Malaysia	6.5	3.3	9.9	7.8	2.9	10.7
Mexico	6.5	3.5	10.0	6.0	3.0	9.0
Morocco	8.9	3.5	12.4	8.9	3.0	11.9
Pakistan	27.6	4.1	31.7	26.8	3.3	30.1
Peru	2.9	2.2	5.1	3.5	1.4	5.0
Philippines	6.7	0.6	7.4	6.6	0.8	7.5
Poland	7.1	2.8	9.9	5.1	3.1	8.2
Romania	6.5	2.8	9.4	4.7	2.8	7.5
Russia	0.8	4.4	5.2	0.5	3.0	3.5
South Africa	7.9	3.8	11.6	8.0	3.6	11.5
Sri Lanka	23.3	5.4	28.7	20.5	5.4	25.9
Thailand	6.0	0.4	6.3	5.9	0.5	6.4
Turkey	2.7	1.9	4.6	4.3	1.3	5.6
Ukraine	6.3	3.7	10.0	6.6	3.0	9.6
Uruguay	8.3	3.6	11.9	9.2	3.3	12.5
Average	6.9	4.8	11.8	6.9	4.4	11.3

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 in the Methodological and Statistical Appendix.

individual countries' fiscal positions, macroeconomic conditions, and relevant fiscal risks:

- Countries with fiscal space should do more to bolster growth, particularly where risks of low growth and low inflation have materialized. The focus should be on fiscal measures that boost both short- and medium-term growth—such as infrastructure investment—and policy actions that support the implementation of structural reforms (see next paragraph). To preserve debt sustainability and anchor expectations, any fiscal relaxation should be accompanied by a medium-term fiscal plan that clarifies the long-term objectives of fiscal policy and ensures consistency between these objectives and the annual budget targets. For instance, in the euro area, member states should make full use of the existing room within the Stability and Growth Pact, particularly for public investment. Higher infrastructure investment in Germany would benefit the country itself and have positive economic spillovers on neighboring countries that undertake significant consolidation.
- Commitments to credible medium-term consolidation plans can create policy space in the short term, even in countries with relatively high levels of debt. In the United States, building on the 2013 and 2015 bipartisan budget agreements, a new and complementary credible medium-term deficit

reduction plan would provide scope for a moderate near-term expansion of the budget envelope to finance growth-enhancing measures. These measures should focus on infrastructure investment, incentives for innovation, education spending, and ways to develop and expand a skilled labor force (including through immigration reform, job training, and providing child-care assistance for working families). In Japan, a commitment to fiscal consolidation centered on a preannounced path of gradual consumption tax hikes and a strengthening of fiscal institutions would create policy space to moderate the pace of near-term fiscal consolidation.

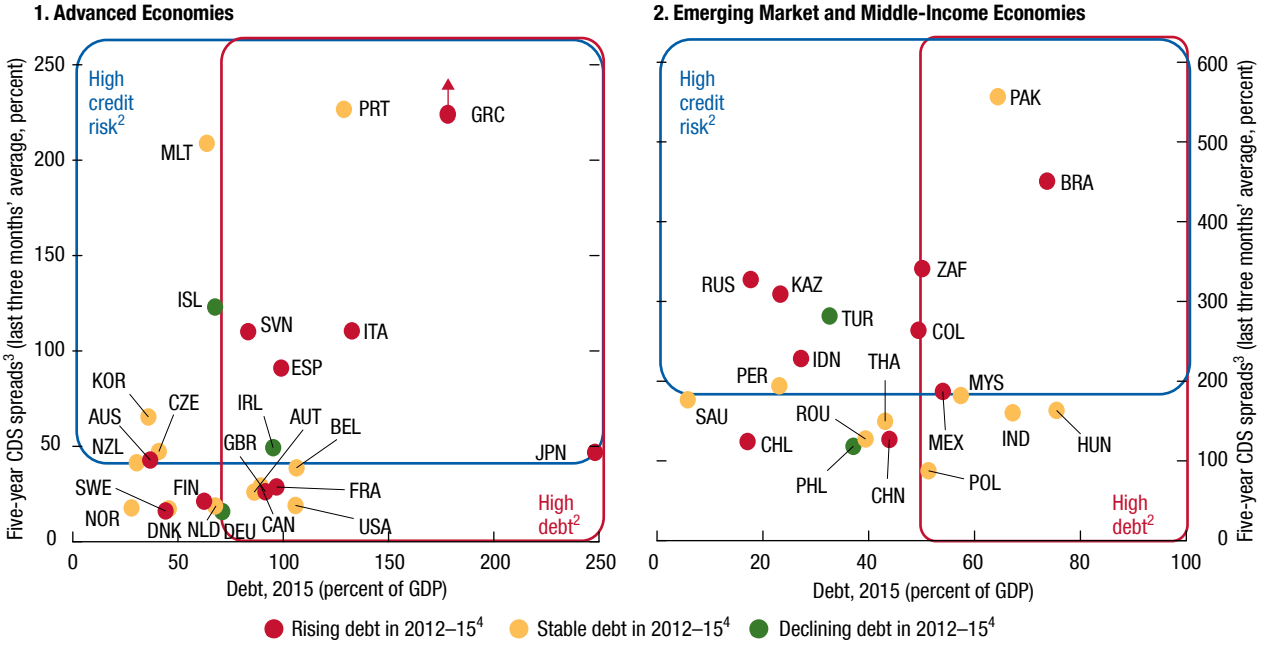
- Where fiscal adjustment is needed and cannot be postponed, its pace and composition should be calibrated to reduce the short-term drag on economic activity (as long as financing allows). The speed of adjustment should be consistent with the economic environment, so as not to undermine the recovery. With regard to composition, countries should move away from indiscriminate tax increases or spending cuts, and take into account the growth effect of various measures across time horizons, as well as their durability. In France, spending containment should shift to higher-quality structural measures based on broad-based expenditure reviews at all levels of government. In the United Kingdom, efforts should continue to make consolidation more pro-growth by, for example, improving the efficiency of the tax system and further prioritizing investment in infrastructure. In Italy, further fiscal consolidation is needed primarily through a pro-growth mix of rationalizing spending and reducing tax expenditures to improve the structural fiscal balance and set the debt on a firmly downward path.
- In China, the fiscal deficit has to be reduced in the medium term to ensure debt sustainability, but there is space in the short term to support economic activity in the transition to the new growth model. In particular, China should increase on-budget support for household consumption while scaling down off-budget public investment.

Fiscal support should be part of a comprehensive growth-enhancing policy package that combines and coordinates fiscal, monetary, and structural policies. This three-pronged approach to policymaking is necessary to achieve sustained growth and keep inflation on target, particularly in advanced economies. Specifically, fiscal policy can boost demand and reinforce the effect of monetary policy when policy rates are near zero and when the financing of the debt is firmly secured. This complementarity would make demand management more credible and effective. Fiscal policy can also support the implementation of structural reforms in various ways. Some structural reforms have well-identified upfront budgetary costs that may have to be accommodated—for instance, training costs related to active labor market policies. Compensating those who lose from the reforms through government transfers may also be necessary to secure political support (October 2014 *Fiscal Monitor,* Chapter 2). Because structural reforms tend to yield fewer benefits when the economy is weak, their effect can be amplified when they are complemented by policies that support aggregate demand.[6]

In a context of rising downside risks, a significant decline in global growth could threaten the fragile recovery and trigger self-reinforcing downward spirals of economic stagnation, low inflation, and high real interest rates. In the face of a global slowdown, the larger economies should stand ready to deploy an international policy response in order to short-circuit these self-reinforcing negative spirals and reduce vulnerabilities. The coordinated policy package should include a combination of supportive fiscal, monetary, and structural policies that lift nominal growth in the short and medium terms. Larger gains could be achieved if the package were to be implemented simultaneously because of the positive international spillovers. Such a coordinated approach is illustrated in Scenario Box 2 of the April 2016 *World Economic Outlook* (Chapter 1). The scenario uses the IMF's G20 Model (G20MOD) to show the importance of quickly responding to the negative self-reinforcing growth dynamics that could be unleashed should secular stagnation forces settle in advanced economies. The scenario also illustrates the additional benefits to G20 countries of following through on the implementation of their remaining Brisbane Growth Strategy structural reform commitments. To exploit the important spillover and spillback effects, large participation in the policy response is important. In this particular simulation exercise, the assessment of which major countries should participate was based on standard fis-

[6] For instance, when demand is depressed, relaxing employment protection may not stimulate job creation, or increasing the retirement age may raise the number of unemployed. Chapter 3 of the April 2016 *World Economic Outlook* presents empirical evidence that stimulating aggregate demand through fiscal policy can ease the short-term economic costs of some reforms, particularly during periods of low growth.

Figure 1.6. Indicators of Fiscal Space in Advanced Economies and Emerging Market and Middle-Income Economies[1]



Sources: Bloomberg, L.P.; Markit; and IMF staff estimates.
Note: For a list of countries in each group of economies, see Table A in the Methodological and Statistical Appendix. Data labels in the figure use International Organization for Standardization (ISO) country codes. CDS = credit default swap.
[1] In this simple and partial measure of fiscal space, the higher the level of debt and the higher the credit risk, the lower the fiscal space. In reality, fiscal space depends on a broader range of economic fundamentals, including the level and trajectory of public debt, deficit, growth, and cost of borrowing, as well as the ability to raise new revenue and cut low-priority spending.
[2] High and low thresholds are based on the sample median.
[3] Data are from December 24, 2015 through March 24, 2016.
[4] The classification is based on the average annual change in the debt ratio between 2012 and 2015. Lower and upper bounds of categories are –2 (–1) and 2 (1) percent of GDP for advanced economies (emerging market and middle-income economies, respectively). Note that in 2015, the debt ratios of Japan, Spain, and Sweden declined.

cal indicators (as illustrated in Figure 1.6). As a result, most advanced economies and a few emerging market economies were included. The simulation results show that a mix of mutually reinforcing supply and demand policies in these economies could boost nominal growth and reduce their debt ratio by 3 percentage points by 2021 relative to the stagnation scenario. In addition, the package would also have significant positive spillovers to other economies that, given market pressures, credibility challenges, or sustainability concerns, cannot participate in the stimulus.

Making Medium-Term Growth the Cornerstone of the Fiscal Strategy

In many countries, potential growth has declined sharply in the aftermath of the global financial crisis. Restoring robust growth is essential for addressing the fiscal challenges ahead. The impact of GDP growth on debt dynamics is very large and can, in some instances, dwarf discretionary fiscal efforts. Simulations based on *World Economic Outlook* data show that, in advanced economies with relatively high debt ratios in 2015, most of the debt built up since 2008 could be undone with 1 percentage point of additional real growth during the next 10 years on average, provided that governments can save the higher revenues (Figure 1.7).[7] For emerging market and developing economies, the average additional growth necessary to bring debt ratios to their precrisis levels is larger, ranging between 1 and 2 percentage points. In practice, raising potential growth to such an extent is not an easy task, but fiscal

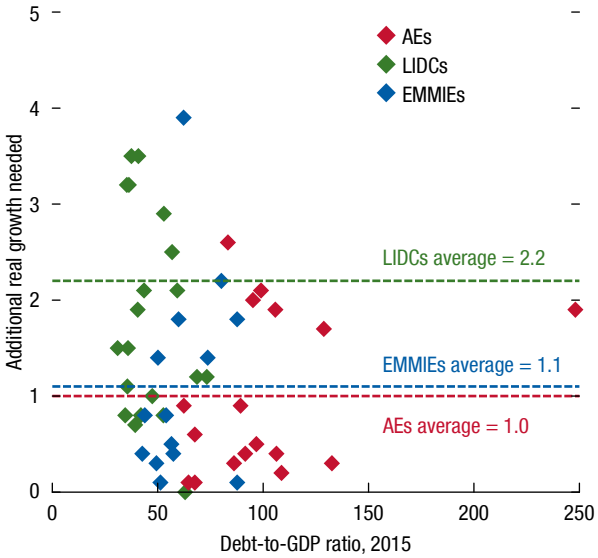
[7] Results are robust to alternative interest rate responses. Under a fast adjustment scenario (interest rates fully adjust to higher growth by 2021) and assuming an average debt maturity of five years, the additional growth needed to bring debt ratios to their precrisis levels would increase to 1.3 percentage points for advanced economies, 1.4 percentage points for emerging market and middle-income economies, and 2.8 percentage points for low-income developing countries.

policy can play an important role. Based on country studies and model simulations, IMF (2015e) finds that comprehensive fiscal reforms on both the revenue and spending sides can raise per capita medium-term growth by as much as ¾ percentage point in advanced economies. The growth dividend could be even higher in emerging market and developing economies. Realistically, achieving robust growth will require wide-ranging reforms, including labor and product market reforms (April 2016 *World Economic Outlook*, Chapter 3), as well as addressing remaining legacy issues in the financial sector.

In practice, fiscal policy can promote medium-term growth through structural tax and expenditure policies, focusing on the main country-specific growth bottlenecks (IMF 2015e):

- *Increase investment*. Physical investment—both public and private—is an important driver of growth in all economies. In countries with infrastructure needs, such as Germany and the United States, a strong case can be made for front-loading public projects in the current environment of low borrowing costs and weak global growth. Addressing infrastructure bottlenecks is also a priority in some emerging market and developing economies. However, investment efficiency must be ensured through better project selection, management, and evaluation (IMF 2015f). In some cases, the limited fiscal space calls for increasing private and foreign participation in public projects, provided that sound public-private partnership frameworks are in place—for instance, in Brazil, the implementation of the concessions program could be accelerated by lifting the impediments to private sector involvement. Finally, fiscal policy can also boost capital accumulation by stimulating private investment directly through targeted incentives that reduce the cost of capital, such as accelerated depreciation schemes and investment tax credits (IMF 2015e).
- *Encourage labor supply*. In many advanced and emerging market economies, sustaining high growth requires offsetting the adverse impact of aging on the labor supply and addressing low labor force participation rates, particularly among women. These changes can be accomplished by cutting taxes on labor, redesigning social benefits, and expanding active labor market programs. In France, for instance, job search incentives could be strengthened by lengthening the period of work that is required to be eligible for unemployment benefits and introducing some link between the amount of benefits and the length of unemployment. Eliminating tax-induced disincentives to work for second earners and increasing the availability of child care could further raise female labor force participation in Germany and Japan. A similar objective could be achieved in India through various policies, including greater labor market flexibility to create more formal jobs, considering that many women are employed in the informal sector. In low-income developing countries, the focus should be on providing equal access to and improving efficiency of education and health services, as well as dismantling legal obstacles to female labor force participation.
- *Boost productivity*. Fiscal policy can raise total factor productivity through several channels, including by stimulating research and development, providing critical infrastructure, and raising government efficiency. For example, in Italy proper implementation of the public administration reform, including

Figure 1.7. Additional Real Growth in 2016–25 Needed to Bring the Debt Ratio Back to the 2007 Level[1]



Source: IMF staff estimates.
Note: For a list of countries in each group of economies, see Table A in the Methodological and Statistical Appendix. AEs = advanced economies; EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries.
[1]Until 2021, the baseline uses the *World Economic Outlook* forecasts. Beyond 2021, the implicit interest rate, nominal GDP growth, and primary balance over 2022–25 are assumed to remain at their 2021 levels. Under the higher-growth alternative scenario, elasticities of 1 for revenue and 0 for expenditure are assumed. The interest rate is assumed to be identical in the baseline and alternative scenarios.The sample includes countries for which debt in 2015 was greater than 60 percent of GDP for AEs, 40 percent for EMMIEs, and 25 percent for LIDCs, and it excludes some outliers.

substantial rationalization of local governments and enterprises and simplification of administrative procedures and regulations, is crucial for unlocking productivity gains in the public and the private sectors. Chapter 2 discusses in greater detail how fiscal policy can boost productivity by encouraging innovation though research and development, technology transfer, and entrepreneurship. Public spending on education and training can also enhance labor productivity by improving workers' ability to absorb new technologies.

- *Enhance competition*. Leveling the playing field between the private and the public sectors is essential to achieving gains in efficiency, expanding markets, and improving corporate governance. In many emerging market and developing economies, reforming state-owned enterprises has the potential to unleash new sources of growth. Deepening public enterprise reform is one of the priorities of the Chinese government and progress could be accelerated by allowing greater tolerance to bankruptcy and exit. In Russia, reinvigorating the privatization agenda as soon as market conditions permit would enhance economic efficiency.

In many instances, the implementation of these growth-enhancing fiscal reforms has a net budgetary cost in the short term and requires additional resources, which may originate from various sources. Countries with low debt and low borrowing costs can resort to borrowing, as debt-financed reforms have the potential to improve fiscal sustainability by increasing the economy's productive capacity and, ultimately, the ability to service debt (October 2014 *World Economic Outlook*, Chapter 3). Many economies also have room to generate savings from expenditure rationalization, revenue administration reforms, and elimination of tax expenditures. Countries facing market pressures should focus on budget-neutral fiscal reforms shifting resources from less to more productive budget items (such as rebalancing from costly fuel subsidies to spending on infrastructure or education). Finally, some countries could finance fiscal reforms by using one-time windfalls—particularly lower fuel subsidies from cheaper oil or interest savings from quantitative easing.[8] Long-term bond yields on safe assets reached historic lows in early 2016 and are expected to remain low for the foreseeable future. Benchmark sovereign yields in major economies like Germany and Japan have even dropped into negative territory for a significant segment of the yield curve. In the euro area, the general government interest bill declined by 0.6 percent of GDP between 2012 and 2015.

Reducing Vulnerabilities

Addressing Revenue Shortfalls through Adjustment and Diversification

Between 2014 and 2016, about two-thirds of the countries in the *Fiscal Monitor* sample experienced a decline in their revenue-to-GDP ratios, especially emerging market and middle-income economies (Table 1.5). The appropriate policy response depends crucially on the factors underlying these shortfalls and mainly on whether they are temporary or permanent. In commodity exporters, which have suffered the largest declines in revenue, the financing gap that has opened is likely to be long lasting, reflecting persistently lower commodity prices. However, the fiscal measures currently being considered are often inadequate for achieving the needed medium-term adjustment. For instance, under current policies, most oil exporters in the Middle East and North Africa would run out of buffers in less than five years despite sizable net foreign asset positions accumulated during the past commodity boom (October 2015 *Regional Economic Outlook: Middle East and Central Asia*). In these countries, cumulative fiscal balances are expected to deteriorate by over $2 trillion (about 100 percent of their aggregate GDP in 2015) in the next five years relative to 2004–08 when oil prices peaked.[9]

To ensure fiscal sustainability, most commodity exporters must adjust their fiscal positions by realigning public spending with tighter resources. The adjustment will need to be anchored by credible medium-term plans. Declining oil prices can make energy subsidy reforms politically easier to implement and free up significant resources, even with targeted outlays to compensate the poor. Cutting poorly targeted or wasteful spending and boosting the efficiency of public service delivery can be difficult—requiring that fiscal institutions be strengthened and public sector reforms be pushed through—but can generate savings while delivering better outcomes. Allowing for exchange rate

[8] Countries without fiscal space should use interest savings to lower their public debt.

[9] For oil exporters as a whole, the change in cumulative fiscal balances is about $4 trillion, equivalent to 40 percent of their 2015 aggregate GDP.

Table 1.5. General Government Revenue Shortfall between 2014 and 2016

	Number of Countries with a Revenue Shortfall between 2014 and 2016[1]	Revenue Shortfall, 2014–16[2] (Percent of GDP, simple average)	Revenue Shortfall, 2014–16[3] (Percent of 2014 revenue ratio)
Advanced Economies	21	–0.1 [–6.8 to 12]	–0.2
Emerging Market and Middle-Income Economies	28	–4.1 [–22.3 to 2.3]	–13.2
Low-Income Developing Countries	22	–1.0 [–11.7 to 2.6]	–4.4
Commodity Exporters (World)	29	–4.8 [–25.3 to 2.9]	–16.2
of which Oil Exporters (World)	23	–7.5 [–25.3 to 2.6]	–22.7

Source: IMF staff estimates.
[1] There are 115 countries in the *Fiscal Monitor* sample, which includes advanced economies (35), emerging market and middle-income economies (40), and low-income developing countries (40).
[2] Revenue shortfall is measured as the change in the revenue-to-GDP ratio between 2014 and 2016. Numbers in brackets represent ranges from minimum to maximum.
[3] Revenue shortfall is measured as revenue shortfall 2014–16 (percent of GDP using simple average) divided by initial revenue ratio in 2014.

flexibility can also make the adjustment less painful by cushioning the impact of adverse terms-of-trade shocks on exporters' revenues (provided that unhedged currency mismatches are not too large in the private and public sector balance sheets). In some commodity exporters, the availability of financial buffers can also help smooth the adjustment to lower commodity prices.

Beyond adjustment, diversification of revenue sources is also important. Commodity exporters should explore possibilities for broadening their tax bases and strengthening tax compliance—two areas in which the IMF has provided extensive technical assistance to countries. For instance, oil producers in the Middle East could begin to gradually broaden their tax bases by introducing a low-rate VAT, profit taxes applied to all resident companies, excise taxes, and property taxes (IMF 2015g). However, the benefits from greater revenue mobilization are not confined to commodity producers. A broad, stable, and elastic tax base is essential in many countries for governments to preserve necessary public services and be able to make fiscal policy choices. In low-income developing countries, building revenue mobilization capacity is also necessary for achieving the Sustainable Development Goals. About one-fifth of them still have tax ratios below 12¾ percent of GDP, while revenue collection in fragile and conflict-affected states is generally even weaker.[10] These economies often have room to tap additional sources of revenues, such as carbon taxation and property taxes. Improving revenue administration is also essential for raising revenue capacity (IMF 2015h). In many countries, weak revenue administration remains a fundamental barrier to effective and fair taxation. Reform progress has been mixed in this area. Although the need to focus attention on large taxpayers is now nearly universally accepted, the impact of computerization has often been disappointing, in part because of inadequate integration within a broader reform strategy. In addition, revenue administrations in many countries continue to suffer from a lack of funding and skilled personnel.

[10] Gaspar, Jaramillo Mayor, and Wingender (2016) provide strong 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.

Managing Tighter and More Volatile Financial Conditions

Effective debt management is critical in emerging market and developing economies, where borrowing costs and financing needs are on the rise. A credible debt management strategy can help reduce debt-servicing costs, strengthen investor confidence, and mitigate market instability. To achieve these objectives, debt management frameworks have evolved in three main directions, although important gaps remain (Gardner and Olden 2013):

- *Medium-term debt management strategy*. A three- to five-year debt management strategy is considered an essential tool for guiding debt operations. This strategy should broadly identify the funding targets and the potential financing instruments necessary to achieve the objectives; describe the desired composition of

the debt portfolio; and highlight the risks (including those related to exchange rate movements), while outlining strategies to manage them. Although progress has been made, several emerging market and developing economies remain at an early stage in developing such plans.

- *Governance and capacity constraints*. Fragmentation of responsibilities regarding governments' financial assets and liabilities is a significant obstacle to their efficient management, particularly because most countries face shortages of skilled professionals with financial market expertise in the public sector. Most advanced economies have sought to address this by charging a single entity with the management of all government financial activities. However, fragmented institutional models still prevail in low-income developing countries.
- *Diversified funding*. The deterioration in the risk appetite of international investors highlights the importance of developing diversified financing sources, including a resilient pool of domestic savings to fill shortfalls in external financing. Some countries have included the development of the domestic public debt market as a key objective in their debt management strategies. However, this market remains at an early stage in many developing economies, requiring continuing reforms to the pension and insurance industries to allow for domestic debt issuances at longer maturities.

The recent collapse in commodity prices underscores the importance for commodity exporters of developing and implementing adequate debt management strategies, even when no large borrowing need is anticipated in the near term. Until recently, many oil producers had large cash buffers they could use to mitigate temporary deteriorations in their fiscal positions. However, the scale of recent price falls could rapidly deplete these buffers, absent offsetting measures. These pressures are compounded by possible difficulties in liquidating financial assets quickly without a significant loss. Consequently, some oil exporters are now considering returning to financial markets after a long pause.

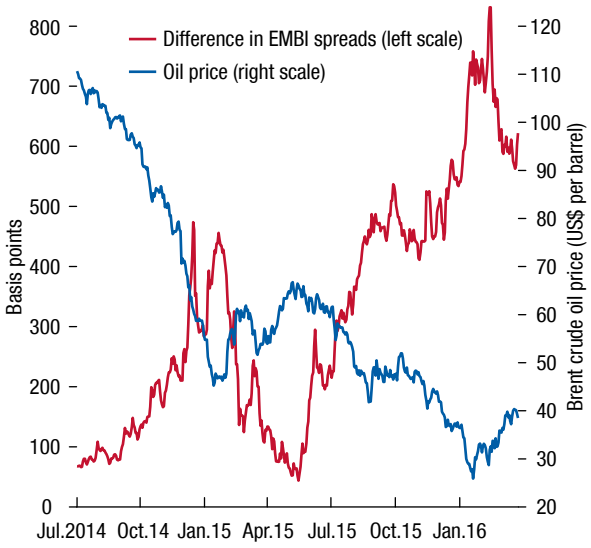
Adopting a New Approach to Fiscal Risk Management

Risk analysis. Countries at all levels of development are increasingly aware of the need for a more informed approach to fiscal risk analysis and disclosure, but the quality and coverage of reporting arrangements vary across and within income groups. A prerequisite to effective risk analysis is comprehensive and timely public reporting on the state of public finances, which can foster a more precautionary and accountable fiscal policy. In China, for instance, fiscal transparency could be enhanced by bringing on budget more projects undertaken by local government financing vehicles and by continuing reforms to government accounting and financial reporting. Going beyond standard fiscal accounts reporting by analyzing specific fiscal risks is not yet common practice in most countries. An increasing number of advanced economies produce quantified information on fiscal risks, such as the sensitivity of the fiscal position to a wide range of economic shocks. However, in many cases these efforts remain relatively limited in scope, and few countries produce comprehensive information on the potential impact of economic shocks on government stocks by applying such shocks to government balance sheets. While specific fiscal risks such as natural disasters and explicit contingent liabilities are included in many countries' fiscal risk statements, the analysis frequently lacks any quantification of the size or probability of realization. In some cases, administrative reforms are important to improving the analysis of risks. For instance, in Brazil, risk monitoring is fragmented, with different institutions overseeing subnational governments, public enterprises, concessions, and public-private partnerships. While individual fiscal risks can (and often should) be monitored by separate agencies, the framework can be strengthened by setting up a centralized unit tasked with coordinating individual efforts and assessing the magnitude of the government's overall exposure to risk (considering possible interdependencies between sources of risks) and whether these risks are being adequately managed.

Risk mitigation. Another important shortcoming of current approaches to fiscal risks is that the focus on identifying risks is not accompanied by specific measures to mitigate them. Institutional arrangements for actively managing fiscal risks are underdeveloped almost everywhere in the world. While many advanced and emerging market economies and some low-income developing countries do carry out a range of risk mitigation measures, such as introducing caps to guarantee issuance or limiting the borrowing activities of subnational governments and exposure to state-owned enterprises, these measures tend to be ad hoc and focused on individual risks rather than part of an integrated approach. Only a few economies (for example, New Zealand, United Kingdom) have developed comprehensive risk management strategies that seek to encapsulate the wide range of risks that governments typically face (Box 1.4).

These comprehensive frameworks should help prevent the realization of risks such as those arising from fragile banks in advanced economies, state-owned companies and highly-leveraged corporations in emerging market and middle-income economies, and public-private partnerships in low-income economies. In emerging market and developing economies, fiscal frameworks also need to adapt to a more volatile environment with possible large shifts in commodity prices, capital flows, and exchange rates. Strong multiyear budget and debt management frameworks with effective commitment controls are crucial for dealing with volatility, enforcing discipline, and generating savings to absorb shocks. Oil exporters, in particular, need to devise long-term strategies to avoid procyclical fiscal policy and build sufficient buffers to protect against the high volatility of fiscal revenues. This long-term strategy can also alleviate the constraint of procyclical market access—that is, access to financial markets generally tightens precisely when oil exporters need to borrow, as illustrated by the strong negative correlation between their sovereign spreads and oil prices (Figure 1.8).

Figure 1.8. Difference in EMBI Spreads: Oil Exporters Minus Non-Commodity Exporters[1]



Sources: Thomson Reuters DataStream; and IMF staff estimates.
Note: EMBI = Emerging Markets Bond Index.
[1] Data are through March 24, 2016.

Box 1.1. The Fiscal Implications of Slowing Global Trade for Emerging Market and Developing Economies

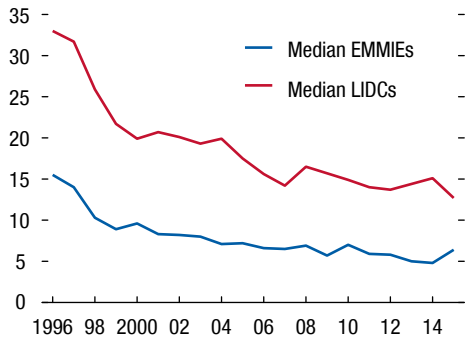
The global trade slowdown following the global financial crisis is one of the sharpest observed since the 1970s. The current episode stands out in its severity and synchronicity across countries, despite a short-lived recovery in 2010 (Baldwin 2009). Both cyclical and structural factors could explain this phenomenon, as suggested by a rapidly growing literature. Sluggish activity in the euro area and depressed capital investment worldwide are possible cyclical determinants. Structural factors include the postcrisis rise in protectionism, China's rebalancing toward a growth model that is less import-intensive, and the reduction in the international fragmentation of production (Boz, Bussière, and Marsilli 2014).

How severe have the fiscal implications of the trade slowdown been for emerging market and developing economies? In these countries, trade generates a substantial share of government revenue in the form of export and import taxes, and thus is likely to have a direct impact on the fiscal position. The median share of these taxes for emerging market and middle-income economies and low-income developing countries was, respectively, 6.5 percent and 13.5 percent of total revenue in 2015 (Figure 1.1.1). International trade can also affect fiscal accounts indirectly. Greater openness is generally associated with higher growth, which should improve fiscal positions (Frankel and Romer 1999). In countries with greater trade and financial openness (more outward-oriented policies), flexible exchange rates and capital flows can lead to more budget discipline (Combes and Guillaumont 2002). However, trade can also generate higher demand for public spending to provide insurance against external risks, including terms-of-trade shocks (Rodrik 1998).

To estimate the fiscal impact of the cumulative decline in the share of imports to GDP since 2009, two empirical approaches are used. As a first step, effective tax rates on trade (ETRs) are computed by dividing the tax raised by the value of imports. The ETRs average 6.4 percent in the sample of countries for the 2009–15 period. Applying these country-specific ETRs to the decline in the imports-to-GDP ratio reveals a drop in trade taxes of between 0.1 and 1.1 percent of GDP, with an average decline of 0.4 percent (Figure 1.1.2).

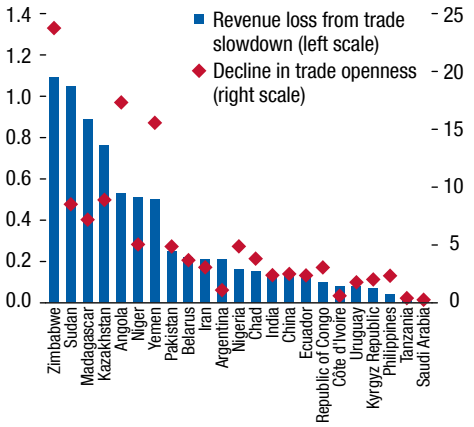
These findings are corroborated by preliminary econometric results. Using panel data for 70 developing countries over the 1990–2015 period, the total tax-to-GDP ratio is regressed on its lag (to capture persistence); trade openness, proxied by the import ratio; and standard determinants, including the level of economic development, public debt, share of agriculture in value added, and development aid. The results, which are robust to alternative specifications, suggest an average revenue loss of 0.4 percent of GDP for countries that have experienced a trade slowdown.

Figure 1.1.1. Share of Trade-Related Taxes to Total Taxes, 1996–2015
(Percent)



Source: IMF staff estimates.
Note: For a list of countries in each group of economies, see Table A in the Methodological and Statistical Appendix. EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries.

Figure 1.1.2. Impact of Trade Slowdown on Tax Revenues since 2009[1]
(Percent of GDP)



Source: IMF staff estimates.
Note: Trade openness is measured as the ratio of import value to GDP.
[1] Estimated effect on tax revenues using effective tax rates on trade.

Box 1.2. The Fiscal Response to the Refugee Influx in Europe

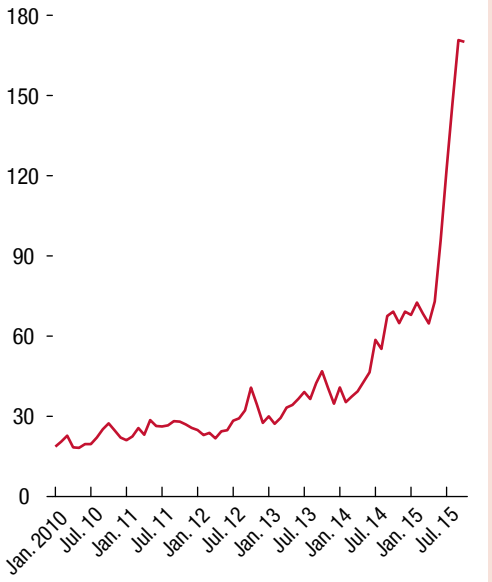
In 2015, the number of forced migrants worldwide rose to the highest level since the 1990s, driven mainly by the increase in conflicts in the Middle East and sub-Saharan Africa (IMF 2015c). While countries immediately adjacent to conflict zones have been the main recipients, the number of asylum applicants seeking shelter in the European Union (EU) surged by 110 percent in 2015 (EC 2015a; Figure 1.2.1).

Processing asylum applications and addressing refugees' immediate needs such as housing and food imposes direct fiscal costs on the recipient countries. In addition, many European countries have made additional funds available, for example, to help migrants learn the local language and identify marketable skills. Typically, the cost per asylum applicant ranges from €8,000 to €12,000 in the first year after arrival, according to the Organisation for Economic Co-operation and Development (OECD 2015). Recent estimates put the projected total cost associated with the surge in asylum seekers in 2016 at 0.31 percent of GDP in Austria; 0.35 percent in Germany; and 1 percent in Sweden, which has experienced the largest influx of asylum seekers per capita in the EU (IMF 2016).

Improving administrative procedures and accelerating refugees' integration into the labor market can potentially reduce the cost per asylum applicant significantly. Many European governments are trying to shorten the delay between the asylum application and the decision. While fast-track applications might not always be feasible, the OECD estimates that they can significantly reduce the administrative costs per applicant. In addition, helping refugees gain access to the labor market as quickly as possible can reduce costs in the medium term by incurring higher upfront costs to pay for targeted job support programs. Indeed, if refugees are successfully integrated into the labor market, they have the potential to provide a net fiscal benefit to the host country because they then pay taxes rather than receive support. Sweden, for example, has a long-standing introduction program to promote the labor market integration of migrants through personalized training and employment assistance, and the authorities are making improvements such as the "fast track" initiative (IMF 2015i).

The fiscal cost of the increase in asylum applicants, even taking into account the offsetting measures described above, might still lead some countries to come close to breaching European fiscal rules. Given the exceptional nature of the situation, the European Commission recently announced that it will use the flexibility provided for in the Stability and Growth Pact to accommodate some of these costs (EC 2015b). In particular, the commission will apply special provisions allowing for a marginal loosening of fiscal targets following an unusual event. The rationale for granting this flexibility is that like the upfront costs associated with a major structural reform, the short-term cost of welcoming asylum seekers might ultimately prove beneficial for fiscal sustainability. Well-integrated refugees can, for example, ease the pressure on pension systems, which, given Europe's aging population, poses a risk to fiscal sustainability (IMF 2015d). Nonetheless, any exemption granted should be temporary and properly monitored.

Figure 1.2.1. Monthly Asylum Applications to the EU-28, 2010–15
(Thousands)



Sources: Eurostat; and IMF staff estimates.
Note: EU-28 refers to European Union with 28 member countries.

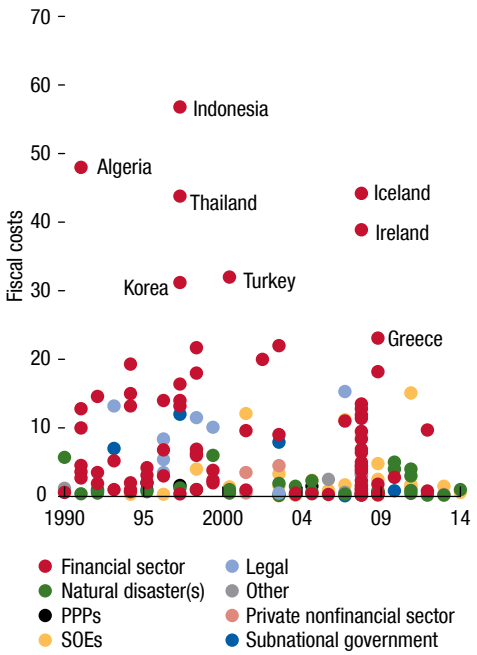
Box 1.3. Skeletons in the Closet? Shedding Light on Contingent Liabilities

Contingent liabilities are obligations that are not recorded on government balance sheets and that arise only in the event of a particular, discrete situation (such as a crisis). Often these obligations are not even explicit government guarantees, but are implicit; they involve a moral obligation or expected responsibility of the government that is not established by law or contract but is based on public expectations of intervention, such as after a crisis. Examples include support to troubled banks deemed too big to fail, support to weak state-owned enterprises, or legal claims. Once a contingent liability entails a fiscal cost, it is said to have materialized.

Government contingent liabilities have been one of the largest sources of fiscal risk during the past few decades. Figure 1.3.1 plots the fiscal cost of 174 contingent liability materializations that can be identified in advanced economies and emerging market and middle-income economies from 1990 to 2014 (Bova and others 2016). This review finds that the probability for a country to experience a materialization is roughly 9 percent in any given year. It also shows that a country can expect to be affected once every 12 years on average, at a cost of roughly 6 percent of GDP. In general, contingent liabilities tend to occur at times of crisis (the Asian crisis in the late 1990s and the global financial crisis are clearly visible in Figure 1.3.1). In addition, many of these materializations happen at the same time—*when it rains it pours*—putting considerable strain on government finances.

Financial sector support has been the most costly type of materialization. Bank recapitalizations and other forms of support to troubled financial institutions cost about 10 percent of GDP, on average, per episode (each of which can last several years). Indeed, during the global financial crisis, contingent liabilities related to the financial sector were one of the major drivers of the large increases in government debt-to-GDP ratios (IMF 2012). Fiscal costs of bank bailouts were as high as 44 percent of GDP in Iceland and 39 percent of GDP in Ireland (Eurostat 2015; Laeven and Valencia 2012). Other important types of contingent liability materializations over the past 25 years have been bailouts of troubled state-owned enterprises or subnational governments, which led to average fiscal costs of about 3 percent and 4 percent of GDP, respectively.

Figure 1.3.1. Fiscal Costs of Contingent Liabilities by Subcategory and Year, 1990–2014
(Percent of GDP)



Source: IMF staff estimates.
Note: PPPs = public-private partnerships; SOEs = state-owned enterprises.

Box 1.4. Developing a Fiscal Risk Management Framework

The preparation of a fiscal risk management strategy can be divided into four stages (Figure 1.4.1). Identifying and assessing fiscal risks is a prerequisite to mitigating them (Step 1). The IMF "Fiscal Transparency Code" establishes international standards for the disclosure of information about fiscal risks. Although countries are increasingly adopting more sophisticated techniques for assessing fiscal exposure to macroeconomic shocks, less attention is given to estimating the likelihood of realization of other fiscal risks. In addition, existing approaches are generally fragmented and fail to capture the key characteristics of fiscal risks that are often much larger than envisaged; asymmetric, with the impacts of negative shocks outstripping the impacts of positive shocks; and highly correlated, with shocks from one sector often flowing through to others. Testing the resilience of fiscal policy to fiscal shocks would require a more integrated approach in the form of a fiscal stress test similar to those used in the financial sector (IMF forthcoming).

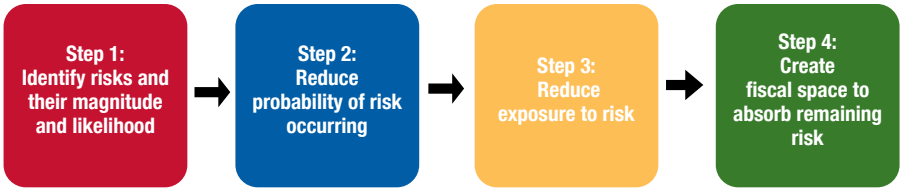
Having identified the scale and likelihood of the various risks, governments should consider what measures can be taken to reduce the probability that they will occur (Step 2). These measures should tackle risk-taking behaviors, for example, by eliminating the debt bias in the tax system (which can complement macroprudential measures to limit excessive leverage in the corporate sector) or by requiring beneficiaries of guarantees to post collateral. Activities of individuals or entities that are sources of fiscal risk should be properly regulated, for example, by requiring banks to hold adequate capital.

Where the probability of risks cannot be further reduced, governments should consider adopting measures to minimize the potential costs in the event the risk occurs (Step 3). These measures include enacting policies that unilaterally reduce fiscal exposure, for example, by reorienting civil servant pension schemes away from defined benefits. Another option is to transfer risk to third parties through the use of market instruments, for example, by insuring against natural disasters or hedging risks through the use of commodity futures or other derivative products.

Finally, governments should determine the fiscal space needed to absorb the remaining risks that cannot be mitigated (Step 4). This can take the form of budget provisioning for moderate risks that are likely to occur or creating sufficient fiscal space to accommodate larger tail risks, either by establishing contingency funds or by setting prudent debt levels.

This general framework could, for instance, be applied to the management of risks originating from public-private partnerships (PPPs). As a first step, risk exposures associated with PPPs should be clearly identified and assessed by maintaining registries of PPP commitments and subjecting them to sensitivity analysis. To reduce the probability of risks occurring, mitigation strategies could include a gatekeeping role for a central authority, such as the Ministry of Finance, subjecting individual PPPs to value-for-money assessments and charging guarantee fees. Next, reducing exposure could involve introducing risk-sharing frameworks and capping payments linked to demand. Finally, remaining risks could be accommodated through adequate budget provisions for expected cash flows associated with realization of PPP contingent liabilities.

Figure 1.4.1. Four-Step Framework



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CHAPTER 2

FISCAL POLICIES FOR INNOVATION AND GROWTH

Against a backdrop of mediocre medium-term growth prospects, identifying policies that could lift productivity growth by promoting innovation is critical. Fiscal policy can play an important role in stimulating innovation through its effects on research and development (R&D), entrepreneurship, and technology transfer.

New analysis in this chapter identifies areas in which fiscal policy should do more and others where it should do better or less. The key messages are the following:

- ***Do more*** to encourage R&D. In advanced economies, private firms should invest 40 percent more in R&D, on average, to account for the positive knowledge spillovers they create to the wider economy. This investment in R&D could lift GDP in the long term in those countries by 5 percent—and by even more globally as a result of international technology spillovers. Advanced economies can achieve this dividend through well-designed policies that include fiscal R&D incentives and complementary public investments in basic research. R&D can also contribute to productivity growth in emerging market and middle-income economies, provided that they have a sufficiently strong human capital base.
- ***Do better*** by designing fiscal stabilization policies, which are shown to play an important role in supporting R&D investment, particularly during recessions. In advanced economies, fiscal R&D incentives can often be designed better to increase their cost-effectiveness. In emerging market and developing economies, investment in education and infrastructure strengthens their capacity to absorb technologies from abroad. Moreover, adopting a simplified tax regime for small businesses can facilitate firm entry and reduce informality, which can raise productivity.
- ***Do less*** by scaling back or ending ineffective tax incentives. Preferential tax treatment of small companies is too blunt an instrument to foster entrepreneurial activity efficiently. It may actually hurt them by creating a "small business trap" that keeps businesses at a smaller size so as to remain eligible for this special treatment. In emerging market and developing economies, commonly used tax incentives aimed at attracting foreign direct investment should be scaled back because they are largely ineffective and costly.

Using Fiscal Policies to Spur Innovation

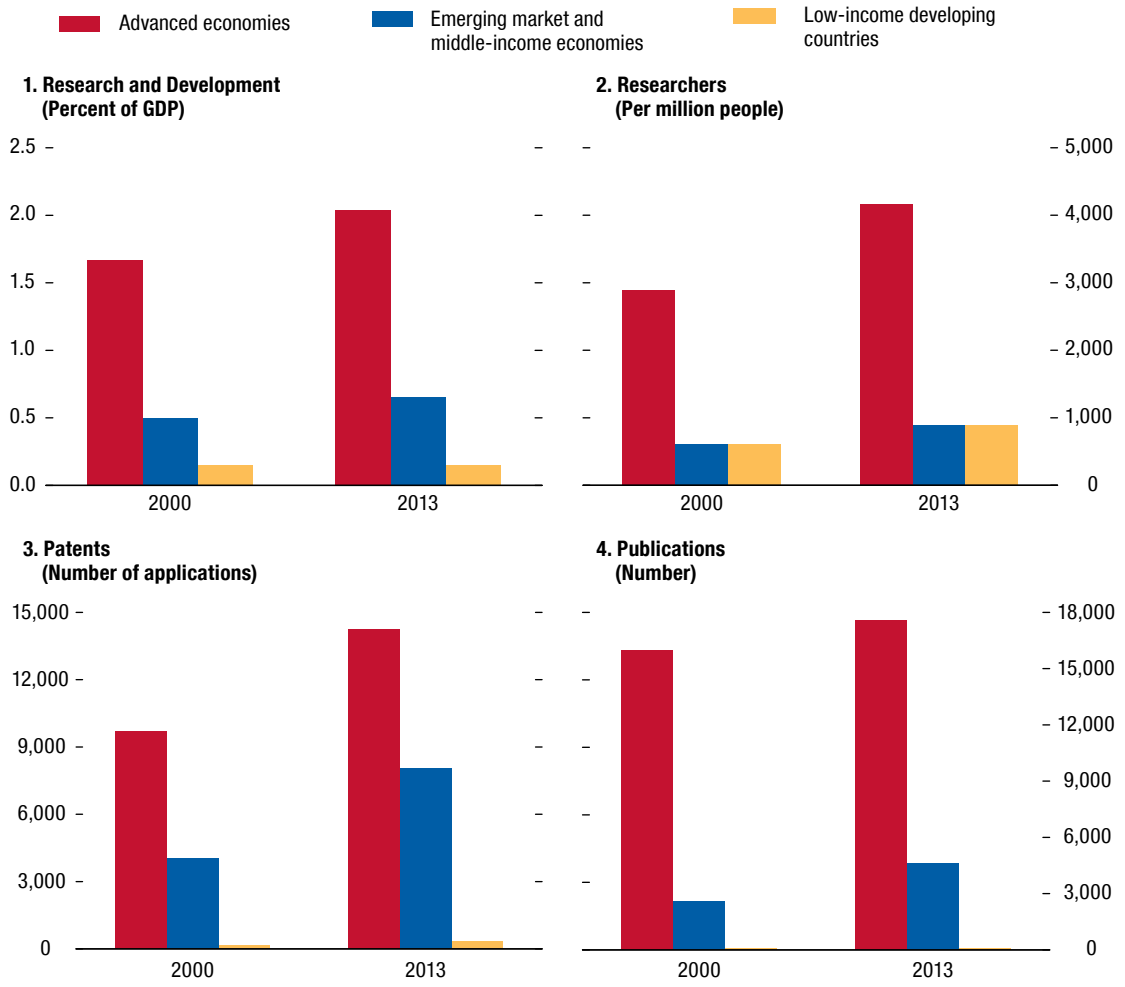
The recovery from the 2008–09 global financial crisis continues to be uneven and slow, raising concerns that the global economy may be trapped in an era of mediocre growth. The slow growth in total factor productivity (TFP) is particularly worrisome; it explains a significant part of the overall decline in potential growth since the early 2000s in advanced economies, and more recently in emerging market economies (see the April 2015 *World Economic Outlook*). This has sparked heightened interest in how governments can effectively promote TFP growth. Structural reform of labor and product markets is certainly one important avenue (see Chapter 3 of the April 2016 *World Economic Outlook*).[1] This chapter delves into the question of how fiscal policy can promote TFP growth by stimulating innovation.

Innovation is a key driver of long-term productivity growth. The inventions of the late nineteenth century, such as electricity and combustion engines, laid the foundation for a golden age of productivity growth in the mid-twentieth century. Breakthroughs in information technology have driven productivity increases in recent decades. Anticipated technologies such as three-dimensional printing, big data, driverless cars, and artificial intelligence might induce a dramatic growth spurt in the years to come, some observers believe (Brynjolfsson and McAfee 2014). Others, however, argue that the boost to TFP growth from these innovations is likely to be modest (Gordon 2016).

[1] Structural reform of tax and expenditure policies could lift medium- to long-term annual growth by ¾ percentage point in advanced economies and by even more in emerging market and developing economies (IMF 2015).

Figure 2.1. Quantitative Indicators of Innovation, 2000 and 2013

Advanced economies perform better on all innovation indicators, and the difference with other groups of economies has grown. During the past decade, emerging market and middle-income economies have improved on the number of patents and publications. Low-income developing countries have improved to some extent on the number of researchers, but they lag in research and development, patents, and publications.



Source: World Bank, *World Development Indicators*.
Note: For a list of countries in each group of economies, see Table A in the Methodological and Statistical Appendix.

The role of innovation in driving growth is difficult to analyze because of conceptual and data limitations. Most empirical work concentrates on the process of technological change, for which quantitative indicators are available, both as inputs (such as R&D investment and the number of researchers) and outputs (such as the number of patents and publications) (Figure 2.1).[2] However, these indicators capture only limited aspects of innovation, which is a broader process that refers not only to the creation of new and improved products and processes, but also to organizational change, improved marketing concepts, and new business models (such as e-commerce or the sharing economy). Moreover, economic statistics may not fully capture the social benefits of technological progress, such as the effects on mitigating climate change.

The course and speed of technological progress depends in important ways on institutions and government policies. Many advanced and emerging market and middle-income economies have adopted comprehensive

[2] Patents have limitations as a measure of technology output because many inventions are never patented, a significant portion of technological knowledge remains tacit, and only a small number of patents account for most of the value.

policy frameworks to stimulate the process of innovation and the diffusion of knowledge through various channels. First, innovation builds on a strong human capital base and institutions that foster new discoveries. This requirement for a human capital foundation calls for appropriate investments in higher education, basic scientific research, and partnerships between universities and private companies. Second, the business environment should provide adequate incentives for innovation. Policies to facilitate such an enabling environment include the protection of intellectual property rights; fiscal incentives; and broader policies related to trade, competition, labor market regulation, and bankruptcy laws. Third, macroeconomic policies that foster high and sustainable economic growth are important because growth allows firms to more quickly recoup their sunk costs and thus encourages R&D investment. This chapter focuses on the fiscal component of the second and third channels—that is, on micro and macro fiscal policies to foster innovation in the private sector.[3] Selected issues that are highly topical in current policy debates, such as the role of countercyclical fiscal policy and fiscal incentives in promoting innovation, receive special attention.

Fiscal policies for innovation should be considered in conjunction with other policies and objectives. For instance, by providing incentives for innovation, patents may reduce the need for fiscal incentives (Box 2.1). However, patents can hamper technology diffusion; hence they could also be complemented by R&D subsidies and tax incentives. More generally, an assessment of fiscal incentives needs to take into account not only their impact on innovation, but also their implications for other objectives, such as the government budget and the income distribution. Thus, the challenge for governments is to find the appropriate policy mix that balances various government objectives.

This chapter presents insights from the extensive literature and provides new empirical evidence on how fiscal policy affects the following three pillars of innovation.

- Research and development, which includes both basic and applied research
- Technology transfer, which includes international diffusion of technology and knowledge
- Entrepreneurial innovation, which involves experimentation with new products and processes by new businesses.

[3] A discussion of nonfiscal policies and education policies is beyond the scope of this chapter.

The three pillars of innovation matter to varying degrees across countries. In particular, R&D policies are relatively more important for advanced economies (which are closer to the global technology frontier). Policies to facilitate technology diffusion and entrepreneurship are also important for emerging market and developing economies. The chapter also draws on international experiences to discuss how fiscal policies can be designed effectively and efficiently to promote innovation.

Supporting Research and Development

Countries vary considerably in their total expenditure on R&D as a percentage of GDP (Figure 2.2). The average share is typically much higher in advanced economies (2 percent of GDP) than in emerging market and middle-income economies (0.65 percent of GDP) or in low-income developing countries (0.15 percent of GDP).

A useful distinction can be made between private (or business), public (or government), and university R&D (which can be either private or public). Private R&D and university R&D are much higher as a share of GDP in advanced economies than in emerging market and developing economies (Figure 2.3). Public R&D is similar in the two groups. Public R&D has been relatively flat during the past 15 years, while private R&D has gradually increased.

R&D expenditures are widely seen as a key driver of TFP growth. To promote these expenditures, governments can either invest directly in R&D (through public universities, government research institutes, and defense-related research) or design policies that encourage firms to undertake more private R&D.

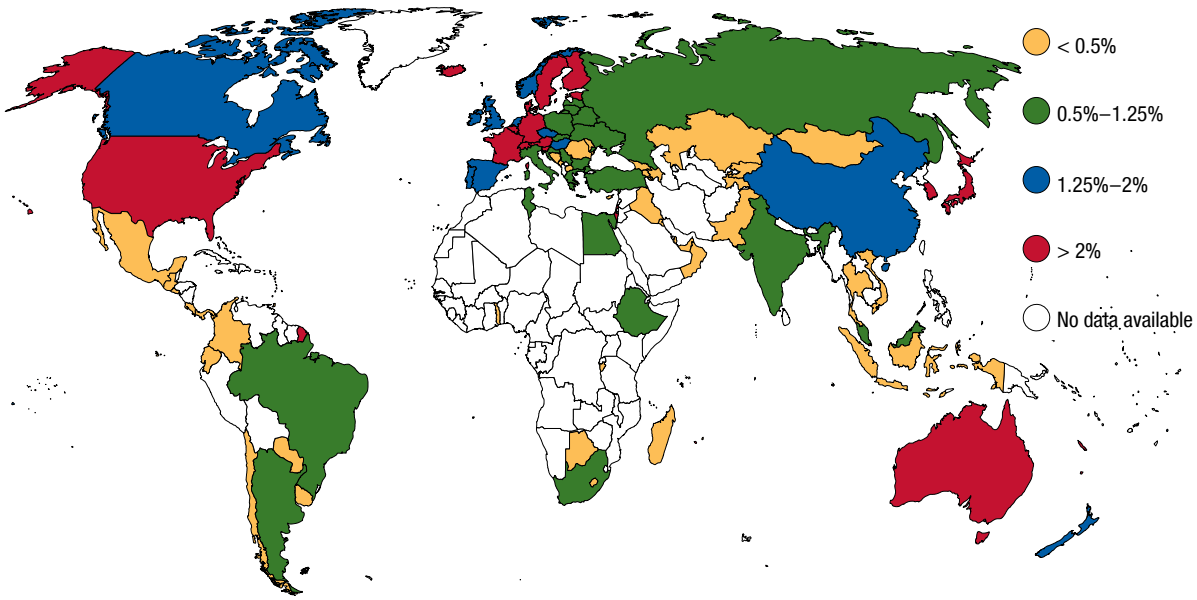
- *Public R&D* often focuses on basic scientific research, which can be critical for innovation, but which firms are unlikely to undertake.[4] Public R&D programs often yield positive and sometimes high rates of return, averaging about 20 percent (Georghiou 2015). This average is somewhat lower than the rates of return to most private R&D.[5] Still, public R&D programs can be more cost-effective if they also advance firms' research activities. A positive

[4] Between 1980 and 2007, large U.S. firms shifted away from doing basic scientific research and toward more applied R&D (Arora, Belenzon, and Patacconi 2015).

[5] There are methodological difficulties in measuring returns to basic scientific research in light of the long time lags and data limitations, especially at the macro level (Van Elk and others 2015).

Figure 2.2. Total Research and Development Spending, 2011–15
(Percent of GDP)

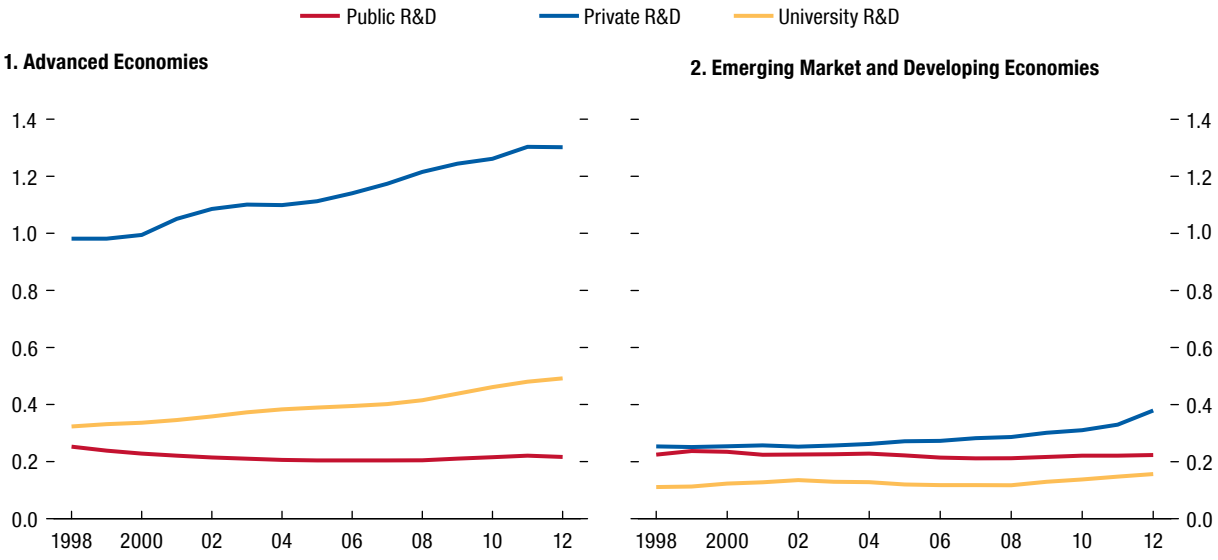
Research and development expenditures are concentrated mostly in advanced economies and China, followed by the large emerging market and middle-income economies.



Sources: World Bank; and IMF staff calculations.

Figure 2.3. Research and Development (R&D) Expenditures, 1998–2012
(Percent of GDP)

Private R&D and university R&D expenditures are significantly higher in advanced economies than in emerging market and developing economies. R&D expenditure is also increasing more rapidly in advanced economies. Public R&D expenditure is similar across groups of economies.



Source: United Nations.
Note: Emerging market and developing economies include emerging market and middle-income economies as well as low-income developing countries. For a list of countries in each group of economies, see Table A in the Methodological and Statistical Appendix.

relationship (complementarity) between public and private R&D seems to be prevalent (for a survey of recent empirical evidence, see Becker 2014) (Figure 2.4). Some forms of government R&D actively seek to support this complementarity, for example, support for research collaboration between universities and private firms.

- *Private R&D* investments chosen by individual firms might be lower than the socially efficient level because of two important market failures: credit constraints and externalities. The rest of this section focuses on how fiscal policies can help address these market failures.

Using Fiscal Stabilization to Promote R&D in Bad Times

Fiscal stabilization policies can promote R&D investments by helping dampen recessions. Firms may encounter difficulties in obtaining funding for R&D investments because R&D often involves a high level of risk, significant fixed costs, and returns that materialize only in the medium to long term. Firms' ability to borrow can be especially impaired during recessions, when liquidity risks are more prevalent. By reducing business cycle volatility, a more countercyclical fiscal policy can pave the way for greater private R&D expenditures and higher structural productivity growth.

These theoretical predictions find empirical support in new analysis in Annex 2.1, based on industry-level data. The results suggest that higher fiscal countercyclicality increases R&D expenditure significantly more in industries that are highly dependent on external finance.[6] The differential effect appears to be large: moving a country from the 25th percentile of the distribution of fiscal stabilization to the 75th percentile increases private R&D by between 10 percent and 16 percent more in industries that depend more on external finance. Higher fiscal countercyclicality also raises average TFP growth in these industries by 6 percent more, the analysis finds.

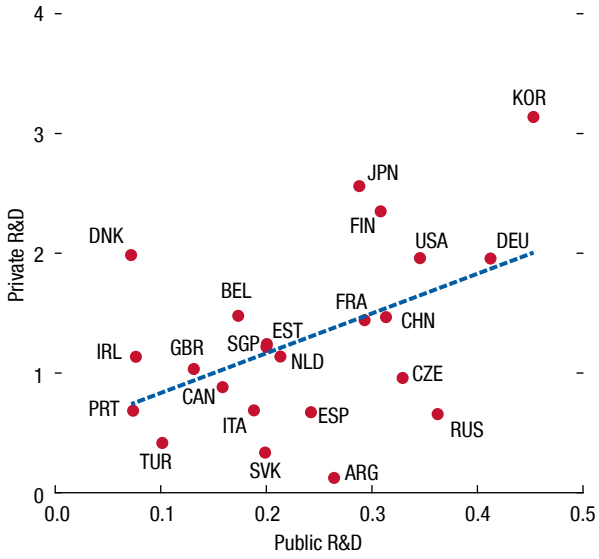
Correcting the Structural Underinvestment in R&D

The *private rate of return to business R&D*—that is, a firm's extra income from a dollar invested in R&D—is quite high, typically ranging between 20 and 30 percent (Wieser 2005; Hall, Mairesse, and Mohnen 2010). This return is higher than rates of return to physical capital, partly reflecting R&D's higher risk premiums. Most of the evidence is for advanced economies.

Returns to private R&D vary by country, depending on how effectively knowledge is created, commercialized, and diffused. A recent study finds that R&D returns in emerging market and developing economies are on average smaller than in advanced economies (Goni and Maloney 2014). However, returns depend critically on the human capital base of countries, which determines their capacity to absorb—that is, recognize, assimilate, and apply—technologies developed elsewhere. Studies for advanced economies also indicate that the rate of return tends to be larger for countries further away from the technological frontier (Griffith, Redding, and van Reenen 2004). Both of these factors suggest that R&D in emerging market and middle-income economies can potentially yield high returns, provided there is a sufficiently educated work force. R&D returns in China, for instance, are estimated to

Figure 2.4. Public and Private Research and Development (R&D), 2012
(Percent of GDP)

There is a positive relationship between public and private R&D, which reflects their complementarity.



Source: Organisation for Economic Co-operation and Development.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.

[6] Fiscal policy countercyclicality is measured by how responsive the overall government fiscal balance is to the output gap or GDP growth. See the April 2015 *Fiscal Monitor*.

be as large as for advanced economies (Goh, Li, and Xu 2015).

Private R&D undertaken by one firm may increase productivity in other firms through knowledge spillovers.[7] Spillovers can occur both within the same industry and to other industries. Thus, domestic *social rates of return to private R&D* are generally estimated to be two to three times the private return (Sveikauskas 2007; Bloom, Schankerman, and van Reenen 2013). These positive externalities imply that market forces will lead to an underinvestment in R&D compared with the level that is socially efficient.[8]

This underinvestment can be addressed by corrective fiscal instruments that provide incentives for private R&D. Fiscal incentives such as tax credits and direct subsidies can lower the private cost of R&D so that firms are inclined to invest more, which is socially desirable because other firms will benefit, too. If the external benefits from private R&D are as large as the private benefit—as empirical studies suggest—then the socially efficient correction should reduce the marginal cost of R&D by 50 percent. That is, the cost for a firm investing in extra R&D should be reduced by 50 cents per dollar. Today, actual effective subsidy rates in most countries are much lower;[9] the average for a group of 36 advanced and emerging market economies was 12 percent in 2015. Increasing subsidy rates to the socially efficient level could increase private R&D expenditures by almost 40 percent (Annex 2.2).[10]

Increasing private R&D could generate a significant growth dividend. Based on a comprehensive meta-analysis containing 329 macro estimates (Donselaar and Koopmans 2016),[11] an increase of 10 percent in private R&D in an average advanced economy would boost the level of GDP by about 1.3 percent in the long term. Expanding R&D by nearly 40 percent could thus raise GDP by approximately 5 percent in a representative advanced economy. The fiscal cost would be about 0.4 percent of GDP per year—assuming that those costs rise proportionately with current spending on fiscal R&D support.[12]

International R&D spillovers are also important. R&D undertaken in the Group of Seven (G7) countries yields productivity gains in other countries of approximately 25 percent of the G7's own return (Coe and Helpman 1995; Coe, Helpman, and Hoffmaister 1997, 2009). Taking these spillovers into account, achieving a globally efficient level of R&D could thus raise global GDP by almost 8 percent in the long term (Annex 2.2).

Given the potentially large growth dividend from expanded R&D, the case for supportive fiscal policy is strong. Recognizing this, several countries have put in place policies to increase R&D spending. For example, the European Union has an ambitious goal of raising private R&D from its current level of about 1.3 percent of GDP to 2 percent of GDP in 2020, an increase of more than 50 percent.

Designing Fiscal Incentives to Get the Best Value for Money

Addressing the underinvestment in private R&D will require a comprehensive mix of policies, including well-designed fiscal incentives. Two key corrective incentives that reduce the private cost of R&D are direct R&D subsidies and R&D tax incentives, such as tax credits, enhanced allowances, accelerated depreciation, and special deductions for labor taxes or social security contributions. In 2013, advanced economies spent approximately 0.15 percent of GDP on these forms of fiscal R&D support. A little more than half this amount was in the form of direct subsidies, although the mix varies by country (Figure 2.5).

R&D tax incentives differ from R&D subsidies in important ways. Tax incentives are usually available to all firms that invest in R&D—although they can be designed to target specific groups of firms. This

[7] R&D may also exert negative externalities, such as duplication externalities (multiple firms running parallel research programs in a patent race) or creative destruction externalities (reductions in the value of existing technologies). On net, however, positive externalities from R&D far exceed the negative ones (Jones and Williams 1998).

[8] The market for technology (in which spillover benefits to other firms would be priced through the sale and licensing of intellectual property) is small relative to the overall size of the estimated spillover effects from R&D. This differential reflects high transaction costs in the technology market. Most of the spillovers are thus not accounted for in the private decisions of firms.

[9] The "subsidy rate" expresses the governments' contribution to the firms' last dollar of R&D investment as a percentage of the user cost of R&D (Jaumotte and Pain 2005).

[10] These calculations rely on a number of simplifying assumptions and should be interpreted with caution.

[11] The meta study draws on 15 papers, 14 of which are published in refereed journals.

[12] These calculations do not represent a full cost-benefit analysis, which would also discount for time lags and risk, and account for tax distortions, administrative and compliance costs, and benefits not captured by GDP. A permanent increase in annual R&D expenditures will gradually expand the stock of R&D, which determines the long-term productivity effect. In most models, a new steady state equilibrium is achieved after approximately 20 years.

market-based approach is attractive because it provides a level playing field; all private R&D activities get equal treatment. The drawback, however, is that private sector R&D decisions may not adequately address the complex knowledge spillovers associated with R&D.

Subsidies, in contrast, often take the form of specific support to targeted R&D projects. Thus, they are more often of a discretionary nature and largely designed by the government. If the government is able to target them well based on appropriate information about the size and nature of the spillovers, subsidies can be more efficient than tax incentives. They can also account for nonmarket benefits, such as a cleaner environment (Box 2.2).

New analysis in Annex 2.1—based on firm-level and industry-level data—finds that both tax incentives and direct subsidies increase TFP growth in advanced economies. The effects of the two instruments vary across industries and firms. For example, higher R&D subsidies increase TFP growth more in industries that are highly dependent on external finance (where R&D cannot be accommodated by current cash flow) and in the information technology sector. R&D tax incentives have a larger effect in industries characterized by high R&D intensity and for small firms (those with fewer than 50 employees).

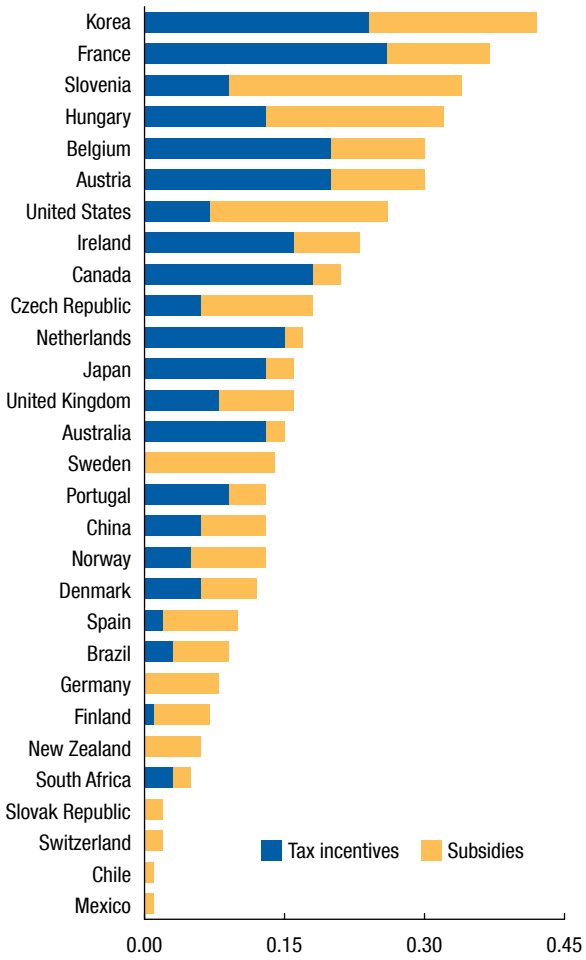
These variations make it difficult to conclude in general terms which instrument more effectively fosters innovation and productivity. In fact, it seems that subsidies and tax incentives each have their own strengths and can therefore usefully complement each other. Subsidies are especially useful for supporting the research component of R&D—the early phase of the innovation process in which knowledge spillovers tend to be larger (Zuniga-Vincente and others 2014). Tax incentives can complement these subsidies by providing across-the-board incentives to all firms investing in R&D.

During the past few years, many countries have increased their fiscal support for private R&D (Figure 2.6). Tax incentives, in particular, have gained popularity and are now used by most advanced economies and many emerging market economies (including Brazil, China, India, and South Africa). This wide use makes a discussion of how these R&D tax incentives can be designed to yield the best value for money particularly relevant. Evaluation studies offer the following lessons:

- *Targeting to small and new firms.* In Canada, the Netherlands, Norway, and the United Kingdom, R&D tax incentives for small firms are two to three times more effective in promoting R&D investments than for an average size firm. This effect might occur because small firms (and especially those that are new) find it harder to obtain finance—for example, because lenders may have less information about them and because new firms may face a higher risk of failure. Nine advanced economies provide more generous R&D tax incentives to small firms (Figure 2.7). Belgium, France, Italy, the Netherlands, and Portugal have more generous tax incentives for new firms.

Figure 2.5. Fiscal Support to Private Research and Development (R&D), 2013
(Percent of GDP)

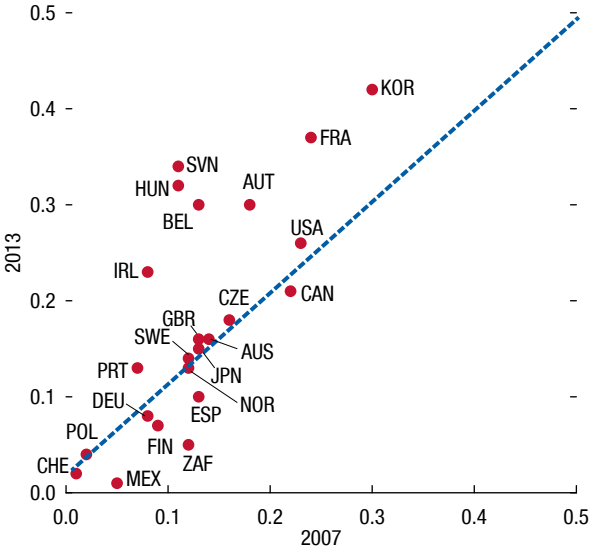
The level of fiscal R&D support and the mix between R&D subsidies and tax incentives vary across countries.



Source: Organisation for Economic Co-operation and Development.
Note: Data for R&D tax incentives in Israel and Poland were not available and are excluded from the figure.

Figure 2.6. Fiscal Support to Private Research and Development, 2007 and 2013
(Percent of GDP)

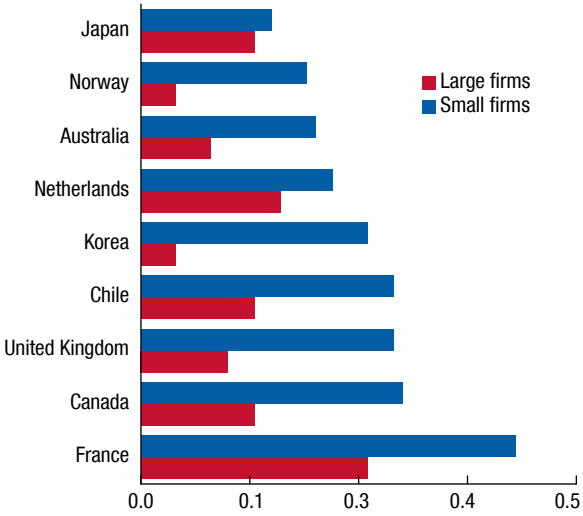
Fiscal support to private research and development has increased in most countries.



Source: Organisation for Economic Co-operation and Development.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.

Figure 2.7. Research and Development Tax Incentives for Small and Large Firms, 2013
(Tax subsidy rate as a percentage of user cost of research and development)

Nine countries offer more generous research and development tax incentives to small firms than to large firms.



Source: Organisation for Economic Co-operation and Development.

- *Refundable tax credits.* New firms in their start-up phase often have negative profits. Thus, they would not immediately benefit from tax credits that can only be used against a positive tax liability. A tax credit that is refunded if there is a negative tax liability would be more effective for them. Thirteen advanced economies use refundable R&D tax incentives—sometimes only for small and medium-sized enterprises. R&D tax incentives can also be used to provide relief from labor taxes, such as payroll taxes or employer social contributions. Firms still benefit from those incentives, even if they do not report positive taxable income. Belgium, France, Hungary, the Netherlands, and Spain provide such tax relief.
- *Targeting incremental R&D* (above some baseline amount). Compared with tax incentives that apply to all R&D expenses, incremental incentives are cheaper because they avoid a windfall gain for existing R&D below the baseline. Such incremental schemes are used by Italy, Japan, Korea, Portugal, Spain, and the United States. However, incremental incentives can be more complex and may influence the timing of R&D investments. They also have higher compliance costs as a percentage of total support, which can reduce take-up. Some countries have therefore moved away from incremental schemes or have simplified them.
- *Intellectual property (IP) box regimes* (which provide for lower effective tax rates on income from intangible assets) are often less cost-effective in promoting innovation (Box 2.3).
- *Gradually expanding R&D tax incentives.* A gradual expansion of incentives can be preferable to a large immediate increase. Large increases might simply raise the wages of researchers, who tend to be in fixed supply in the short term. This also highlights the need for appropriate spending on higher education to accommodate the higher demand for researchers.
- *Effective administration* is critical to avoid abuse of R&D tax incentives. For instance, firms may try to relabel ordinary expenditures as R&D to qualify for the incentive. To prevent this subterfuge, support from other government agencies with specialized technical knowledge is often needed, which can raise administrative costs. At the same time, governments should try to minimize compli-

ance costs for firms—which one study estimates at 15 cents per dollar of tax relief for small firms in Canada (Parsons and Phillips 2007). High compliance costs can reduce take-up rates and make the incentive less effective. Most countries allow online application and offer a "one-stop-shop" process to minimize these costs.

Fostering Technology Transfer

Most technology creation occurs in a small number of advanced economies: more than 60 percent of global R&D is undertaken in the G7 countries. These new technologies are then disseminated to the rest of the world through imitation and absorption. Technology transfer from one country to another is critical for productivity growth, especially in emerging market and developing economies.

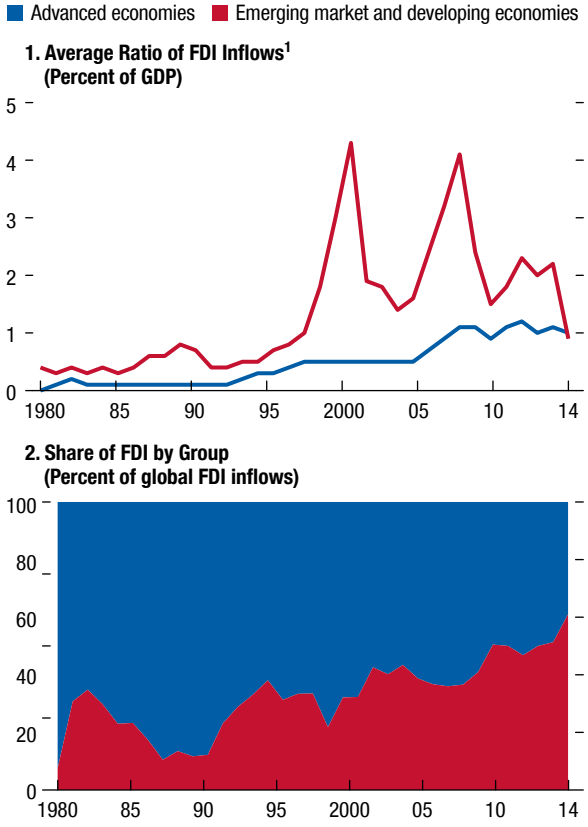
Identifying Technology Transfer Channels

Technology transfers take place through two main channels: international trade and foreign direct investment (Keller 2009).

- *International trade*. Firms can acquire technological knowledge by importing intermediate goods and capital equipment that embody foreign technology. Firms can also "learn by exporting" through direct interactions with their foreign customers—although these effects are weaker than those associated with imports.
- *Foreign direct investment (FDI)*. The extent and speed of technology diffusion can depend on firm ownership and the linkages among firms. Multinational firms usually transfer technologies to their affiliates abroad through FDI to realize the full gains from their inventions (Chen and Dauchy, forthcoming). In the receiving country, inbound FDI may generate positive productivity spillovers to other firms through interactions between the multinational affiliate and local firms, worker turnover, or improved organization and management practices. FDI is therefore widely considered to be important for economic growth in emerging market and developing economies. Global FDI flows have increased significantly during the past few decades. The share of the world's total FDI that flows to emerging market and developing economies has also grown, from between 20 and 30 percent in the 1980s to about 50 percent today (Figure 2.8).

Figure 2.8. Trends in Foreign Direct Investment (FDI) Inflows by Country Group, 1980–2014

Emerging market and developing economies receive more FDI (as a share of their GDP) than advanced economies. The share of global FDI that flows to emerging market and developing economies has increased over time to more than 50 percent in recent years.

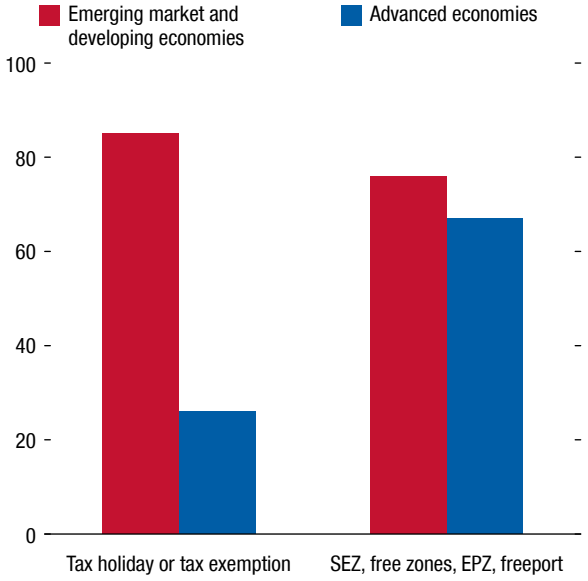


Sources: IMF staff estimates.
Note: Emerging market and developing economies include emerging market and middle-income economies as well as low-income developing countries. For a list of countries in each group of economies, see Table A in the Methodological and Statistical Appendix.
[1]GDP weights are used to compute the average.

Technology diffusion through trade and investment is not automatic. Productivity spillovers from FDI are more prevalent in countries with higher human capital (Havranek and Irsova 2013). In addition, trade and investment often require an adequate level of infrastructure, such as well-developed ground transportation and shipping ports. Government investment in human and physical capital is therefore essential to reaping the productivity gains associated with innovation. Some emerging market and middle-income economies have successfully created well-trained pools of scientists and engineers, which is facilitating technology adoption and innovation (Box 2.4).

Figure 2.9. Prevalence of Tax Incentives
(Percent of countries per income category)

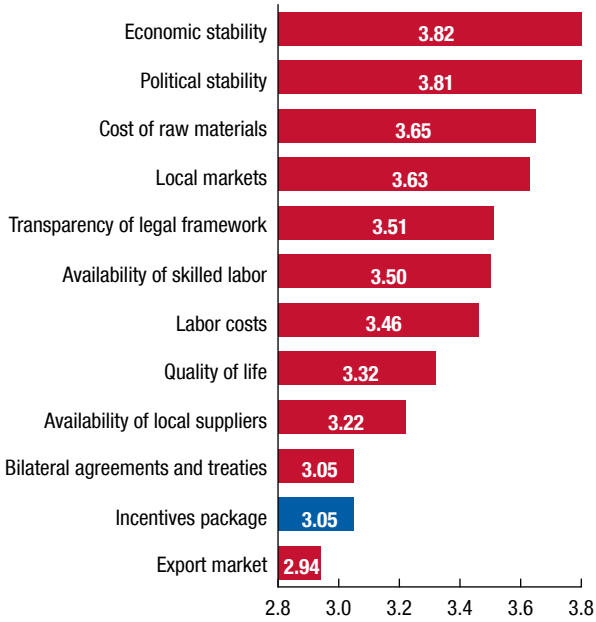
Tax holidays and special economic zones are prevalent in emerging market and developing economies.



Source: IMF and others 2015.
Note: Emerging market and developing economies include emerging market and middle-income economies as well as low-income developing countries. For a list of countries in each group of economies, see Table A in the Methodological and Statistical Appendix. EPZ = export processing zone; SEZ = special economic zone.

Figure 2.10. Importance of Investment Factors for Africa, 2011
(Average rank)

Tax incentive packages rank low in importance of investment factors. Economic and political stability and the transparency of the legal framework rank high.



Source: United Nations Industrial Development Organization.
Note: The figure shows average rankings of 12 location factors according to a business survey among 7,000 companies in 19 sub-Saharan African countries.

Tailoring Tax Policy to Attract Foreign Direct Investment

Countries face a dilemma in determining tax policies to maximize the benefits of FDI (such as productivity gains, high-quality jobs, and stable funding for greenfield investment). Emerging market and developing economies often implement tax holidays or tax exemptions in special economic zones to attract more FDI (Figure 2.9). However, these incentives erode tax bases, most notably of the corporate income tax (CIT). Should emerging market and developing economies reduce the CIT burden through tax incentives or should they maintain their CIT and use the proceeds to invest in education and infrastructure?

To answer this question, both the costs and benefits of FDI tax incentives must be assessed. In many emerging market and developing economies, the costs of tax incentives are unknown because governments do not provide reliable periodic estimations of their tax expenditures. Estimates for a group of 15 Latin American countries—which undertake tax expenditure reviews on a regular basis—suggest revenue losses from CIT incentives of almost 1 percent of GDP on average (CIAT 2011). On the benefit side, studies for advanced economies show that lower CIT rates attract inbound FDI. However, almost no evidence is available for emerging market and developing economies. New analysis in Annex 2.3 aims to fill this gap. The analysis finds that the effects of CIT rates on FDI in emerging market and developing economies are negative—as expected—but that the size of the effect is less than half of that for advanced economies.[13] This is consistent with business surveys conducted in Africa, Asia, and Latin America, which suggest that tax incentives very often have no impact on the investment decisions of multinationals (IMF and others 2015).

Another factor seems to matter more for FDI in emerging market and developing economies, the analysis finds: institutional quality. Also, business surveys rank institutional factors much higher than taxation for FDI location decisions (Figure 2.10). These findings suggest

[13] Similar results are found based on average effective tax rates for a smaller set of countries (Abbas and Klemm 2013).

that tax incentives alone are unlikely to be a cost-effective way to attract FDI. To enjoy the productivity gains from new technologies, countries would do better to invest in institutions, knowledge, and infrastructure.

Repeal of tax incentives might be difficult, however, especially in the short term. Still, governments can do much to improve the design, transparency, and implementation of FDI tax incentives. IMF and others 2015 provides guidelines for these improvements. Regional coordination can also help curb the negative spillover effects from tax incentive policies as a form of mutually damaging tax competition.

Promoting Entrepreneurship

Innovation and productivity growth result not only from investment in R&D by large established companies, but also from small start-up firms engaging in experimentation and risk taking (entrepreneurship). Entrepreneurship is generally linked to the notion of creative destruction, described by economist Joseph Schumpeter, whereby new enterprises enter the market and encourage greater competition and innovation (Schumpeter 1911). A large body of evidence suggests that the entry of new firms is important for innovation and productivity growth. New firms are especially relevant for expanding the technology frontier because they tend to engage in more radical innovations, whereas incumbent firms tend to focus more on incremental innovations to improve existing products and processes (Akcigit and Kerr 2010). More than half of TFP growth at the industry level is due to new entrants, with the remainder associated with productivity improvements by incumbents (Lentz and Mortensen 2008). Competition from new entrants also spurs innovation on the part of incumbent firms, especially in high-technology industries (Aghion and others 2009).

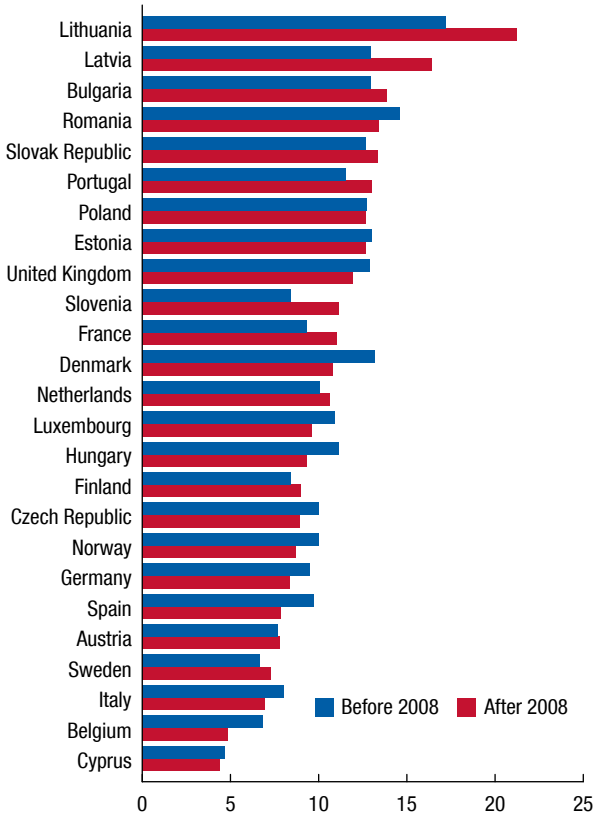
Trends in entrepreneurship vary between countries. In 14 European countries, the rate of new businesses entering the market (a measure of entrepreneurship) has declined since the financial crisis, while in 11 others it has increased (Figure 2.11). In the United States, for which longer time series are available, business entry rates have declined gradually since the late 1970s (Figure 2.12). This decline has been especially large in retail and service sectors, highlighting a shift in these sectors toward larger firms (Decker and others 2015).

Business entry rates are typically higher in emerging market and developing economies than in advanced economies, but the nature of entrepreneurship is also different. A larger portion of new businesses in emerging market and developing economies is "necessity driven"—occurring out of economic need when other options for work are absent or unsatisfactory. In contrast, "opportunity-driven" entrepreneurship, which is more closely related to innovation, is relatively more prevalent in advanced economies (Figure 2.13). An important development goal in many emerging market and developing economies is therefore not so much to increase business entry itself, but rather to increase the share of entrepreneurship that is driven by opportunity.

Efficient entrepreneurial experimentation requires institutional arrangements that facilitate business entry, growth, and exit. Various obstacles can impede this process. A common obstacle is access to finance. Government programs in several countries support

Figure 2.11. Business Entry Rates in Europe before and after the Financial Crisis
(Percent of the total number of active firms)

Business entry rates have decreased since 2008 in 14 countries within a sample of 25 European countries.



Source: Eurostat.
Note: "Before 2008" refers to the average between 2004 and 2007; "After 2008" refers to the average between 2008 and 2012.

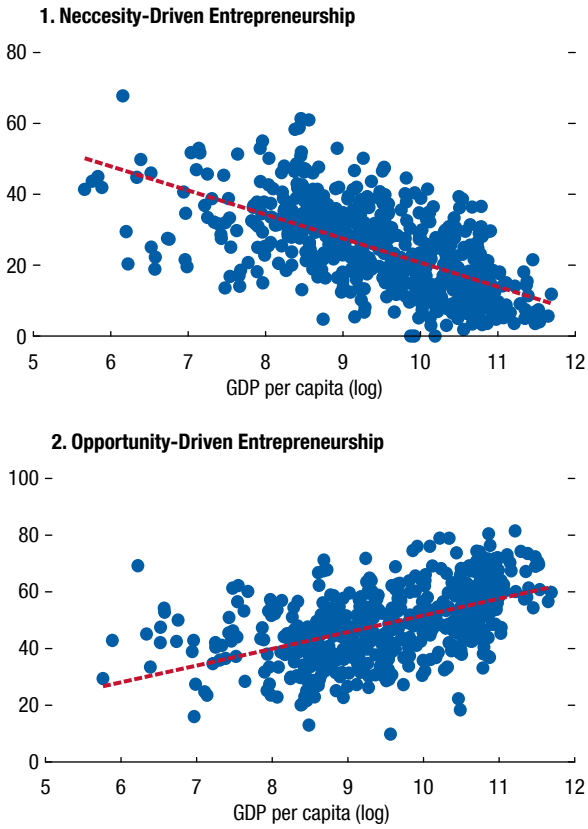
Figure 2.12. Business Entry Rates in the United States, 1977–2013
(Percent of the total number of active firms)

There is a downward trend in the entry rate of firms in the United States.

Source: U.S. Census Bureau Business Dynamics Statistics.

Figure 2.13. Types of Entrepreneurship and GDP per Capita
(Percent of total early-stage entrepreneurial activity)

Necessity-driven entrepreneurship is more prevalent in countries with low GDP per capita, but it declines as per capita GDP rises. Opportunity-driven entrepreneurship tends to rise as GDP per capita increases.



Sources: Global Entrepreneurship Monitor; and IMF staff calculations.
Note: Total early-stage entrepreneurial activity includes those who are either nascent entrepreneurs (actively involved in setting up a business) or owner-managers of a new business (less than 3.5 years old). Opportunity-driven entrepreneurship is characterized by voluntary entrepreneurial activity to exploit an opportunity. Necessity-driven entrepreneurship arises when other options for work are absent or unsatisfactory.

the provision of seed capital, early-stage financing, and venture capital through subsidized loans or grants—although with mixed success (Lerner 2009) (Box 2.5 on Chile). Another obstacle is the burden on businesses of nonfiscal policies, such as permits and licenses, bankruptcy laws, and labor market regulations. Finally, taxation can distort entrepreneurship. The rest of this section analyzes ways in which to minimize such tax distortions.[14]

Tax Policies to Encourage New Business Ventures

The decision to start a business often involves choosing between working under a secure employment contract with a certain wage and taking on risk in pursuit of an uncertain but potentially large financial reward. Tax systems can influence the costs, benefits, and risks involved in this choice. The personal income tax (PIT) is important for entrepreneurs whose firms start as a noncorporate business venture. When PIT systems provide for the full offset of losses against other income, they effectively offer insurance against risk by reducing the variability of rewards, whether those rewards are positive or negative. This system can encourage entrepreneurial risk taking. However, most PIT systems restrict the extent to which losses can be offset. High marginal PIT rates that reduce the potential rewards then serve as a disincentive to entrepreneurial activity. Meanwhile, when businesses survive and grow, they are often transformed into corporations that offer the entrepreneur limited liability protection. Income then becomes subject to the CIT—and, when distributed to the owner, to taxation of dividends or

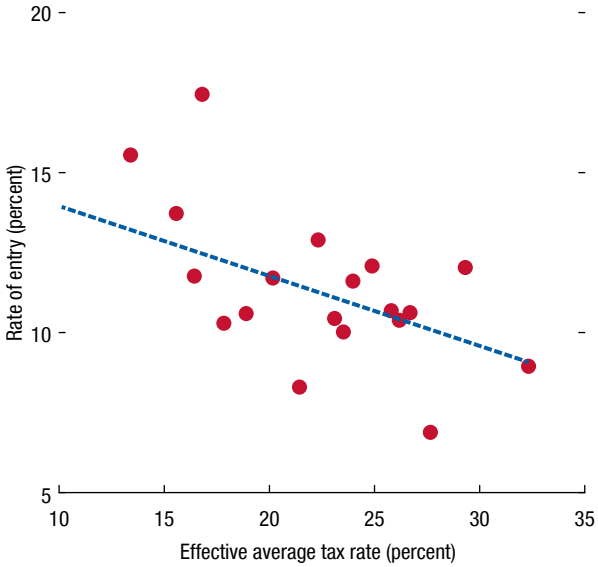
[14] The exit of unsuccessful businesses is also important for the process of entrepreneurial experimentation to be efficient. Taxation may affect exit decisions. Empirically, however, the analysis in Annex 2.4 finds that income taxation has no effect on exit rates.

capital gains. These types of taxes can also influence entrepreneurial entry and growth by changing risk and expected rewards. The effects of income taxes on business creation in advanced economies have been explored by several empirical studies, including new analysis in Annex 2.4. The findings can be summarized as follows:

- *Personal income taxes.* The effects of PIT rates on business creation are mixed. For the United States, some evidence suggests a negative relationship between tax progressivity and business entry (Gentry and Hubbard 2000), whereas another study finds that high PIT rates encourage entrepreneurial risk taking (Cullen and Gordon 2007). Annex 2.4—using a sample of 25 advanced and emerging market economies in Europe—finds insignificant effects of progressive PIT schemes on business entry; these results are robust.
- *Social security taxes.* The decision to start a new business may depend on the difference between the social security program eligibility of employees and entrepreneurs. On the one hand, high social security taxes can generate the same distortionary effects on entrepreneurship as personal income taxes. On the other hand, insurance from universal social security eligibility (against health risk, for example) may encourage entrepreneurial risk taking.
- *Corporate income taxes*. Most empirical studies find that high CIT rates have negative effects on entrepreneurial activity (Baliamoune-Lutz 2015). The results in Annex 2.4 also suggest such a relationship (Figure 2.14). The size of the effect is modest, however. Lowering the average effective tax rate on business income by 1 percentage point (for example, to 20 percent from the current average of 21 percent) would increase the business entry rate by between 0.1 and 0.3 percentage point (for instance, from the current average of 10 percent of the total number of businesses to between 10.1 and 10.3 percent).
- *Capital income taxes*. Because entrepreneurs may generate a significant portion of their income in the form of capital gains, low capital gains taxation may encourage entrepreneurial ventures. However, reducing the tax rate on all capital gains is a blunt instrument for achieving this result. Moreover, low taxes on capital gains could induce tax arbitrage by encouraging entrepreneurs to realize capital gains instead of distributing dividends. Neutral treatment of different sources of income is therefore generally desirable.

Figure 2.14. Entrepreneurial Entry and Business Taxation

As average corporate income tax rates increase, business entry rates tend to decrease.



Sources: Eurostat business demography statistics; Oxford Center for Business Taxation; and IMF staff calculations.

Overall, although income taxes can have some discouraging effect on entrepreneurial entry, there are important countervailing forces. To ensure that these forces are effective, sufficiently generous provisions in the tax system to offset losses are necessary. Some countries have special tax relief measures in place to actively encourage entrepreneurship. For example, tax allowances for venture capitalists are offered as a way to stimulate the supply of funds. These instruments, however, have been ineffective in circumstances in which most of the venture capital originates from tax-exempt institutional investors. Fiscal support directly targeted to start-ups can be more effective, especially if support provides a tax refund when income is negative.

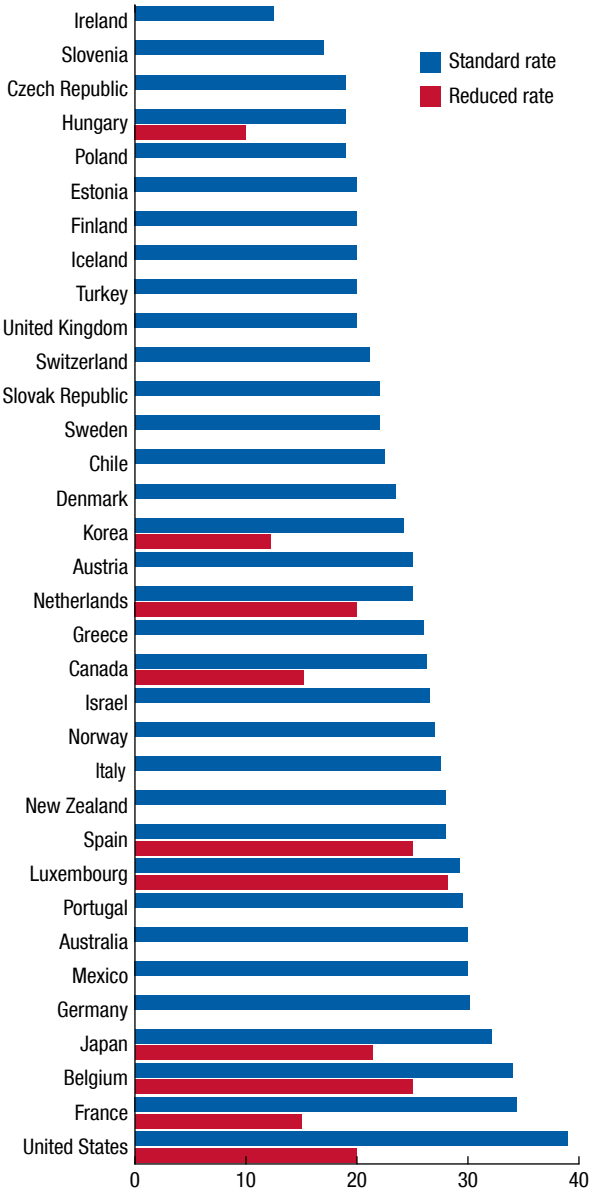
Recognizing That New, Not Small, Is Beautiful

The tax system can also affect the growth of firms. In particular, preferential tax treatment based on the size of the business, and differential taxation of various legal forms of business may affect firms' incentives to grow.

- *Size-based preferential tax treatment*. Various countries offer preferential tax treatment for small

Figure 2.15. Standard and Small Business Corporate Income Tax Rates, 2015
(Percent)

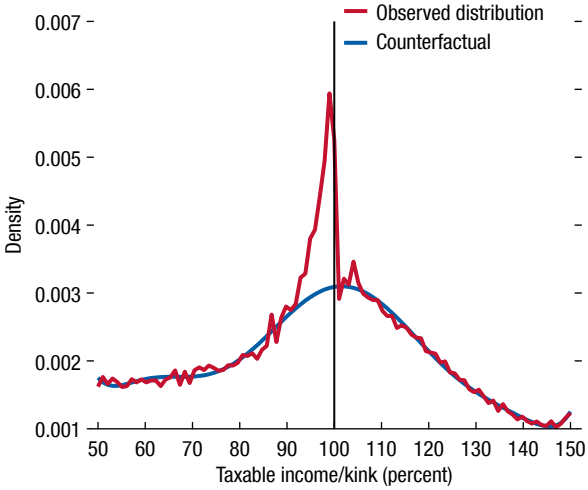
Ten OECD countries have reduced corporate income tax rates for small firms.



Source: OECD tax database.
Note: The figure shows central and subcentral statutory corporate income tax rate, including surcharges. OECD = Organisation for Economic Co-operation and Development.

Figure 2.16. Bunching at a Kink: Evidence for Costa Rica, 2006–13
(Density of taxpayers along the income distribution)

The number of self-employed people in Costa Rica who report taxable income just below the exemption threshold (the kink) is much higher than it would be without a threshold.

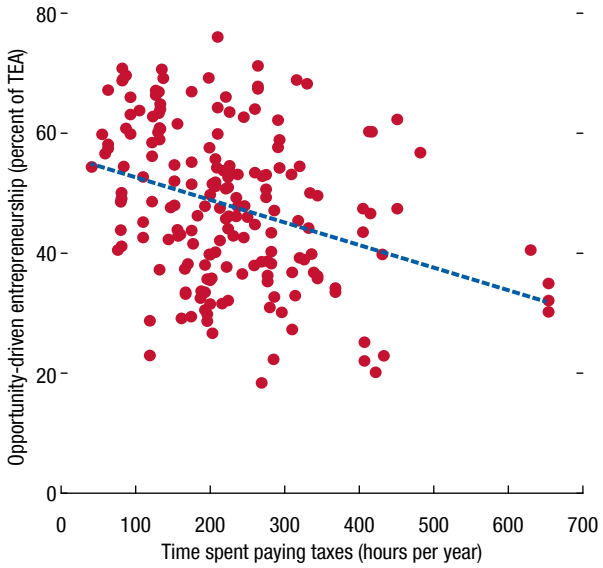


Source: Brockmeyer and Hernandez 2016.
Note: The kink refers to the income level at the exemption threshold for self-employed taxpayers for the years 2006–13. The label 100 on the horizontal axis denotes that taxable income is precisely equal to the threshold. The tax rate above the threshold is 10 percent.

companies. For instance, 10 member countries of the Organisation for Economic Co-operation and Development (OECD) have lower CIT rates on profits below a certain level (Figure 2.15). However, given that most small firms are neither new nor innovative, such tax incentives are not well targeted for relieving tax barriers to entrepreneurial innovation (except for those related to R&D expenditures, which are targeted to innovation; see Box 2.5 on France). Evidence indicates that a firm's rate of growth, job creation, and export activity are related more directly to the age of the business than to its size (Haltiwanger, Jarmin, and Miranda 2013). Moreover, size-based tax preferences can create disincentives for firms to grow larger, creating a so-called small business trap. One illustration of this, found in several microeconomic studies, is "bunching": a very high density of firms with income just below the level at which the size-based tax preference is removed (Figure 2.16). This pattern may partly reflect an underreporting of income, but it may also reflect changes in activity by firms, such as reducing investment or fragment-

Figure 2.17. Business Entry and Compliance Burden, 2012–14

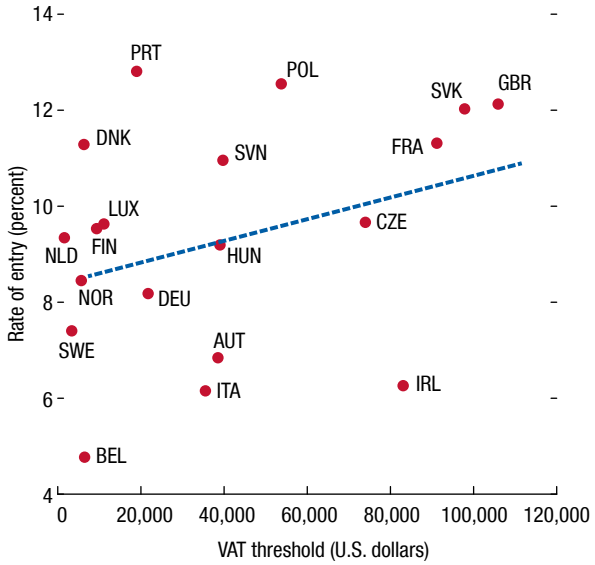
Countries where it takes longer to prepare, file, and pay taxes have less opportunity-driven entrepreneurship.



Sources: Global Entrepreneurship Monitor; and World Bank.
Note: The time spent paying taxes measures the time it takes to prepare, file, and pay tax for a representative medium-sized company. TEA = Total early-stage entrepreneurial activity.

Figure 2.18. Business Entry and Value-Added Tax (VAT) Registration Threshold, 2010–13

The magnitude of the VAT registration threshold (which relieves small firms of the obligation to register for VAT) is positively correlated with business entry.



Sources: Eurostat; and Organisation for Economic Co-operation and Development VAT Statistics.
Note: Entry rates are country averages for 2010–13, which are expressed as a percentage of the total number of active businesses. Data labels in the figure use International Organization for Standardization (ISO) country codes.

ing the business (in inefficient ways) to remain below the threshold. By deterring firms from growing larger, size-based tax preferences might thus harm productivity growth rather than support it. Encouraging the creation or growth of firms would be achieved more efficiently by targeting support to new firms. These incentives would require rules that limit potential abuse (for example, new legal entities that are created just to renew the tax preference on a continuing activity) and a strong tax administration to enforce those rules.

- *Different taxation of different legal forms of business*. Many tax systems do not provide neutral tax treatment of business income earned under various legal structures (corporate versus noncorporate). As a result, entrepreneurs are induced to run their businesses in ways that minimize their tax liability, which may distort organizational efficiency and hamper growth, especially if corporations are taxed at higher rates than noncorporate businesses (given that entrepreneurs tend to shift to the corporate legal form once they grow beyond a certain size). A slightly lower tax burden on corporations compared with noncorporate businesses can provide some encouragement to entrepreneurial risk taking or can promote formal registration of businesses.

Keeping Taxes Simple

The complexity of tax systems can hamper entrepreneurship. Tax compliance costs in Africa, Asia, Latin America, and the Middle East are sometimes estimated to be nearly 15 percent of turnover for the smallest firms (Coolidge 2012). This high tax compliance burden can impose a significant barrier to entrepreneurship (Figure 2.17). Some countries have therefore simplified their tax regimes for businesses below a certain turnover threshold. These regimes usually exempt such businesses from registration for the value-added tax (VAT)—although they normally allow voluntary registration. The higher the VAT registration threshold, the higher the rate of business entry (Figure 2.18). In several countries, the VAT registration threshold could be usefully increased. In some countries, simplified regimes also allow small firms to use less complex

accounting to calculate taxes (based on turnover, for instance), pay one unified tax instead of a range of taxes, and pay tax less frequently. Simplification is especially relevant in emerging market and developing economies to encourage informal businesses to formalize their status. In Brazil, for example, the implementation of simplification schemes for micro and small businesses significantly raised their formal entry, turnover, and employment levels (Fajnzylber, Maloney, and Montes-Rojas 2011). Other countries that have simplified tax regimes include Chile, Georgia, India, Mexico, and South Africa. The purpose of simplified regimes for small businesses is not to provide a lower tax burden; rather, the average tax burden in the simplified regime should be set high enough to encourage firms to make the transition into the ordinary income tax regime once they grow above the threshold.

Conclusion

Identifying policies that could lift productivity growth by promoting innovation is critical at this juncture. Fiscal policy can play an important role. Based on the analysis in this chapter, the main policy conclusions are as follows:

- **Good fiscal stabilization policies promote R&D.** They can help firms maintain spending on R&D during recessions. New evidence in the chapter finds that fiscal stabilization is especially important for industries that are highly reliant on external funding.
- **Governments should do more to boost R&D.** In advanced economies, private R&D investment should be raised, on average, by 40 percent to attain levels that are efficient from a national perspective. Achieving these R&D levels could raise GDP by 5 percent in the long term. The associated fiscal costs are estimated to be about 0.4 percent of GDP per year. On a global level, the benefits from increased private R&D would be larger as a result of international knowledge spillovers.
- **Careful design of fiscal R&D incentives is imperative.** Governments can invest more in public R&D, such as basic scientific research, which will advance firms' own research activities. Moreover, new evidence in the chapter suggests that research subsidies and tax incentives targeted at R&D expenditures can effectively promote productivity growth. However, some existing policies have high fiscal costs but do little to foster innovation. For example, the analysis shows that patent boxes (which reduce taxes on income from intellectual property) are often not cost-effective in stimulating R&D. In some cases, they are simply part of an aggressive tax competition strategy.
- **Technology transfer in emerging market and developing economies requires better institutions, education, and infrastructure.** New analysis in the chapter shows that commonly used tax incentives aimed at attracting FDI are largely ineffective and costly. Good institutions may be a more effective way of attracting foreign investment. Furthermore, these countries need to strengthen their capacity to absorb technologies from abroad by improving their human capital base and infrastructure.
- **Tax preferences should target new firms, not small ones.** Empirical analysis in the chapter finds that income taxes tend to have only modest effects on business entry rates. Preferential tax treatment of small firms should be avoided; it may actually hurt growth by creating a small-business trap as a result of the higher taxes firms would face once they cross a certain size threshold. Well-designed tax relief targeted to new firms can promote entrepreneurship and innovation.

Annex 2.1. Fiscal Policy, Research and Development, and Total Factor Productivity Growth

This annex assesses the impact of fiscal R&D support on total factor productivity (TFP) growth. The analysis is conducted using both micro data and industry-level data. Industry-level data are also used to assess the effect of fiscal policy countercyclicality on private R&D expenditures. One limitation of the approach is that results cannot be interpreted as countrywide effects.

Micro-Level Analysis

The micro approach uses a measure of firm TFP, based on the Solow-residual calculated by Liu (forthcoming). The following equation is estimated:

$$\Delta \text{Log}(TFP)_{ijct} = \alpha + \beta \times X_{ijct} + \gamma \times RD_{ct-1} \times X_{ijct} + \delta \times Z_{jt} + \theta_{ct} + \varepsilon_{ijct}, \quad \text{(A2.1.1)}$$

in which $\Delta \text{Log}(TFP)_{ijct}$ is a proxy for TFP growth in firm i, sector j, country c, and year t; and X_{ijct} represents a firm's intrinsic factors, such as its size.

Annex Table 2.1.1. Impact of Fiscal Research and Development (R&D) Support on Firms' Total Factor Productivity

	RD = Total Fiscal R&D Support		RD = R&D Tax Incentives Support		RD = R&D Subsidies Support	
Dependent Variable: Δ Log (Total factor productivity)	(1)	(2)	(3)	(4)	(5)	(6)
Log (tangible fixed assets)	0.108*		0.347**		0.132	
	(0.0615)		(0.139)		(0.119)	
Small Firms (dummy)		–2.619***		–2.598***		–1.712***
		(0.662)		(0.113)		(0.286)
Manufacturing (dummy)	3.240**	2.030***	1.732**	1.402*	2.669***	1.728***
	(1.284)	(0.674)	(0.823)	(0.722)	(0.343)	(0.371)
Information Technology (dummy)	1.049	–0.0316	1.283	0.438	1.087***	0.0577
	(1.442)	(0.753)	(0.823)	(0.662)	(0.365)	(0.228)
Log (tangible assets) × Lagged RD	0.118*		0.102		0.555**	
	(0.0668)		(1.734)		(0.246)	
Small Firms × Lagged RD		2.521***		13.12***		7.093***
		(0.930)		(4.264)		(1.657)
Manufacturing × Lagged RD	–2.059	–0.442	4.734	8.813	–8.282***	–0.0839
	(1.454)	(0.710)	(21.50)	(19.31)	(3.062)	(1.599)
Information Technology × Lagged RD	–0.358	0.652	0.363	5.025	–2.703	3.608***
	(1.626)	(1.009)	(19.99)	(16.91)	(4.005)	(0.611)
Observations	3,673	3,673	1,567	1,567	3,673	3,673
Number of Firms	1,933	1,933	1,492	1,492	1,933	1,933

Source: IMF staff calculations and estimates.
Note: Robust standard errors are in parentheses. Country year fixed effects are included in all regressions.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Z_{jt} are sector-specific control variables. θ_{ct} denote country-year fixed effects. Estimation is based on the difference-in-difference method. Dummies are adopted for small firms (fewer than 50 employees) and the manufacturing and information technology sectors to explore differentiated impacts of R&D policies. RD_{ct-1} represents public R&D support as a percentage of GDP (in lagged terms to avoid potential endogeneity), reflecting either total fiscal R&D support, direct support through subsidies, or indirect support through tax incentives.

Firm-level data are taken from ORBIS. The focus is on industrial firms (nonagriculture and nonfinancial entities) and only those reporting positive R&D. Data on public R&D support come from the OECD's Main Science and Technology Indicators database. The sample comprises 24,130 observations for 9,027 firms in seven countries (Belgium, Czech Republic, Germany, Italy, Spain, Sweden, United Kingdom).

Annex Table 2.1.1 shows that the impact of fiscal R&D support on firm-level TFP growth is generally positive and significant. Effects are larger and more significant for small firms, while the distinct effects in manufacturing and the information technology sector are significant in only some specifications. Subsidies have a larger effect in firms with more tangible fixed assets. Quantitatively, the results in columns (4) and (6) of Annex Table 2.1.1 suggest that an increase in R&D tax incentives of 0.1 percent of GDP raises the value added of small firms by 1.3 percent more than of medium-sized and large firms; the effect of a similar increase in subsidies is about 0.7 percent larger.

Industry-Level Analysis

A similar analysis is carried out using industry-level data. The analysis follows Rajan and Zingales 1998 and Aghion, Hemous, and Kharroubi 2014 by estimating the following specification for a panel of 24 advanced economies and 16 industries:

$$TFP_{jc} = \alpha_c + \gamma_j + \beta \times FinDep_j \times RD_c + \delta \times RDint_j \times RD_c + \theta \times FinDep_j \times FS_c + \varepsilon_{cj}. \quad \text{(A.2.1.2)}$$

TFP_{jc} is average TFP growth in industry j and country c from 1970 to 2007, taken from the OECD. $FinDep_j$ is a measure of external financial dependence for each industry j. Following Rajan and Zingales 1998, it is measured as the median across all firms in a given industry of the ratio of total capital expenditures minus current cash flow to total capital expenditures.[15] $RDint_j$ is a measure of R&D intensity for each industry j, based on the U.S. industry average of R&D expenditures. RD_c measures fiscal R&D support in country c, taken from the same source as above for the micro-level analysis. FS_c measures fiscal stabilization,

[15] Data were kindly provided by Hui Tong. For details, see Tong and Wei 2011.

Annex Table 2.1.2. Impact of Fiscal Stabilization and Fiscal Research and Development (R&D) Support on Industry Total Factor Productivity Growth

Dependent Variable: Total Factor Productivity Growth	Estimates	Differential Impact (percent)
External Finance × Fiscal Stabilization	0.51*** (3.56)	6.04
External Finance × Direct R&D Subsidies	1.31** (2.53)	3.37
External Finance × R&D Tax Incentives	0.53 (1.33)	
R&D Intensity × Direct R&D Subsidies	–0.07 (–0.87)	
R&D Intensity × R&D Tax Incentives	0.11* (1.77)	5.62
Observations	305	
R^2	0.54	

Source: IMF staff calculations and estimates.
Note: Estimates are based on equation (A2.1.2), including industry and country fixed effects. The t-statistics based on clustered standard errors are reported in parentheses. Differential impact in the last column is computed for an industry in the 75th percentile relative to the 25th percentile of the financial dependence distribution (or R&D intensity) when the country increases fiscal stabilization (or R&D support) from the 25th to the 75th percentile. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Annex Table 2.1.3. Impact of Fiscal Stabilization on Private Research and Development

	Fiscal Stabilization Based on GDP Growth		Fiscal Stabilization Based on Output Gap	
Dependent Variable: Private Research and Development	(1)	(2)	(3)	(4)
External Finance × Fiscal Stabilization	0.96***	0.98***	0.76***	0.78***
	(3.36)	(3.45)	(3.01)	(3.17)
Differential in Research and Development (percent)	9.65	9.84	15.79	16.2
Observations	5,131	5,131	5,478	5,478
R^2	0.91	0.91	0.91	0.91

Source: IMF staff calculations and estimates.
Note: Estimates are based on equation (A2.1.3). The t-statistics based on clustered standard errors at country-industry level are reported in parentheses. Country-time fixed effects are included in all regressions, industry fixed effects in (1) and (3), and industry-country fixed effects in (2) and (4). Differential in research and development computed for an industry with external financial dependence at the 75th percentile relative to the 25th percentile of the financial dependence distribution when the country increases fiscal stabilization from the 25th to the 75th percentile.
*** $p < 0.01$.

which follows the approach in the April 2015 *Fiscal Monitor*, and is taken from new estimates by Furceri and Jalles, forthcoming. Finally, α_c and γ_j are country and industry dummies.

Regression results show that direct R&D subsidies increase TFP growth more in industries with higher external financial dependence (Annex Table 2.1.2). R&D tax incentives increase industry TFP growth more in industries with higher R&D intensity. TFP growth is significantly and positively correlated with the interaction of external financial dependence and fiscal policy countercyclicality, as in Aghion, Hemous, and Kharroubi 2014.

A time-varying measure of fiscal stabilization (FS_{it}) from Furceri and Jalles, forthcoming, is used to estimate the following specification for a panel of 24 advanced economies and 16 industries for the period 1970–2007:

$$RD_{jct} + \alpha_{ct} + \gamma_j + \beta \times FinDep_j \times FS_{ct} + \varepsilon_{jct}. \quad \text{(A.2.1.3)}$$

RD_{jct} is private R&D expenditures in industry j, country c and year t; α_{ct} and γ_j are country-time and industry dummies. For fiscal stabilization (FS_{ct}), two indicators are used based on either GDP growth or the output gap. Results show that private R&D expenditures are significantly and positively correlated with the interaction of external financial dependence and fiscal policy countercyclicality (see Annex Table 2.1.3). This result is robust to different estimates of fiscal stabilization.

Annex 2.2. Corrective Fiscal Incentives for Research and Development

This annex provides a back-of-the-envelope calculation of the so-called underinvestment in private R&D discussed in the main text of the chapter. It combines a simple analytical framework with consensus estimates from the empirical literature.

Consider a neoclassical framework in which R&D investment of an individual firm is determined by the usual optimality condition that the marginal private cost (*mpc*) (or user cost, *u*) equals the marginal private benefit (*mpb*). Assuming a constant *u*, decreasing returns to scale with respect to R&D capital determines the optimal private R&D (point A in Annex Figure 2.2.1). Assume further that the marginal social benefit (*msb*) is two times the *mpb*—as suggested

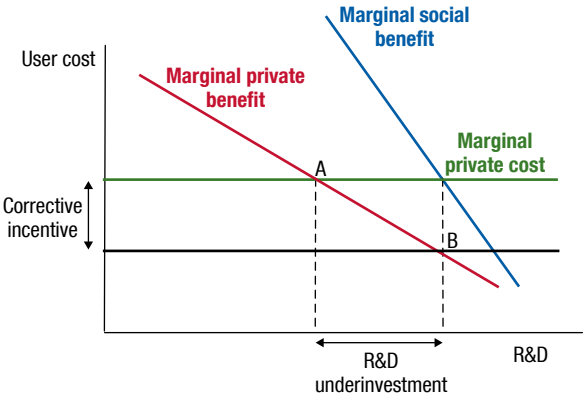
by the empirical literature—and that the externality exhibits the same decreasing returns to scale as the *mpb*. The socially optimal outcome will then be: *mpc* = *msb* = 2 × *mpb,* or ½*u* = *mpb.* Firms should thus continue to conduct R&D until the *mpb* equals half the user cost (point B in Annex Figure 2.2.1). The government can encourage firms to achieve this level of R&D by adopting a corrective fiscal R&D incentive that reduces the user cost by 50 percent.

Effective R&D subsidy rates for 36 countries for 2015 are available in the *OECD Science, Technology and Industry Scoreboard* 2015 (OECD 2015b). These rates are derived from the so-called B-index, which expresses the R&D subsidy as a percentage of the user cost (Jaumotte and Pain 2005). The unweighted average subsidy in the sample is 12 percent. An efficient corrective fiscal incentive (50 percent of the user cost) would therefore, on average, require the subsidy rate to be increased by 38 percent of the user cost. An extensive literature has estimated the sensitivity of private R&D to the user cost and, on average, reports a consensus elasticity in the long term of about –1 (Hall and van Reenen 2000; Parsons and Phillips 2007; Kohler, Laredo, and Rammer 2012; EC 2014). These findings imply that, at current effective subsidy rates, the average underinvestment in R&D is 38 percent.

The B-index is an experimental indicator that requires a number of assumptions. An alternative measure of the effective subsidy is based on government funding of business R&D as a ratio of R&D spending. The unweighted average for 37 countries in 2013 implies an effective subsidy rate of 14 percent and is thus close to the 12 percent derived above. Average government spending on fiscal support to private R&D is 0.15 percent of GDP. Proportionately scaling up the effective subsidy to the efficient level of 50 percent would entail an increase in government support of 0.38 percent of GDP.

The effect on GDP of eliminating the current underinvestment can be explored by using estimates of the domestic GDP elasticity of private R&D. Donselaar and Koopmans (2016) find an average elasticity of 0.135, based on 15 macro studies (which together produce 329 estimates).[16] A simple linear approximation with an average elasticity of 0.13 suggests that eliminating the R&D underinvestment of 38 percent would increase GDP by roughly 5 percent in the long term.

Annex Figure 2.2.1. Underinvestment in Research and Development (R&D) and the Efficient Corrective Incentive



Source: IMF staff.

International R&D spillovers could add to these effects. Coe and Helpman (1995) and Coe, Helpman, and Hoffmaister (1997, 2009) find international spillovers of about 25 percent of the domestic social return to R&D in G7 countries. These additional externalities imply that the efficient corrective fiscal incentive on a global scale is 60 percent.[17] The global R&D underinvestment would then be 48 percent. The global GDP elasticity of R&D would also be 25 percent higher (1.25 × 0.13 ≈ 0.16). Hence, eliminating the R&D underinvestment could increase global GDP by almost 8 percent in the long term.

Of course, these calculations rely on a number of simplifying assumptions—perfect market conditions, decreasing returns to scale to private R&D, externalities that vary proportionately with the private return, and the absence of distortionary taxation. The user cost of R&D is held constant, while researcher wages might rise in light of their inelastic supply (at least in the short term), thus driving up the user cost. The

[16] Studies based on firm-level data find an average output elasticity of a firm's own R&D of 0.08 and a similar average output elasticity of other firms' R&D (Hall, Mairesse, and Mohnen 2010). The sum of the two effects suggests a total output effect that is roughly similar to the consensus estimate based on macro data. The confidence intervals around these mean values are large.

[17] The optimality condition now is *u* = *gmsb* = 1.25 × *msb* = 2.5 × *mpb,* where *gmsb* is the global marginal social benefit. Thus, the optimal private cost is 40 percent of the user cost; the corrective subsidy is 60 percent.

first-order approximations also take no account of possible nonlinearities, such as those with respect to the effectiveness of subsidies or the impact on GDP. The results should therefore be interpreted with caution and are for illustrative purposes only.

Annex 2.3. Taxation and Foreign Direct Investment

This annex assesses the impact of statutory corporate income tax (CIT) rates and institutional quality on foreign direct investment (FDI) by estimating the following equation:

$$\text{Log}(FDI_{ct}) = \alpha \times \log(FDI_{ct-1}) + \beta \times CIT_{ct} + \Sigma\, \gamma\, X_{ct} + X_{ct} \times IQ_{ct} + \mu_c + \eta_t + \varepsilon_{ct}. \quad \text{(A.2.3.1)}$$

FDI_{ct} is FDI in country c and year t; X_{ct} are control variables (level of development, real GDP growth, trade openness), and μ_c and η_t are country and time fixed effects.

FDI inflows are taken from the World Economic Outlook (WEO) database, while statutory CIT rates are taken from the IMF Fiscal Affairs Department tax database for 103 countries between 1990 and 2013. Control variables are obtained from the WEO. An indicator of "institutional quality" is computed as a simple average of six indices from the World Bank World Governance Indicators database: control of corruption, government effectiveness, political stability and absence of violence or terrorism, regulatory quality, rule of law, and voice and accountability.

Equation (A2.3.1) is estimated by both ordinary least squares (OLS) and difference generalized method of moments (GMM). The preferred specification, which includes control variables in columns (7)–(9) of Annex Table 2.3.1 suggests a semielasticity of FDI to the CIT rate of –4.4 in advanced economies, –1.4 in emerging market and middle-income economies, and –2.3 in low-income developing countries. Institutional quality positively affects FDI to emerging market and developing economies. It has an opposite sign for advanced economies, which is unexpected.

Annex 2.4. Taxation and Entrepreneurship

This annex estimates the effects of taxes on business entry rates in an unbalanced panel of 25 European countries for the period 2004–13. The benchmark model estimates the following equation:

$$entry_{ct} = \alpha \times entry_{ct-1} + \beta \times Tax_{ct} + \gamma \times X_{ct} + \theta_c + \mu_t + \varepsilon_{ct}, \quad \text{(A.2.4.1)}$$

in which $entry_{ct}$ is the entry rate of enterprises in country c in year t; Tax_{ct} is a measure of tax (corporate or personal); and θ_c and μ_t are country and year fixed effects.

A second model takes a difference-in-difference specification of the following form:

$$entry_{jct} = \alpha \times entry_{jct-1} + \beta \times FinDep_j \times Tax_{ct} + \gamma \times X_{jct} + \delta_{ct} + \lambda_j + \varepsilon_{jct}, \quad \text{(A.2.4.2)}$$

in which $entry_{jct}$ is the entry rate in sector j in country c in year t, and δ_{ct} and λ_j are country-year and industry dummies. The index $FinDep_j$ is the same as in Annex 2.1 (for this analysis computed for the same sectors for which data on entry rates are available, based on U.S. firms between 2005 and 2015). This index serves primarily for identification. Intuitively, taxes might have larger effects on entry in sectors characterized by higher financial dependence, to the extent that this is a proxy for risk.

Data on entry rates are obtained from Eurostat business demography statistics. The entry rate is defined as the ratio of new enterprises to all active enterprises.[18] The analysis uses the effective average tax rate (EATR) on business income from Oxford University Centre for Business Taxation. Progressivity of the personal income tax (PIT) is captured by the coefficient of residual income progression (CRIP), defined as (1–*marginal tax wedge*)/(1–*average tax wedge*). A higher value indicates a less progressive tax system. Data on tax wedges are obtained from the OECD Tax Database.

Equation (A2.4.1) is estimated using either system generalized method of moments (GMM) or ordinary least squares (OLS). In column (1) of Annex Table 2.4.1, the estimated coefficient of –0.097 implies that an increase in the EATR of 1 percentage point decreases the entry rate by almost 0.1 percentage point. OLS estimates are slightly larger, but significance is reduced. The estimated effects of the average tax wedge (ATW) or CRIP on the entry rate are insignificant. Estimates of equation (A2.4.2) confirm the importance of the EATR. The ATW and the CRIP enter again with a statistically insignificant coefficient. Results are robust for assumptions about clustering of standard errors.

[18] The same regressions as in equations (A2.4.1) and (A2.4.2) were run for business exit rates. Estimated coefficients for the tax variables were insignificant in all specifications. They are not reported here for the sake of brevity.

Annex Table 2.3.1. Impact of Taxes and Institutional Quality on Foreign Direct Investment (FDI)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variable: Log (FDI)	Advanced Economies	Emerging Market and Middle-Income Economies	Low-Income Developing Countries	Advanced Economies	Emerging Market and Middle-Income Economies	Low-Income Developing Countries	Advanced Economies	Emerging Market and Middle-Income Economies	Low-Income Developing Countries
	OLS			GMM			GMM		
Lag of Log(FDI)	0.316***	0.522***	0.505***	0.505***	0.633***	0.603***	0.313***	0.156**	0.588***
	(0.060)	(0.031)	(0.068)	(0.032)	(0.018)	(0.028)	(0.045)	(0.067)	(0.033)
CIT Rate	–0.014**	–0.015***	–0.018**	–0.058***	–0.035***	–0.048***	–0.044***	–0.014**	–0.023***
	(0.006)	(0.003)	(0.009)	(0.008)	(0.004)	(0.007)	(0.014)	(0.006)	(0.008)
Institutional Quality							–0.809*	0.525**	0.463*
							(0.471)	(0.243)	(0.255)
								New	
Level of Development							0.0145	0.022	0.125**
							(0.011)	(0.015)	(0.050)
Real GDP Growth							0.075***	0.020***	0.029***
							(0.016)	(0.007)	(0.007)
Lag of Real GDP Growth							–0.004	0.016**	–0.002
							(0.016)	(0.006)	(0.007)
Trade Openness							0.009*	0.004	0.016***
							(0.005)	(0.004)	(0.003)
Lag of Trade Openness							–0.004	–0.004	–0.005
							(0.005)	(0.003)	(0.003)
Observations	737	1,621	817	679	1,499	720	431	1,015	551
R^2	0.537	0.811	0.789	…	…	…	…	…	…
Sargan Test				0.466	0.442	0.444	0.257	0.118	0.418
AB AR (2)				0.670	0.00830	0.432	0.691	0.475	0.170

Source: IMF staff calculations and estimates.
Note: All columns include year and country dummies. AB AR (2) = Arellano-Bond test for zero autocorrelation in first-differenced errors. The GMM estimator is a difference GMM. Standard errors are in parentheses. CIT = corporate income tax; GMM = generalized method of moments; OLS = ordinary least squares.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Annex Table 2.4.1. Impact of Taxes on Business Entry

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Equation (A2.4.1)						Equation (A2.4.2)		
	GMM			OLS			Difference-in-Difference OLS		
Lag Entry Rate	0.496***	0.404***	0.310**	0.223**	0.883	0.8	0.052***	0.543***	0.543***
	(0.077)	(0.109)	(0.136)	(0.104)	(0.079)	(0.076)	(0.032)	(0.034)	(0.034)
EATR	–0.097***	–0.124**	–0.141**	–0.334*	–0.362*	–0.319**			
	(0.03)	(0.044)	(0.064)	(0.178)	(0.183)	(0.149)			
CRIP		–0.004			–0.019				
		(0.023)			(0.02)				
ATW			0.005			–0.087			
			(0.066)			(0.163)			
ΔEATR × FinDep							–0.016*	–0.015*	–0.011
							(0.008)	(0.008)	(0.008)
ΔCRIP × FinDep								0.004	
								(0.01)	
ΔATW × FinDep									–0.034
									(0.025)
Growth	0.164*	0.133	0.141*	0.236*	0.091	0.085			
	(0.09)	(0.132)	(0.083)	(0.137)	(0.069)	(0.071)			
Observations	121	110	110	121	110	110	15,534	14,079	14,079
R^2				0.206	0.235	0.233	0.509	0.525	0.525
AB AR (2)	0.438	0.136	0.058						
Sargan Test	0.99	0.99	0.99						

Source: IMF staff calculations and estimates.
Note: Columns (1)–(6) include year and country dummies. Columns (7)–(9) include sector and country-year dummies. The GMM estimator is a system GMM. In columns (1)–(3), standard errors are based on the conventionally derived variance estimator for GMM estimation. In columns (4)–(6), standard errors are clustered at the country-year level. Standard errors are in parentheses. AB AR (2) = Arellano-Bond test for zero autocorrelation in first-differenced errors; ATW = average tax wedge; CRIP = coefficient of residual income progression; EATR = effective average tax rate on business income; FinDep = financial dependence by sector; GMM = generalized method of moments; OLS = ordinary least squares.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Box 2.1. The Role of Patents for Innovation

One way to promote innovation is to use intellectual property arrangements, such as patents, copyrights, and trademarks. These arrangements give the holder an exclusive right to exploit a particular intellectual property. Intellectual property differs from other types of property in that it embodies ideas and knowledge created by people, and so is intangible. Creating knowledge often entails a high fixed cost. However, the marginal costs of using this knowledge, once it has been discovered, are often much smaller. The possibility to free ride on creators' efforts could discourage people from producing new knowledge. Intellectual property rights seek to overcome this problem. For example, copyrights protect original expressions of arts and industrial form, while trademarks protect distinguishing phrases, logos, and pictures. Patents provide creators of an innovative product, process, formula, or technique a monopoly on its exploitation for a limited period (usually 20 years). Patents are usually granted only if the creation is truly innovative in the sense of being "new, useful, and nonobvious." In return, the applicant must publicly disclose technical information about the invention.

Between 2004 and 2014, the number of patent applications worldwide grew by 70 percent, from about 1.5 million to almost 2.7 million. More than one-third of the patents in 2014 were recorded in China, followed by the United States (21 percent), Japan (12 percent), and Korea (8 percent). The growth in patents has been especially large in areas such as biotechnology, information technology, medical technology, and pharmaceuticals. Patents have also extended into new areas, such as business processes, software, and financial products.

Although patents provide incentives for innovation, monopoly rights restrict competition and may have other, more subtle, effects on innovation and competition (Table 2.1.1). The challenge for policymakers is to design a patent regime that balances the various benefits and costs. Design parameters include the length of a patent, its scope, conditions on what qualifies as innovation, patent fees, administrative rules and procedures, and organization of the litigation process in case of patent infringement. The desirability of patents should also be compared with alternative policy instruments, such as innovation prizes (if a breakthrough can be defined in advance) or research subsidies and tax incentives.

Empirical analysis of the economic impact of patents is complicated because there is no good way to measure their effects precisely. Studies using quantitative proxies suggest that stronger patent protection does not necessarily lead to more investment in research and development. To be effective, implementation is key: patents should be granted only in cases of true innovation. More restrictive patent systems, for instance, with stronger examination seem superior to weaker ones. This finding is consistent with the evidence on "intellectual property box regimes," which have an effect on innovation only if they are designed well (see Box 2.3). Survey evidence also indicates that patents are more likely to be beneficial for innovation in particular sectors, such as biotechnology, pharmaceuticals, and medical instruments (Hall and Harhoff 2012). Finally, compared with large firms, strengthening patent protection for small firms tends to support innovation more (Galasso and Schankerman 2015). These findings suggest that a differentiated approach to patents across industries and by firm size may be superior to a uniform patent regime.

Given their cross-border implications, patents are often included in bilateral and regional trade agreements. A multilateral agreement that provides minimum standards for patent design and enforcement was concluded under the auspices of the World Trade Organization in 1995. It has led to significant strengthening of patent protection in many countries, including emerging market economies. This greater patent protection has increased inflows of foreign direct investment to these countries.

Table 2.1.1. Benefits and Costs of Patents

	In Terms of Innovation	In Terms of Competition
Benefits	• Provide incentive to invest in research and development • Public disclosure can support follow-on inventions	• Facilitate entry of new firms with limited tangible assets • Facilitate trade in technology (through sale and licensing)
Costs	• Limit diffusion to other firms • Impede combining new ideas that could lead to other (cumulative) inventions	• Reduce competition due to exclusive right • Strategic and defensive patenting restricts entry of new firms and creates high transaction costs

Box 2.2. Fiscal Policy and Green Innovation

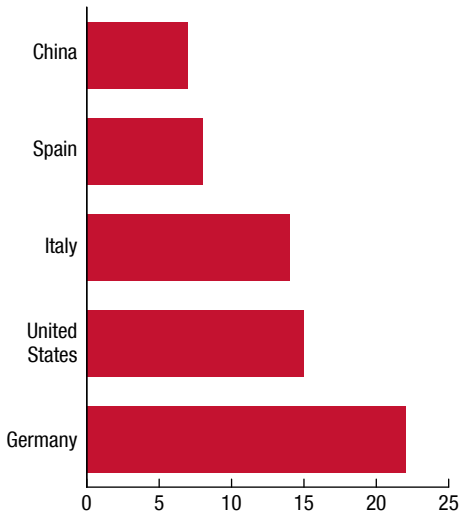
Innovations in green technologies may need policy interventions to correct two distortions. First, firms are not compensated for the overall environmental benefits they generate for society (such as fewer carbon emissions or deaths from local air pollution). Second, firms developing or pioneering the use of green technologies cannot capture spillover benefits to rival firms that can imitate these technologies, use knowledge embedded in them to further their own research, or benefit from "learning-by-doing" experiences with the new technology.

The single most important fiscal policy is to get energy prices right by charging for environmental damage (for example, through carbon taxes). Charging for environmental damage addresses the first distortion and provides across-the-board incentives for green innovation (Farid and others 2016). At present, however, undercharging for environmental costs and undertaxation relative to other consumption are almost universal practice, and effectively implied a global energy subsidy of $5.3 trillion in 2015, or 6.5 percent of GDP (Coady and others 2015). Getting energy prices right would produce much greater welfare gains than subsidizing green technologies in general (Parry, Pizer, and Fischer 2003).

Carefully sequenced application of additional interventions at different stages of the innovation process may also be needed, depending on the extent of technology spillovers. Advanced economies should invest in basic research for technologies that are far from being ready for market, but that may ultimately be critical for a low-carbon transition. Examples include carbon capture and storage, energy storage, smart grids, energy efficiency, and infrastructure for electric vehicles. Moreover, research should explore technologies that could be used in extreme climate scenarios (like expensive filters to suck carbon dioxide out of the atmosphere) or that could deflect solar radiation (by shooting sulfate aerosols into the stratosphere). Annual spending on clean technology research in the United States and the European Union (about $6 billion and €4 billion, respectively) is small relative to other sectors. Analysts have recommended that funding be ramped up—but gradually, as the supply of scientists and engineers is expanded (Newell 2015).

Incentives for applied research and development (R&D) are also needed, for example through patents, technology prizes, and fiscal incentives. Once new technologies are ready for the market, their adoption by households (for example, low-emission cars) and firms (for example, wind energy) is often heavily subsidized (Figure 2.2.1)—even though spillovers at this stage are generally weaker than for basic and applied research. Often, these subsidies take the form of guaranteed consumer prices for renewables. A better way to encourage R&D would be to provide fixed subsidies per unit of renewable energy generated; this approach would allow generation prices to vary with changing economic conditions. Deployment incentives also need to be phased out as technologies mature. Generally, a rebalancing of incentives away from technology deployment toward earlier stages in the innovation process is called for.

Figure 2.2.1. Major Subsidizers of Renewable Electricity, 2013
(Direct and indirect subsidies for renewable electricity, billions of U.S. dollars)



Source: International Energy Agency.

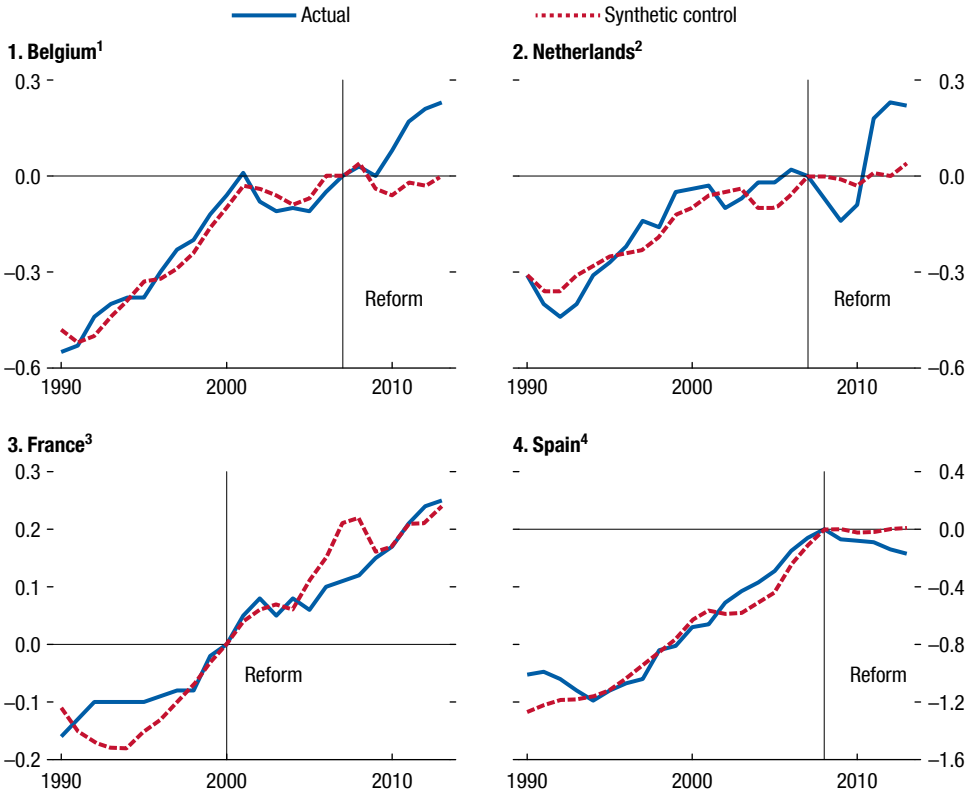
Box 2.3. Does Preferential Tax Treatment of Income from Intellectual Property Promote Innovation?

Intellectual property (IP) box regimes, which generally exempt a significant percentage of royalty and other qualifying IP income from domestic corporate income tax (CIT), have been implemented in 13 European countries. The two common objectives are to encourage innovation and to attract IP income from abroad. Forgone revenue from this tax expenditure can be significant; for example, it amounts to 6 percent of CIT revenue in the Netherlands. Is this money well spent?

Effectiveness. To identify the impact of the introduction of IP box regimes on research and development (R&D) spending in four countries (Belgium, France, Netherlands, Spain), the synthetic control method (SCM) was used.[1] For each country, a synthetic counterfactual control group was generated from 12 countries that had no IP box (Denmark, Finland, Germany, Iceland, Ireland, Italy, Japan, Norway, Portugal, Sweden, United Kingdom, United States) to mimic private R&D spending before the introduction of the IP box. The SCM measures the impact of the IP box on R&D spending after it was introduced. Sensitivity analysis was conducted to confirm the robustness of the findings (not reported here for the sake of brevity). A positive effect was found for Belgium and the Netherlands (Figure 2.3.1), where R&D spending in 2013 (six years after the introduction of the IP box) was about 20 percent higher than in the synthetic control

[1] Private R&D data come from Eurostat. Data on control variables (GDP per capita, population, and foreign direct investment) come from the Organisation for Economic Co-operation and Development (OECD). The United Kingdom, Italy, and Ireland introduced an IP box after the sample period (1980–2013). The SCM (and its limitations) are described in detail in IMF (2015).

Figure 2.3.1. Synthetic Control Estimation Results: Intellectual Property Box Regimes and Private Research and Development
(Log of real research and development spending)



Source: IMF staff estimates.
[1] Synthetic control group: United Kingdom (48 percent), Sweden (51 percent), Ireland (1 percent).
[2] Synthetic control group: United Kingdom (58 percent), Norway (36 percent), Sweden (6 percent).
[3] Synthetic control group: United Kingdom (43 percent), Japan (35 percent), Italy (10 percent), Norway (8 percent), seven other countries (4 percent).
[4] Synthetic control group: United States (43 percent), Portugal (34 percent), United Kingdom (8 percent), Ireland (15 percent).

Box 2.3 *(continued)*

group. By contrast, no positive effects were found for France and Spain.[2] This mixed evidence may be explained by differences in the design of the IP box regimes. For instance, Belgium and the Netherlands have larger reductions in the effective tax burden on IP income, and they also apply conditions with respect to self-developed IP through R&D. Clearly, design matters.[3]

Efficiency. Are IP box regimes an efficient way to encourage R&D? That is, do they achieve this at a lower cost compared with other fiscal instruments (such as R&D tax credits)? They might not for at least three reasons. First, the IP box can discriminate against innovations that are not protected by IP rights. In the absence of such protection, these innovations might actually be expected to yield larger knowledge spillovers to other firms; from that perspective, they should enjoy more (not less) fiscal support. Second, IP boxes might induce firms to apply for IP rights, even if business considerations would not, thus creating inefficiencies. Third, an IP box regime provides tax relief proportional to the amount of qualifying IP income, regardless of the level of R&D expenditure. In contrast, R&D tax credits are directly proportional to R&D expenditures. An R&D tax credit might therefore be expected to provide a larger increase in R&D per dollar of forgone tax revenue.

Spillovers. The popularity of IP box regimes might be better explained by their second policy objective: attracting foreign IP income or preventing domestic IP income from moving abroad. A review of the key design features of IP box regimes indicates that this seems to be the case (Evers, Miller, and Spengel 2015). For instance, relief is often given to income that bears little relationship to new domestic R&D, such as income from IP that predates the regime, acquired IP (rather than self-developed IP), IP created by foreign R&D service providers, and IP from trademarks (marketing intangibles). Of course, the IP box may be an effective way to expand the tax base of an individual country. However, the relocation of IP income generates adverse impacts on the tax bases of other countries and induces strategic tax competition that drives effective tax burdens on IP income down to very low levels. Whether this is good or bad is the subject of debate. For instance, this form of tax competition may undermine the ability of countries to tax income and could thus lead to shortfalls in tax revenues. However, one might argue that aggressive tax competition for the most mobile part of the tax base is less harmful than tax competition that would otherwise arise with the generally applied CIT rate for both mobile and immobile income (Keen 2002).

[2] In 2013, Spain reformed its patent box.

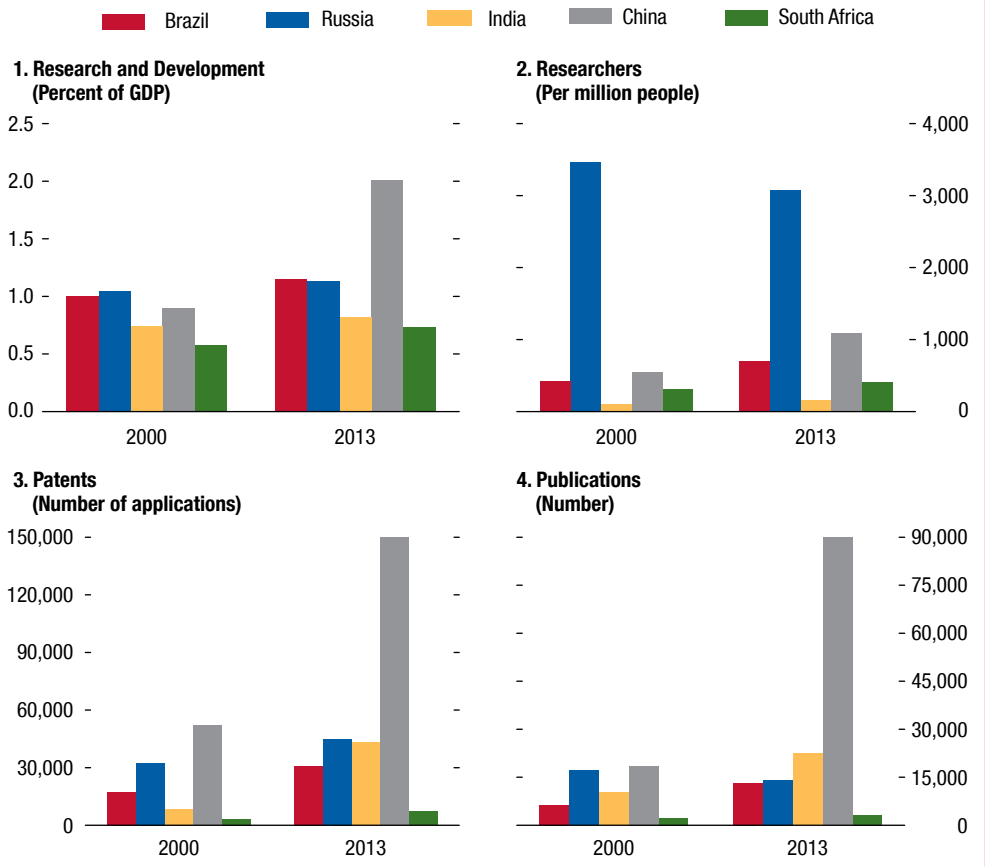
[3] OECD and Group of 20 countries have—as part of the action plan against base erosion and profit shifting—recently agreed on a minimum requirement for substantial innovative activities to become eligible for these tax preferences (OECD 2015a). This requirement might improve the impact of IP box regimes on R&D.

Box 2.4. Innovation in Brazil, Russia, India, China, and South Africa

During the past decade, indicators of innovation have improved markedly for Brazil, Russia, India, China, and South Africa (BRICS) (Figure 2.4.1). Investment in education and research has strengthened the knowledge bases of these countries. Thanks to their endowment of well-trained but low-cost scientists and engineers, Brazil, China, and India are currently considered among the top 10 destinations for multinational companies to expand their foreign research and development (R&D) activities (Santos-Paulino, Squicciarini, and Fan 2014). Since the mid-1990s, all BRICS have significantly strengthened their patent protection; as a result, inflows of foreign direct investment (FDI) have increased substantially (Park and Lippoldt 2008). This increase in FDI has been particularly beneficial for technology transfers in specific sectors in each country, such as aircraft technology in Brazil; chemicals, pharmaceuticals, and electronics in Russia; software technology in India; and telecommunications, medicine, and aerospace in China.

Although the BRICS are often treated as a group, there are striking differences among them. For example, China now spends more than 2 percent of GDP on R&D and ranked first in the world with respect to the number of patent applications in 2013. Important challenges for China remain, however, for instance, with respect to the enforcement of intellectual property rights, the diffusion of technologies outside of high-tech parks, and the need for a more level playing field between state-owned enterprises and other firms. In the other BRICS, R&D spending is about 1 percent of GDP or less, and is mainly concentrated in the public sector. The main challenge for these countries is to promote private R&D. For instance, Brazil and South Africa could improve small firms' access to their R&D tax incentive schemes. In India and Russia, financing opportunities for innovative entrepreneurs are often lacking (a new program for financing start-up firms in India was just launched in January 2016). South Africa could improve its higher education system, and Russia its legal enforcement of intellectual property rights.

Figure 2.4.1. Quantitative Indicators of Innovation in BRICS, 2000 and 2013



Source: World Bank, *World Development Indicators*.
Note: BRICS = Brazil, Russia, India, China, and South Africa.

Box 2.5. Programs for Young Innovators and Start-Ups

To promote entrepreneurship, several countries have special programs in place for innovative start-ups. To be effective, these programs require both adequate design and good implementation. This box describes two successful initiatives.

Start-Up Chile, launched in 2010, aims to attract early-phase, high-potential entrepreneurs, regardless of nationality. The program offers a 24-week training program in which selected entrepreneurs with start-ups less than two years old receive Ch$20 million (about US$28,000) in grants as seed capital. The program had attracted more than 1,000 start-ups through 2015. In that year, the government launched a new program to support high-potential start-ups that need additional capital to grow, either within Chile or throughout Latin America. It offers up to Ch$60 million (about US$85,000) of additional capital through a cofinanced grant, under which recipients must match at least 30 percent of the investment. To support female entrepreneurs, S Factory has been introduced as a pre-accelerator designed to "turn innovative ideas into scalable businesses." Selected entrepreneurs receive Ch$10 million (about US$14,000) in grants and 12 weeks of mentorship and training, after which they may apply to Start-Up Chile. Start-Up Chile has been replicated in more than 16 countries across Africa, Asia, Europe, and North and South America. (Start-Up Chile 2015).

Young Innovative Companies in France was established in 2004 to encourage the creation of small firms engaged in research and development (R&D). The tax incentives include reduced corporate and local taxes and social security contributions. To qualify, firms must be less than eight years old and legally independent, and must meet certain size criteria. R&D expenditure must be at least 15 percent of tax-deductible expenses in a given year, with qualifying R&D requiring a "new to the world" element. Most of the participating firms have fewer than 10 employees, and more than half operate with losses, reflecting the start-up nature of the businesses. In 2013, 3,000 enterprises benefited from the scheme—more than twice as many as when the program started. R&D expenditure was €700 million. The scheme had an estimated fiscal cost of €110 million in 2012. Firms participating in the program had an 8 percent higher employment growth rate, higher survival rates, and generally paid higher wages than nonparticipants (Hallépée and Garcia 2012; EC 2014).

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COUNTRY ABBREVIATIONS

Code	Country name
AFG	Afghanistan
AGO	Angola
ALB	Albania
ARE	United Arab Emirates
ARG	Argentina
ARM	Armenia
ATG	Antigua and Barbuda
AUS	Australia
AUT	Austria
AZE	Azerbaijan
BDI	Burundi
BEL	Belgium
BEN	Benin
BFA	Burkina Faso
BGD	Bangladesh
BGR	Bulgaria
BHR	Bahrain
BHS	Bahamas, The
BIH	Bosnia and Herzegovina
BLR	Belarus
BLZ	Belize
BOL	Bolivia
BRA	Brazil
BRB	Barbados
BRN	Brunei Darussalam
BTN	Bhutan
BWA	Botswana
CAF	Central African Republic
CAN	Canada
CHE	Switzerland
CHL	Chile
CHN	China
CIV	Côte d'Ivoire
CMR	Cameroon
COD	Congo, Democratic Republic of the
COG	Congo, Republic of
COL	Colombia
COM	Comoros
CPV	Cabo Verde
CRI	Costa Rica
CYP	Cyprus
CZE	Czech Republic
DEU	Germany
DJI	Djibouti
DMA	Dominica
DNK	Denmark

Code	Country name
DOM	Dominican Republic
DZA	Algeria
ECU	Ecuador
EGY	Egypt
ERI	Eritrea
ESP	Spain
EST	Estonia
ETH	Ethiopia
FIN	Finland
FJI	Fiji
FRA	France
FSM	Micronesia, Federated States of
GAB	Gabon
GBR	United Kingdom
GEO	Georgia
GHA	Ghana
GIN	Guinea
GMB	Gambia, The
GNB	Guinea-Bissau
GNQ	Equatorial Guinea
GRC	Greece
GRD	Grenada
GTM	Guatemala
GUY	Guyana
HKG	Hong Kong SAR
HND	Honduras
HRV	Croatia
HTI	Haiti
HUN	Hungary
IDN	Indonesia
IND	India
IRL	Ireland
IRN	Iran
IRQ	Iraq
ISL	Iceland
ISR	Israel
ITA	Italy
JAM	Jamaica
JOR	Jordan
JPN	Japan
KAZ	Kazakhstan
KEN	Kenya
KGZ	Kyrgyz Republic
KHM	Cambodia
KIR	Kiribati
KNA	St. Kitts and Nevis

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

GLOSSARY

Cyclical balance Cyclical component of the overall fiscal balance, computed as the difference between cyclical revenues and cyclical expenditures. The latter are typically computed using country-specific elasticities of aggregate revenue and expenditure series with respect to the output gap. Where unavailable, standard elasticities (0,1) are assumed for expenditure and revenue, respectively.

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.

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

Fiscal space Extent to which a government can generate and allocate resources for a given purpose without prejudicing liquidity or long-term public debt sustainability.

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

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 quasi-corporations.

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.)

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.

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).

Public debt See *gross debt*.

Public sector The general government sector plus government-controlled entities, known as public corporations, whose primary activity is to engage in commercial activities.

Structural fiscal balance Difference between the cyclically adjusted balance and 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).

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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 2016–17 and the medium-term scenario for 2018–21. 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 March 28, 2016.

Data and Conventions

Country-specific data and projections for key fiscal variables are based on the April 2016 World Economic Outlook 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 World Economic Outlook 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 the membership has increased over time. Data for most European Union member countries have been revised following the adoption of the new European System of National and Regional Accounts (ESA 2010). The low-income developing countries are those designated eligible for the Poverty Reduction and Growth Trust (PRGT) in the 2013 PRGT-eligible review and whose per capita gross national income was less than the PRGT income graduation threshold for "non-small" states—that is, twice the operational threshold of the International Development Association, or $2,390 in 2011, as measured by the World Bank's Atlas method. Zimbabwe is included in the group. Emerging market and middle-income economies include those not classified as advanced economies or low-income developing countries. See Table A "Economy Groupings" for more details.

All fiscal data refer to the general government, where available, and to calendar years, except for Bangladesh, Egypt, Haiti, Hong Kong SAR, India, Iran, Lao P.D.R., 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 U.S. 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 20 (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.

As used in the *Fiscal Monitor*, 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 whose statistical data are maintained on a separate and independent basis.

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 CPI data, see the "Country Notes" section in the Statistical Appendix of the April 2016 *World Economic Outlook*.

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 SAR, 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 (GG) 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 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 GG excludes interest receipts; total expenditure of the GG 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 GG 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 57.2 percent of GDP at the end of 2014.

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 SAR, 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—ranging from 14 percent to 19 percent, according to the National Audit Office estimate—of government-guaranteed debt and liabilities the government may incur. IMF staff estimates exclude central government debt issued for the China Railway Corporation. Relative to the authorities' definition, the 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. The 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 SAR: 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: The general government balances between 2010 and 2016 reflect the impact of banking sector support and other one-off measures. The fiscal balance estimates excluding these measures are –10.9 percent of GDP for 2010; –8.5 percent of GDP for 2011; –8.0 percent of GDP for 2012; –6.0 percent of GDP for 2013; –4.0 percent of GDP for 2014;

–1.7 percent of GDP for 2015; and –0.4 percent of GDP for 2016. Cyclically adjusted balances reported in Tables A3 and A4 exclude financial sector support and other one-off measures and correct for real output, equity, house prices, and unemployment cycles.

Japan: Gross debt is equal to total unconsolidated financial liabilities for the general government. Net debt is calculated by subtracting financial assets from financial liabilities for the general government.

Lao P.D.R.: Data are on a fiscal year 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 0.04 percent of GDP for 2010; 0.5 percent of GDP for 2011; 3.7 percent of GDP for 2012; 0.5 percent of GDP for 2013; and 0.1 percent of GDP for 2014.

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 zero 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 U.S. 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 SAR) 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.

Fiscal Policy Assumptions

Historical data and projections of key fiscal aggregates are in line with those of the April 2016 *World Economic Outlook*, unless noted otherwise. For underlying assumptions other than on fiscal policy, see the April 2016 *World Economic Outlook*.

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 for the federal government, fiscal measures announced by the

authorities, budget plans for provinces, and IMF staff macroeconomic projections.

Australia: projections are based on Australian Bureau of Statistics data, 2015–16 budget documents, Mid-Year Economic and Fiscal Outlooks, and IMF staff estimates.

Austria: For 2014, the creation of a defeasance structure for Hypo Alpe Adria is assumed to have increased the general government debt-to-GDP ratio by 4.3 percentage points, and the deficit effect arising from Hypo is assumed to be 1.4 percentage points.

Belgium: Projections reflect the IMF staff's assessment of policies and measures laid out in the 2016 budget and 2015–18 stability program, incorporated into the IMF staff's macroeconomic framework.

Brazil: For 2015, outturn estimates are based on information published by the Brazilian Treasury on January 31, 2016. Projections for 2016 take into account budget performance until end 2015 and the budget approved by Congress on December 17, 2015.

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

Canada: Projections use the baseline forecasts in the Update of Economic and Fiscal Projections (November 2015), Backgrounder Canadian Economic Outlook (February 2016), 2015 provincial budget updates, and 2016 provincial budgets as available. The IMF staff makes some adjustments to this forecast for differences in macroeconomic projections. The IMF staff 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 end of 2016.

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

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

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

Cyprus: Projections are on a cash basis based on the latest information on the budget, fiscal measures, and the IMF staff's macroeconomic assumptions.

Czech Republic: Projections are based on the authorities' budget forecast for 2015–16 with adjustments for macroeconomic projections of the IMF staff. Projections for 2017 onward are based on the country's EU Convergence program.

Denmark: Projections for 2014–15 are aligned with the latest official budget estimates and the underlying economic projections, adjusted where appropriate for the IMF staff's macroeconomic assumptions. For 2016–20, the projections incorporate key features of the medium-term fiscal plan as embodied in the authorities' 2014 Convergence Program submitted to the EU.

Egypt: The fiscal projections are mainly based on budget sector operations (with trends of main variables discussed with the Ministry of Finance during the November 2014 consultation).

Estonia: The forecast, which is cash based, not accrual based, incorporates the authorities' 2014 budget, adjusted for newly available information and for the IMF staff's macroeconomic scenario.

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

France: Projections for 2016 reflect the budget law. For 2017–18, they are based on the multiyear budget and the April 2015 Stability Program, adjusted for differences in assumptions on macro and financial variables, and revenue projections. Historical fiscal data reflect the May 2015 revision and update of the fiscal accounts and national accounts.

Germany: IMF staff's projections for 2016 and beyond reflect the authorities' adopted core federal government budget plan, the 2015 German Stability Programme and subsequent government announcements, adjusted for differences in the IMF staff's macroeconomic framework. 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: For 2015, data reflect the IMF staff's preliminary estimates of the fiscal outturn, which are subject to revision, given high uncertainty regarding potentially significant accrual adjustments. Fiscal projections are not available at this time, given ongoing negotiations with the authorities and European partners on the fiscal targets and underlying fiscal measures that could be included in a potential new adjustment program.

Hong Kong SAR: Projections are based on the authorities' medium-term fiscal projections.

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 2016 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 Budget 2016. The fiscal projections are adjusted for differences between the IMF staff's macroeconomic projections and those of the Irish authorities.

Israel: Historical data are based on Government Finance Statistics submitted by the Central Bureau of Statistics.

Italy: IMF staff estimates and projections are based on the fiscal plans included in the government's 2016 budget. Estimates of the cyclically adjusted balance include the expenditure to clear capital arrears in 2013, which are excluded from the structural balance. After 2016, the IMF staff projects convergence to a structural balance in line with Italy's fiscal rule, which implies corrective measures in some years, as yet unidentified.

Japan: The projections include fiscal measures already announced by the government, including the consumption tax increase with a reduced rate in April 2017, earthquake reconstruction spending, and stimulus packages.

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

Korea: The medium-term forecast incorporates the government's announced medium-term consolidation path.

Malaysia: Fiscal year 2015 is based on actual outturn. Fiscal year 2016 is based on the IMF staff's projections taking into account the current budget.

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

Mexico: Fiscal projections for 2016 are broadly in line with the approved budget; projections for 2017 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 2016–21 are based on the authorities' Bureau for Economic Policy Analysis budget projections, after adjustments for differences in macroeconomic assumptions. Historical data were revised following the June 2014 release of revised macro data by the Central Bureau of Statistics because of the adoption of the European System.

New Zealand: Fiscal projections are based on the authorities' 2015–16 budget documents, the Half Year Economic and Fiscal Update, and IMF staff estimates.

Norway: Fiscal projections are based on the authorities' 2015 revised budget and 2016 budget proposal submitted to the parliament. Structural and cyclically adjusted balances are based on the non-oil balance.

Philippines: Fiscal projections assume that the authorities' fiscal deficit target will be achieved in 2016 and beyond. Revenue projections reflect the IMF staff's macroeconomic assumptions and incorporate anticipated improvements in tax administration. Expenditure projections are based on budgeted figures, institutional arrangements, current data, and fiscal space in each year.

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

Portugal: The estimate for 2015 reflects full-year budget execution data on a cash basis and the January–September 2015 outturn on the national accounts basis; the projection for 2016 reflects the authorities' draft budget and the IMF staff's macroeconomic

forecast. Projections thereafter are based on the assumption of unchanged policies.

Romania: The 2016 fiscal projections reflect the legislated budget as of December 2015. The 2017 fiscal projections reflect planned changes to the fiscal code as of end-2015. The projections for the years beyond 2017 assume no additional policy changes.

Russia: Projections for 2016–18 are IMF staff estimates. Projections for 2019–21 are based on an oil-price-based fiscal rule introduced in December 2012, with adjustments by the IMF staff.

Saudi Arabia: IMF staff projections of oil revenues are based on *World Economic Outlook* baseline oil prices. On the expenditure side, wage bill estimates incorporate 13th-month pay awards every three years in accordance with the lunar calendar. Expenditure projections take the 2016 budget as a starting point and assume that, to adjust to lower oil prices, capital spending continues to fall as a percentage of GDP over the medium term.

Singapore: For fiscal years 2014/15 and 2015/16, projections are based on budget numbers. For the remainder of the 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 2015 and beyond, fiscal estimates and projections are based on measures specified in the Stability Programme Update 2015–18, and recently approved measures, included in the 2016 budget approved in October 2015, and the 2015 budget approved in December 2014.

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 Budget Bill for 2016. The impact of cyclical developments on the fiscal accounts is calculated using the 2005 Organisation for Economic Co-operation and Development's 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 Switzerland's fiscal rules.

Thailand: For the projection period, the IMF staff assumes an implementation rate of 50 percent for the planned infrastructure investment programs.

Turkey: Fiscal projections assume that both current and capital spending will be in line with the authorities' 2014–16 Medium-Term Program based on current trends and policies.

United Kingdom: Fiscal projections are based on the U.K.'s 2016 Budget, published in March 2016. However, on the revenue side, the authorities' projections are adjusted for differences between the IMF staff's forecasts of macroeconomic variables (such as GDP growth) and the forecasts of these variables assumed in the authorities' fiscal projections. The IMF staff 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 U.K. Office for Budget Responsibility.

United States: Fiscal projections are based on the January 2016 Congressional Budget Office baseline adjusted for the IMF staff's policy and macroeconomic assumptions. The baseline incorporates key provisions of the Bipartisan Budget Act of 2015, including a partial rollback of the sequester spending cuts in fiscal year 2016. In fiscal years 2017 through 2021, the IMF staff assumes that the sequester cuts will continue to be partially replaced, in portions similar to those agreed upon under the Bipartisan Budget Act for fiscal years 2014 and 2015, with back-loaded measures generating savings in mandatory programs and additional revenues. Projections also incorporate the Protecting Americans From Tax Hikes Act of 2015, which extended some existing tax cuts for the short term and some permanently. Finally, fiscal projections are adjusted to reflect the IMF staff's forecasts of key macroeconomic and financial variables and different accounting treatment of financial sector support and of defined benefit pension plans and are converted to a general government basis. Historical data start at 2001 for most series because data compiled according to GFSM 2001 may not be available for earlier years.

Venezuela: Projecting the economic outlook in Venezuela is complicated by the lack of any Article IV consultation since 2004 and delays in the publication of key economic data.

Vietnam: Expenditure for 2015 is based on the authorities' budget; 2015 projections for oil revenues

are based on *World Economic Outlook* assumptions for oil and gas prices. For projections from 2016 onward, the IMF staff use the information and measures in the team's macroframework assumptions.

Yemen: Hydrocarbon revenue projections are based on *World Economic Outlook* assumptions for oil and gas prices (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 economies 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	Bolivia	Germany	Brazil	France	China
Canada	Azerbaijan	Burkina Faso	Italy	Canada	Germany	India
Cyprus	Belarus	Cambodia	Japan	China	Italy	Indonesia
Czech Republic	Brazil	Cameroon	United Kingdom	France	Japan	Mexico
Denmark	Chile	Chad	United States	Germany	Korea	Russia
Estonia	China	Democratic Republic of the Congo		India	United Kingdom	Saudi Arabia
Finland	Colombia	Republic of Congo		Indonesia	United States	South Africa
France	Croatia	Côte d'Ivoire		Italy		Turkey
Germany	Dominican Republic	Ethiopia		Japan		
Greece	Ecuador	Ghana		Korea		
Hong Kong SAR	Egypt	Guinea		Mexico		
Iceland	Hungary	Haiti		Russia		
Ireland	India	Honduras		Saudi Arabia		
Israel	Indonesia	Kenya		South Africa		
Italy	Iran	Kyrgyz Republic		Turkey		
Japan	Kazakhstan	Lao P.D.R.		United Kingdom		
Korea	Kuwait	Madagascar		United States		
Latvia	Libya	Mali				
Lithuania	Malaysia	Moldova				
Luxembourg	Mexico	Mongolia				
Malta	Morocco	Mozambique				
Netherlands	Oman	Myanmar				
New Zealand	Pakistan	Nepal				
Norway	Peru	Nicaragua				
Portugal	Philippines	Niger				
Singapore	Poland	Nigeria				
Slovak Republic	Qatar	Papua New Guinea				
Slovenia	Romania	Rwanda				
Spain	Russia	Senegal				
Sweden	Saudi Arabia	Sudan				
Switzerland	South Africa	Tajikistan				
United Kingdom	Sri Lanka	Tanzania				
United States	Thailand	Uganda				
	Turkey	Uzbekistan				
	Ukraine	Vietnam				
	United Arab Emirates	Yemen				
	Uruguay	Zambia				
	Venezuela	Zimbabwe				

Note: Emerging market and developing economies include emerging market and middle-income economies as well as low-income developing countries.
[1] Does not include European Union aggregate.

Table A. Economy Groupings *(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	Bolivia	Benin	Kyrgyz Republic	Cameroon	Algeria
Cambodia	Haiti	Burkina Faso	Moldova	Republic of Congo	Angola
Lao P.D.R.	Honduras	Cameroon	Sudan	Côte d'Ivoire	Azerbaijan
Mongolia	Nicaragua	Chad	Tajikistan	Nigeria	Bahrain
Myanmar		Democratic Republic of the Congo	Uzbekistan	Papua New Guinea	Brunei Darussalam
Nepal		Republic of Congo	Yemen	Yemen	Cameroon
Papua New Guinea		Côte d'Ivoire			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		Accounting Practice
	Aggregate	Subsectors		Aggregate	Subsectors		Aggregate	Subsectors	
Australia	GG	CG, LG, SG, TG	A	GG	CG, LG, SG, TG	A	GG	CG, LG, SG, TG	A
Austria	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
Belgium	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
Canada	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
Cyprus[2]	GG	CG, LG, SS	C	. . .	. . .	. . .	GG	CG, LG, SS	C
Czech Republic	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Denmark	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Estonia	GG	CG, LG, SS	C	. . .	. . .	. . .	GG	CG, LG, SS	C
Finland	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
France	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Germany	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
Greece	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Hong Kong SAR	CG	CG	C	CG	CG	C	CG	CG	C
Iceland	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Ireland	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Israel	GG	CG, SS, LG	A	GG	CG, SS, LG	A	GG	CG, SS, LG	A
Italy	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Japan	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Korea	CG	CG	C	CG	CG	C	GG	CG, LG	C
Latvia	GG	CG, LG, SS, NFPC	C	GG	CG, LG, SS, NFPC	C	GG	CG, LG, SS, NFPC	C
Lithuania	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Luxembourg	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Malta	GG	CG, SS	A	GG	CG, SS	A	GG	CG, SS	A
Netherlands	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
New Zealand	CG	CG	A	CG	CG	A	CG	CG	A
Norway	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Portugal	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Singapore	CG	CG	C	CG	CG	C	CG	CG	C
Slovak Republic	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Slovenia	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C
Spain	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
Sweden	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Switzerland	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
United Kingdom	GG	CG, LG	A	GG	CG, LG	A	GG	CG, LG	A
United States	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A

Note: Coverage: BCG = budgetary central government; CG = central government; EA = extrabudgetary units; FC = financial public corporations; GG = general government; LG = local governments; NFPC = nonfinancial public corporations; NFPS = nonfinancial public sector; PS = public sector; SG = state governments; SS = social security funds; TG = territory governments. Accounting standard: A = accrual; C = cash.

[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] Historical data until 2012 are reported on an accrual basis as general government cash data were 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		Accounting Practice
	Aggregate	Subsectors		Aggregate	Subsectors		Aggregate	Subsectors	
Algeria	CG	CG	C	. . .	. . .	. . .	CG	CG	C
Angola	GG	CG, LG	Other	. . .	. . .	. . .	GG	CG, LG	Other
Argentina	GG	CG, SG, LG, SS	C	CG	CG	C	CG	CG	C
Azerbaijan	CG	CG	C	. . .	. . .	. . .	CG	CG	C
Belarus[2]	GG	CG, LG, SS	C	. . .	. . .	. . .	GG	CG, LG, SS	C
Brazil[3]	NFPS	CG, SG, LG, SS, MPC, NFPC	C	NFPS	CG, SG, LG, SS, MPC, NFPC	C	NFPS	CG, SG, LG, SS, MPC, NFPC	C
Chile	GG	CG, LG	A	CG	CG, LG	A	GG	CG, LG	A
China	GG	CG, LG	C	GG	CG, LG	C	GG	CG, LG	C
Colombia[4]	PS	CG, SG, LG, NFPC	C/A	PS	CG, SG, LG, NFPC	C/A	PS	CG, SG, LG, NFPC	C/A
Croatia	GG	CG, LG	C	GG	CG, LG	C	GG	CG, LG	C
Dominican Republic	GG	CG, SG, LG, SS	C/A	GG	CG, SG, LG, SS	C/A	GG	CG, SG, LG, SS	C/A
Ecuador	NFPS	CG, LG, SS, NFPC	C	NFPS	CG, LG, SS, NFPC	C	NFPS	CG, LG, SS, NFPC	C
Egypt	CG	CG, LG, SS, MPC	C	GG	CG, LG, SS, MPC	C	GG	CG, LG, SS, MPC	C
Hungary	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
India	GG	CG, SG	A	GG	CG, SG	A	GG	CG, SG	A
Indonesia	GG	CG, LG	C	GG	CG, LG	C	GG	CG, LG	C
Iran	CG	CG	C	. . .	. . .	. . .	CG	CG	C
Kazakhstan	GG	CG, LG	A	. . .	. . .	. . .	GG	CG, LG	A
Kuwait	CG	CG	C/A	. . .	. . .	. . .	CG	CG	C/A
Libya	GG	CG, SG, LG	C	. . .	. . .	. . .	GG	CG, SG, LG	C
Malaysia	GG	CG, SG, LG	C	GG	CG	C	GG	CG, SG, LG	C
Mexico	PS	CG, SS, NFPC	C	CG	CG	C	PS	CG, SS, NFPC	C
Morocco	CG	CG	A	. . .	. . .	. . .	CG	CG	A
Oman	CG	CG	C	. . .	. . .	. . .	CG	CG	C
Pakistan	GG	CG, LG, SG	C	. . .	. . .	. . .	GG	CG, LG, SG	C
Peru	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C
Philippines	GG	CG, LG, SS	C	CG	CG	C	GG	CG, LG, SS	C
Poland	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Qatar	CG	CG	C	. . .	. . .	. . .	CG	CG	C
Romania	GG	CG, LG, SS	C	GG	CG, LG, SS	C	GG	CG, LG, SS	C
Russia	GG	CG, SG, SS	C/A	GG	CG, SG, SS	C/A	GG	CG, SG, SS	C/A
Saudi Arabia	GG	CG	C	. . .	. . .	. . .	GG	CG	C
South Africa	GG	CG, SG, SS	C	GG	CG, SG, SS	C	GG	CG, SG, SS	C
Sri Lanka	GG	CG, SG, LG, SS	C	. . .	. . .	. . .	GG	CG, SG, LG, SS	C
Thailand[5]	GG	CG, LG, SS	A	GG	CG, LG, SS	A	PS	CG, SS, NFPC, NMPC	A
Turkey	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Ukraine	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C
United Arab Emirates[6]	GG	CG, BCG, SG, SS	C	. . .	. . .	. . .	GG	CG, BCG, SG, SS	C
Uruguay	PS	CG, LG, SS, MPC, NFPC	A	. . .	. . .	. . .	PS	CG, LG, SS, MPC, NFPC	A
Venezuela	GG	CG, LG, SS, NFPC	C	GG	CG, LG, SS, NFPC	C	GG	CG, LG, SS, NFPC	C

Note: Coverage: BCG = budgetary central government; CG = central government; EA = extrabudgetary units; FPC = financial public corporations; GG = general government; LG = local governments; MPC = monetary public corporations, including central bank; 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: A = accrual; C = cash.

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

[3] 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.

[4] Revenue is recorded on a cash basis and expenditure on an accrual basis.

[5] Data for Thailand do not include debt of Specialized Financial Institutions (SFIs and NMPC) without government guarantee.

[6] Gross debt covers banking system claims only.

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		Accounting Practice
	Aggregate	Subsectors		Aggregate	Subsectors		Aggregate	Subsectors	
Bangladesh	CG	CG	C	CG	CG	C	CG	CG	C
Benin	CG	CG	C	. . .	. . .	. . .	CG	CG	C
Bolivia	NFPS	CG, LG, SS, MPC, NMPC, NFPC	C	NFPS	CG, LG, SS, MPC, NMPC, NFPC	C	NFPS	CG, LG, SS, MPC, NMPC, NFPC	C
Burkina Faso	CG	CG	C	. . .	. . .	. . .	CG	CG	C
Cambodia	GG	CG, LG	C	GG	CG, LG	C	GG	CG, LG	C
Cameroon	NFPS	CG, NFPC	C	. . .	. . .	. . .	NFPS	CG, NFPC	C
Chad	NFPS	CG, NFPC	C	. . .	. . .	. . .	NFPS	CG, NFPC	C
Democratic Republic of the Congo	GG	CG, LG	A	. . .	. . .	. . .	GG	CG, LG	A
Republic of Congo	CG	CG	NC	. . .	. . .	. . .	CG	CG	NC
Côte d'Ivoire	CG	CG	A	. . .	. . .	. . .	CG	CG	A
Ethiopia	CG	CG, SG, LG, NFPC	C	. . .	. . .	. . .	CG	CG, SG, LG, NFPC	C
Ghana	CG	CG, LG	C	. . .	. . .	. . .	CG	CG, LG	C
Guinea	CG	CG	Other	. . .	. . .	. . .	CG	CG	Other
Haiti	CG	CG	C	CG	CG	C	CG	CG	C
Honduras	CPS	CG, LG, SS, NFPC	A	CPS	CG, LG, SS, NFPC	A	CPS	CG, LG, SS, NFPC	A
Kenya	CG	CG	A	. . .	. . .	. . .	CG	CG	A
Kyrgyz Republic	GG	CG, LG, SS	C	. . .	. . .	. . .	GG	CG, LG, SS	C
Lao P.D.R.[2]	CG	CG	C	CG	CG	C	CG	CG	C
Madagascar	CG	CG, LG	C	. . .	. . .	. . .	CG	CG	C
Mali	CG	CG	C/A	. . .	. . .	. . .	CG	CG	C/A
Moldova	GG	CG, LG, SS	C	GG	CG, LG, SS	C	GG	CG, LG, SS	C
Mongolia[3]	GG	CG, LG, SS	C	. . .	. . .	. . .	GG	CG, LG, SS	C
Mozambique	CG	CG	C	CG	CG	C	CG	CG	C
Myanmar[4]	NFPS	CG, NFPC	C	. . .	. . .	. . .	NFPS	CG, NFPC	C
Nepal	CG	CG	C	CG	CG	C	CG	CG	C
Nicaragua	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C
Niger	CG	CG	A	. . .	. . .	. . .	CG	CG	A
Nigeria	GG	CG, SG, LG, NFPC	C	. . .	. . .	. . .	GG	CG, SG, LG, NFPC	C
Papua New Guinea	CG	CG	C	. . .	. . .	. . .	CG	CG	C
Rwanda	GG	CG, SG, LG	C/A	. . .	. . .	. . .	GG	CG, SG, LG	C/A
Senegal	CG	CG	C	CG	CG	C	CG	CG	C
Sudan	CG	CG	A	. . .	. . .	. . .	CG	CG	A
Tajikistan	GG	CG, LG, SS	C	. . .	. . .	. . .	GG	CG, LG, SS	C
Tanzania	CG	CG, LG	C	. . .	. . .	. . .	CG	CG, LG	C
Uganda	CG	CG	C	. . .	. . .	. . .	CG	CG	C
Uzbekistan[5]	GG	CG, SG, LG, SS	C	. . .	. . .	. . .	GG	CG, SG, LG, SS	C
Vietnam	GG	CG, SG, LG	C	GG	CG, SG, LG	C	GG	CG, SG, LG	C
Yemen	GG	CG, LG	C	. . .	. . .	. . .	GG	CG, LG	C
Zambia	CG	CG	C	. . .	. . .	. . .	CG	CG	C
Zimbabwe	CG	CG	C	. . .	. . .	. . .	CG	CG	C

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 = non-cash; 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: A = accrual; C = cash.

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

[3] Mongolia's listing includes the Human Development Fund.

[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's listing includes the Fund for Reconstruction and Development.

Table A1. Advanced Economies: General Government Overall Balance, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Australia	1.5	–1.1	–4.6	–5.1	–4.5	–3.5	–2.8	–2.9	–2.8	–2.4	–1.5	–0.5	–0.2	–0.1	0.1
Austria	–1.3	–1.4	–5.3	–4.4	–2.6	–2.2	–1.3	–2.7	–1.6	–1.8	–1.4	–1.3	–1.0	–1.0	–1.1
Belgium	0.1	–1.1	–5.4	–4.0	–4.1	–4.1	–2.9	–3.1	–2.8	–2.8	–2.2	–1.9	–2.1	–2.0	–2.0
Canada	1.8	0.2	–3.9	–4.7	–3.3	–2.5	–1.9	–0.5	–1.7	–2.4	–1.8	–1.3	–0.8	–0.5	–0.1
Cyprus[1]	3.3	0.9	–5.5	–4.8	–5.7	–5.8	–4.4	–0.2	–1.7	0.1	0.7	1.4	1.4	1.5	1.5
Czech Republic	–0.7	–2.1	–5.5	–4.4	–2.7	–4.0	–1.3	–1.9	–1.9	–1.6	–1.5	–1.2	–1.2	–1.1	–1.0
Denmark	5.0	3.2	–2.8	–2.7	–2.1	–3.5	–1.1	1.5	–2.0	–2.8	–2.0	–1.8	–1.6	–1.2	–1.0
Estonia	2.4	–2.9	–1.9	0.2	1.0	–0.4	–0.3	0.8	0.5	0.5	0.0	0.0	0.0	0.0	0.0
Finland	5.1	4.2	–2.5	–2.6	–1.0	–2.1	–2.5	–3.3	–3.3	–2.8	–2.6	–2.2	–1.7	–1.3	–0.8
France	–2.5	–3.2	–7.2	–6.8	–5.1	–4.8	–4.1	–3.9	–3.6	–3.4	–2.9	–2.3	–1.7	–1.0	–0.4
Germany	0.3	0.0	–3.0	–4.1	–0.9	0.1	0.1	0.3	0.6	0.1	0.1	0.3	0.6	0.7	0.7
Greece[2]	–6.7	–10.2	–15.2	–11.2	–10.2	–6.5	–3.0	–3.9	–4.2	. . .	. . .	. . .	. . .	. . .	. . .
Hong Kong SAR	7.3	0.1	1.7	4.1	3.8	3.1	1.0	3.6	1.5	1.4	1.5	0.9	1.3	2.1	2.1
Iceland	4.9	–13.1	–9.7	–9.8	–5.6	–3.7	–1.8	–0.1	0.7	14.3	–0.5	0.5	–0.2	–0.8	–1.0
Ireland[1]	0.2	–7.0	–13.8	–32.2	–12.4	–8.0	–5.6	–3.9	–1.6	–0.4	0.3	0.4	0.3	0.2	0.2
Israel	–0.6	–2.6	–5.6	–3.9	–3.3	–4.9	–4.1	–3.5	–3.0	–3.8	–3.8	–3.8	–3.8	–3.8	–3.8
Italy	–1.5	–2.7	–5.3	–4.2	–3.5	–2.9	–2.9	–3.0	–2.6	–2.7	–1.6	–0.5	–0.2	0.0	0.0
Japan	–2.1	–4.1	–10.4	–9.3	–9.8	–8.8	–8.5	–6.2	–5.2	–4.9	–3.9	–3.4	–3.3	–3.3	–3.3
Korea	2.2	1.5	0.0	1.5	1.7	1.6	0.6	0.4	–0.2	0.3	0.5	1.1	1.7	1.8	1.9
Latvia	0.6	–3.2	–7.0	–6.5	–3.1	0.1	–0.6	–1.7	–1.5	–1.3	–1.6	–0.2	–0.4	–0.4	–0.5
Lithuania	–1.0	–3.3	–9.3	–6.9	–8.9	–3.1	–2.6	–0.7	–0.7	–1.2	–1.0	–0.8	–0.7	–0.7	–0.7
Luxembourg	4.1	3.3	–0.5	–0.5	0.5	0.2	0.7	1.4	1.0	0.9	0.1	0.1	0.1	0.1	0.1
Malta	–2.3	–4.2	–3.3	–3.2	–2.6	–3.6	–2.6	–2.1	–1.4	–1.2	–1.0	–0.9	–0.9	–0.9	–0.9
Netherlands	0.2	0.2	–5.4	–5.0	–4.3	–3.9	–2.4	–2.4	–1.9	–1.7	–1.2	–1.1	–1.1	–1.0	–0.9
New Zealand	2.7	0.8	–2.2	–6.5	–6.1	–2.5	–1.5	–0.1	0.3	–0.1	0.1	0.4	0.8	0.9	0.8
Norway	17.0	18.5	10.3	10.9	13.2	13.5	10.5	8.4	5.4	5.4	5.1	5.8	6.3	6.2	6.1
Portugal	–3.0	–3.8	–9.8	–11.2	–7.4	–5.7	–4.8	–7.2	–4.4	–2.9	–2.9	–2.8	–2.8	–2.8	–2.8
Singapore	11.8	6.4	–0.6	6.6	8.5	7.8	5.6	3.3	1.1	2.0	2.0	2.2	2.4	2.4	2.3
Slovak Republic	–1.9	–2.3	–7.9	–7.5	–4.1	–4.2	–2.6	–2.8	–2.7	–2.2	–2.0	–1.7	–1.7	–1.7	–1.6
Slovenia	0.3	–0.3	–5.4	–5.2	–5.5	–3.1	–13.9	–5.8	–3.3	–2.7	–2.5	–2.7	–2.8	–3.0	–3.1
Spain[1]	2.0	–4.4	–11.0	–9.4	–9.5	–10.4	–6.9	–5.9	–4.5	–3.4	–2.5	–2.0	–1.5	–1.4	–1.1
Sweden	3.3	2.0	–0.7	0.0	–0.1	–0.9	–1.3	–1.7	–0.9	–0.9	–0.8	–0.4	–0.2	0.0	0.2
Switzerland	1.6	1.8	0.6	0.3	0.5	0.0	–0.2	–0.2	–0.2	–0.3	–0.2	–0.1	0.0	0.0	0.0
United Kingdom	–3.0	–5.0	–10.7	–9.6	–7.7	–7.7	–5.6	–5.6	–4.4	–3.2	–2.2	–1.3	0.1	0.5	0.6
United States[3]	–2.9	–6.7	–13.1	–10.9	–9.6	–7.9	–4.4	–4.1	–3.7	–3.8	–3.7	–3.5	–3.8	–3.8	–3.9
Average	–1.1	–3.5	–8.8	–7.6	–6.3	–5.5	–3.7	–3.3	–3.0	–2.9	–2.5	–2.1	–2.0	–1.9	–1.9
Euro Area	–0.6	–2.2	–6.3	–6.2	–4.2	–3.7	–3.0	–2.6	–2.0	–1.9	–1.5	–1.0	–0.7	–0.4	–0.3
G7	–2.1	–4.5	–10.0	–8.8	–7.4	–6.4	–4.3	–3.8	–3.4	–3.4	–3.0	–2.6	–2.5	–2.4	–2.4
G20 Advanced	–1.8	–4.2	–9.5	–8.3	–7.0	–6.0	–4.1	–3.6	–3.2	–3.2	–2.8	–2.4	–2.3	–2.2	–2.2

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 B.

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

[2] For 2015 data are preliminary. Fiscal projections for 2016–21 are not available at this time, given on-going negotiations with the authorities and European partners on the fiscal targets in a potential new adjustment program.

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

Table A2. Advanced Economies: General Government Primary Balance, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Australia	1.3	–1.1	–4.5	–4.8	–4.0	–2.8	–2.0	–2.0	–1.7	–1.4	–0.4	0.5	0.9	1.0	1.1
Austria	0.9	0.8	–3.1	–2.3	–0.4	0.0	0.9	–0.7	0.3	0.0	0.2	0.2	0.4	0.6	0.7
Belgium	3.6	2.4	–2.0	–0.7	–0.9	–0.9	0.1	–0.3	–0.3	–0.5	–0.2	0.0	–0.4	–0.3	–0.3
Canada	2.4	0.5	–2.8	–3.9	–2.7	–1.8	–1.2	0.0	–0.7	–1.8	–1.5	–1.1	–0.8	–0.6	–0.2
Cyprus[1]	5.4	3.1	–3.5	–3.2	–4.0	–3.3	–2.0	2.3	1.4	2.6	3.0	3.6	3.6	3.6	3.6
Czech Republic	0.0	–1.4	–4.5	–3.3	–1.7	–2.8	–0.1	–0.8	–0.9	–0.7	–0.6	–0.3	–0.3	–0.3	–0.2
Denmark	5.6	3.4	–2.4	–2.1	–1.5	–3.0	–0.7	1.8	–1.3	–2.1	–1.4	–1.5	–1.4	–1.0	–0.8
Estonia	2.0	–3.3	–2.2	0.0	0.9	–0.5	–0.4	0.7	0.4	0.4	0.0	0.0	–0.1	0.0	0.0
Finland	4.8	3.6	–2.9	–2.6	–1.0	–1.9	–2.4	–3.1	–3.1	–2.6	–2.5	–2.2	–1.6	–1.0	–0.5
France	–0.1	–0.5	–4.9	–4.5	–2.6	–2.4	–1.9	–1.9	–1.7	–1.6	–1.3	–0.8	–0.2	0.4	1.0
Germany	2.7	2.3	–0.6	–1.9	1.2	2.0	1.8	1.7	1.9	1.1	0.9	1.0	1.2	1.2	1.2
Greece[2]	–2.2	–5.4	–10.1	–5.4	–3.0	–1.4	1.1	0.0	–0.6	. . .	. . .	. . .	. . .	. . .	. . .
Hong Kong SAR	5.7	–2.6	–0.2	2.3	1.9	1.3	–0.7	3.6	1.5	0.8	0.9	0.3	0.8	1.6	1.6
Iceland	5.2	–13.3	–6.6	–7.0	–2.9	–0.4	1.7	3.6	3.7	16.9	1.6	2.3	1.4	0.8	0.6
Ireland[1]	0.8	–6.3	–12.4	–29.7	–9.6	–4.3	–1.8	–0.4	1.1	2.0	2.7	2.6	2.6	2.3	2.1
Israel	3.9	1.4	–1.6	–0.1	0.5	–1.0	–0.5	–0.5	–0.1	–0.8	–0.8	–0.8	–0.8	–0.8	–0.8
Italy	3.0	2.0	–1.1	–0.2	0.9	1.9	1.5	1.4	1.4	1.4	2.3	3.3	3.2	3.2	3.2
Japan	–2.1	–3.8	–9.9	–8.6	–9.0	–7.9	–7.8	–5.6	–4.9	–4.8	–4.0	–3.6	–3.5	–3.3	–3.1
Korea	1.4	1.2	–0.7	0.8	0.9	0.8	–0.2	–0.3	–0.6	0.1	0.8	1.4	2.0	2.3	2.7
Latvia	0.8	–3.1	–6.4	–5.5	–2.2	1.3	0.7	–0.4	0.1	–0.2	–0.6	0.7	0.5	0.5	0.4
Lithuania	–0.5	–2.8	–8.2	–5.2	–7.2	–1.2	–0.9	1.0	1.2	0.3	0.5	0.8	1.0	1.0	0.9
Luxembourg	3.1	2.0	–1.1	–0.8	0.2	0.0	0.5	1.2	0.8	0.9	0.0	–0.1	–0.2	–0.3	–0.3
Malta	1.2	–0.8	0.0	–0.1	0.6	–0.6	0.3	0.8	1.1	1.1	1.3	1.3	1.4	1.4	1.4
Netherlands	1.6	1.6	–4.2	–3.8	–3.0	–2.8	–1.2	–1.2	–0.8	–0.7	–0.2	–0.1	0.0	0.0	0.1
New Zealand	3.2	1.1	–1.9	–6.0	–5.5	–1.8	–0.9	0.4	0.7	0.2	0.6	0.9	1.3	1.4	1.2
Norway	14.1	15.5	8.0	8.8	11.1	11.7	8.6	6.3	3.0	3.0	2.7	3.4	3.9	3.8	3.6
Portugal	–0.4	–1.1	–7.1	–8.5	–3.6	–1.4	–0.6	–2.8	–0.3	1.1	1.0	1.0	1.0	1.0	0.9
Singapore	10.4	5.0	–2.0	5.1	7.0	6.4	4.1	1.8	–0.3	0.6	0.5	0.7	0.9	0.9	0.8
Slovak Republic	–1.0	–1.5	–6.8	–6.4	–2.8	–2.6	–0.9	–1.1	–1.1	–0.8	–0.7	–0.7	–0.7	–0.7	–0.6
Slovenia	1.2	0.5	–4.6	–4.0	–4.2	–1.4	–11.7	–2.9	–0.6	–0.1	0.0	0.1	0.1	0.1	0.0
Spain[1]	3.1	–3.4	–9.6	–7.8	–7.5	–7.9	–4.0	–2.9	–1.8	–0.9	–0.1	0.3	0.7	0.9	1.1
Sweden	4.0	2.4	–0.5	0.1	0.2	–0.9	–1.3	–1.7	–1.0	–1.0	–0.9	–0.4	–0.1	0.3	0.7
Switzerland	2.3	2.3	1.1	0.8	0.8	0.4	0.1	0.0	0.0	–0.1	0.0	0.1	0.2	0.1	0.1
United Kingdom	–1.3	–3.5	–9.3	–7.2	–4.9	–5.4	–4.3	–3.8	–2.8	–1.6	–0.5	0.5	1.8	2.1	2.2
United States	–0.8	–4.6	–11.2	–8.9	–7.3	–5.7	–2.4	–2.1	–1.8	–1.8	–1.6	–1.4	–1.5	–1.4	–1.5
Average	0.5	–1.8	–7.1	–5.9	–4.5	–3.6	–2.1	–1.6	–1.4	–1.4	–1.0	–0.6	–0.5	–0.4	–0.3
Euro Area	1.9	0.4	–3.8	–3.7	–1.6	–1.0	–0.5	–0.2	0.1	0.1	0.4	0.7	1.0	1.1	1.3
G7	–0.2	–2.5	–8.1	–6.8	–5.3	–4.3	–2.5	–2.0	–1.7	–1.7	–1.3	–1.0	–0.8	–0.7	–0.6
G20 Advanced	–0.1	–2.4	–7.8	–6.5	–5.1	–4.1	–2.4	–1.9	–1.6	–1.6	–1.2	–0.8	–0.7	–0.5	–0.5

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.

[2] For 2015 data are preliminary. Fiscal projections for 2016–21 are not available at this time, given on-going negotiations with the authorities and European partners on the fiscal targets in a potential new adjustment program.

Table A3. Advanced Economies: General Government Cyclically Adjusted Balance, 2007–21

(Percent of potential GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Australia	1.2	–1.4	–4.5	–4.9	–4.2	–3.2	–2.4	–2.4	–2.2	–1.8	–0.9	–0.1	0.1	0.1	0.1
Austria	–3.6	–3.5	–3.7	–3.4	–2.7	–2.1	–0.8	–1.7	–0.9	–1.3	–1.2	–1.3	–1.0	–1.0	–1.1
Belgium	–0.9	–1.9	–4.6	–3.9	–4.4	–4.0	–2.3	–2.6	–2.3	–2.4	–2.0	–1.8	–2.1	–2.0	–2.0
Canada	1.0	–0.2	–2.3	–3.7	–2.9	–2.0	–1.5	–0.3	–1.4	–2.1	–1.6	–1.2	–0.8	–0.5	–0.1
Cyprus	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Czech Republic	–3.6	–4.9	–5.3	–4.2	–2.9	–3.2	0.1	–1.0	–2.0	–1.7	–1.5	–1.2	–1.2	–1.1	–1.0
Denmark	2.2	1.4	–0.6	–1.5	–1.6	–2.8	0.2	2.4	–1.2	–2.3	–1.8	–1.8	–1.6	–1.4	–1.3
Estonia	–2.3	–4.8	2.0	3.7	2.7	0.2	0.4	1.0	0.9	0.9	0.3	0.1	0.0	0.1	0.0
Finland	2.1	1.7	–0.1	–1.4	–0.9	–1.1	–0.9	–1.1	–1.0	–0.8	–0.8	–0.8	–0.7	–0.7	–0.7
France	–3.6	–3.7	–5.6	–5.8	–4.7	–4.0	–3.1	–2.6	–2.5	–2.4	–2.0	–1.7	–1.3	–0.9	–0.5
Germany	–0.9	–1.1	–0.9	–3.4	–1.4	–0.1	0.4	0.4	0.7	0.1	–0.1	0.2	0.4	0.5	0.7
Greece[1]	–10.4	–13.8	–18.6	–12.1	–8.4	–2.4	1.0	–0.6	–1.1	. . .	. . .	. . .	. . .	. . .	. . .
Hong Kong SAR[2]	3.8	–0.6	–0.7	0.9	0.4	0.4	–1.2	2.7	1.2	–0.2	0.2	–0.6	–0.1	0.7	0.9
Iceland	2.9	–4.5	–10.0	–7.8	–4.7	–3.1	–1.7	–0.1	0.5	13.8	–1.0	0.2	–0.4	–0.8	–1.0
Ireland[2]	–9.6	–12.5	–10.6	–8.3	–6.2	–4.9	–3.1	–1.7	–1.2	–0.5	0.0	0.0	0.0	0.0	0.0
Israel	–1.2	–2.8	–4.7	–3.7	–3.6	–5.2	–4.3	–3.5	–2.8	–3.6	–3.6	–3.7	–3.8	–3.8	–3.9
Italy	–2.9	–3.6	–3.6	–3.6	–3.2	–1.5	–0.8	–0.9	–0.9	–1.4	–0.8	0.0	0.0	0.0	0.0
Japan	–2.3	–3.6	–7.5	–7.9	–8.5	–7.9	–8.2	–5.8	–4.9	–4.5	–3.5	–3.0	–2.9	–3.0	–3.0
Korea	1.8	1.3	1.2	1.4	1.5	1.6	0.8	0.6	0.1	0.6	0.8	1.3	1.9	1.9	1.9
Latvia	–1.0	–8.4	–3.2	–3.3	–1.3	0.8	–1.0	–1.5	–1.4	–1.1	–1.4	–0.1	–0.4	–0.3	–0.4
Lithuania	–6.5	–8.8	–6.7	–4.2	–7.5	–2.4	–2.3	–0.5	–0.2	–0.7	–0.7	–0.7	–0.7	–0.7	–0.7
Luxembourg	2.1	2.2	1.3	–0.5	0.1	1.1	1.0	1.5	0.7	0.7	–0.1	0.0	0.0	0.1	0.1
Malta	–3.0	–5.6	–2.5	–3.0	–2.1	–3.2	–2.6	–2.2	–2.3	–2.0	–1.6	–1.4	–1.1	–1.0	–1.0
Netherlands	0.0	0.7	–2.9	–3.0	–2.8	–1.8	–0.2	–0.4	–0.3	–0.5	–0.3	–0.5	–0.6	–0.8	–0.9
New Zealand	2.6	1.2	–1.8	–6.0	–5.8	–2.3	–1.2	0.1	0.3	–0.1	0.2	0.5	0.9	0.9	0.8
Norway[2]	–3.0	–3.1	–5.4	–5.4	–4.5	–5.0	–5.1	–5.9	–6.7	–7.6	–7.8	–7.7	–7.7	–7.6	–7.6
Portugal	–3.7	–4.2	–8.9	–10.8	–6.3	–3.1	–1.9	–4.8	–2.9	–2.0	–2.4	–2.6	–2.6	–2.8	–2.8
Singapore	11.5	6.6	1.0	6.2	8.0	7.6	5.1	2.9	1.0	2.0	2.0	2.3	2.5	2.5	2.4
Slovak Republic	–3.6	–4.3	–6.4	–7.3	–4.0	–3.8	–2.0	–2.3	–2.5	–2.2	–2.0	–1.9	–1.8	–1.7	–1.6
Slovenia	–2.6	–3.1	–4.3	–4.6	–4.1	–1.8	–1.6	–2.7	–2.1	–1.8	–2.3	–2.5	–2.8	–2.9	–3.1
Spain[2]	–1.3	–7.2	–10.4	–8.2	–7.1	–3.6	–2.7	–2.5	–2.4	–1.9	–1.7	–1.6	–1.4	–1.4	–1.3
Sweden[2]	2.7	1.2	0.8	1.4	0.7	–0.3	–0.7	–1.1	–0.7	–1.0	–1.0	–0.6	–0.5	–0.3	0.0
Switzerland[2]	0.7	0.8	1.0	0.4	0.6	0.3	0.1	–0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Kingdom[2]	–4.8	–5.9	–9.0	–7.6	–6.0	–6.0	–4.2	–4.9	–4.1	–3.1	–2.2	–1.3	0.1	0.5	0.6
United States[2, 3]	–4.0	–5.9	–7.6	–9.4	–8.1	–6.1	–4.0	–3.5	–3.0	–3.4	–3.4	–3.4	–3.8	–3.8	–3.9
Average	–2.5	–3.9	–5.9	–6.6	–5.6	–4.4	–3.1	–2.7	–2.4	–2.5	–2.3	–2.1	–2.1	–2.0	–2.0
Euro Area	–2.2	–3.3	–4.6	–4.8	–3.7	–2.5	–1.3	–1.2	–1.0	–1.2	–1.0	–0.7	–0.5	–0.4	–0.3
G7	–3.2	–4.4	–6.3	–7.5	–6.4	–5.2	–3.7	–3.1	–2.8	–2.9	–2.7	–2.5	–2.5	–2.4	–2.4
G20 Advanced	–2.9	–4.1	–6.0	–7.1	–6.1	–4.9	–3.5	–2.9	–2.6	–2.8	–2.5	–2.3	–2.2	–2.1	–2.2

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 B.

[1] For 2015 data are preliminary. Fiscal projections for 2016–21 are not available at this time, given on-going negotiations with the authorities and European partners on the fiscal targets in a potential new adjustment program.

[2] The data for these countries include adjustments beyond the output cycle.

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

Table A4. Advanced Economies: General Government Cyclically Adjusted Primary Balance, 2007–21

(Percent of potential GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Australia	1.0	–1.4	–4.4	–4.6	–3.7	–2.5	–1.6	–1.4	–1.1	–0.7	0.2	1.0	1.2	1.2	1.2
Austria	–1.3	–1.2	–1.5	–1.3	–0.6	0.1	1.3	0.2	1.0	0.5	0.4	0.2	0.4	0.6	0.7
Belgium	2.7	1.7	–1.2	–0.7	–1.2	–0.8	0.6	0.2	0.1	–0.2	0.0	0.1	–0.3	–0.3	–0.3
Canada	1.6	0.1	–1.3	–2.9	–2.3	–1.3	–0.9	0.2	–0.4	–1.4	–1.3	–1.0	–0.8	–0.6	–0.2
Cyprus	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Czech Republic	–2.8	–4.1	–4.3	–3.2	–1.9	–2.1	1.2	0.0	–1.0	–0.8	–0.6	–0.3	–0.3	–0.3	–0.2
Denmark	2.7	1.6	–0.2	–1.0	–1.0	–2.3	0.6	2.7	–0.5	–1.6	–1.2	–1.5	–1.4	–1.2	–1.1
Estonia	–2.7	–5.3	1.8	3.6	2.5	0.1	0.4	0.9	0.8	0.8	0.2	0.1	0.0	0.0	0.0
Finland	1.7	1.1	–0.4	–1.3	–0.9	–0.9	–0.8	–0.9	–0.7	–0.7	–0.7	–0.8	–0.6	–0.4	–0.3
France	–1.0	–1.1	–3.4	–3.6	–2.2	–1.6	–1.0	–0.6	–0.6	–0.6	–0.5	–0.2	0.2	0.6	1.0
Germany	1.6	1.3	1.4	–1.2	0.7	1.8	2.0	1.8	1.9	1.1	0.8	0.8	1.0	1.0	1.1
Greece[1]	–5.5	–8.5	–13.2	–6.1	–1.4	2.3	4.7	3.1	2.3	. . .	. . .	. . .	. . .	. . .	. . .
Hong Kong SAR[2]	2.1	–3.4	–2.6	–1.0	–1.5	–1.4	–2.8	2.8	1.3	–0.8	–0.4	–1.3	–0.6	0.3	0.4
Iceland	3.1	–4.6	–7.0	–5.1	–2.1	0.3	1.9	3.6	3.5	16.3	1.1	2.1	1.3	0.8	0.6
Ireland[2]	–8.9	–11.8	–9.2	–6.0	–3.4	–1.5	0.4	1.6	1.5	1.9	2.4	2.2	2.2	2.1	1.9
Israel	3.4	1.3	–0.9	0.1	0.1	–1.2	–0.8	–0.5	0.1	–0.6	–0.6	–0.7	–0.7	–0.8	–0.8
Italy	1.7	1.1	0.4	0.4	1.1	3.3	3.5	3.4	3.0	2.6	3.0	3.7	3.3	3.3	3.2
Japan	–2.3	–3.3	–7.0	–7.3	–7.7	–7.0	–7.5	–5.2	–4.6	–4.4	–3.5	–3.1	–3.1	–3.0	–2.8
Korea	1.0	0.9	0.6	0.7	0.7	0.8	0.0	–0.1	–0.3	0.4	1.1	1.6	2.1	2.4	2.7
Latvia	–0.8	–8.3	–2.6	–2.4	–0.5	2.0	0.2	–0.2	0.2	–0.1	–0.4	0.8	0.6	0.6	0.5
Lithuania	–5.9	–8.3	–5.7	–2.6	–5.8	–0.4	–0.5	1.2	1.6	0.8	0.8	0.9	1.0	1.0	0.9
Luxembourg	1.0	0.9	0.8	–0.8	–0.1	1.0	0.9	1.3	0.5	0.7	–0.1	–0.2	–0.2	–0.3	–0.3
Malta	0.7	–2.0	0.9	0.2	1.1	–0.1	0.4	0.8	0.3	0.4	0.7	1.0	1.2	1.4	1.5
Netherlands	1.3	2.1	–1.7	–1.9	–1.6	–0.8	0.9	0.7	0.8	0.6	0.7	0.6	0.4	0.3	0.1
New Zealand	3.1	1.5	–1.5	–5.5	–5.1	–1.6	–0.6	0.6	0.7	0.3	0.6	0.9	1.3	1.4	1.2
Norway[2]	–6.9	–7.1	–8.5	–8.0	–7.2	–7.3	–7.5	–8.6	–9.8	–10.6	–10.8	–10.8	–10.7	–10.7	–10.6
Portugal	–1.0	–1.4	–6.2	–8.1	–2.6	0.9	2.0	–0.6	1.1	2.0	1.5	1.3	1.2	1.0	0.9
Singapore	10.0	5.1	–0.4	4.7	6.4	6.1	3.6	1.4	–0.4	0.6	0.6	0.8	1.0	1.0	0.9
Slovak Republic	–2.7	–3.4	–5.4	–6.2	–2.7	–2.3	–0.4	–0.6	–1.0	–0.8	–0.7	–0.8	–0.8	–0.7	–0.6
Slovenia	–1.6	–2.3	–3.4	–3.4	–2.8	–0.2	0.5	0.1	0.6	0.8	0.3	0.2	0.2	0.1	0.0
Spain[2]	–0.1	–6.1	–9.1	–6.7	–5.2	–1.2	0.0	0.4	0.3	0.5	0.6	0.7	0.8	0.8	0.9
Sweden[2]	3.4	1.7	0.9	1.6	0.9	–0.3	–0.7	–1.1	–0.8	–1.1	–1.1	–0.6	–0.4	–0.1	0.4
Switzerland[2]	1.4	1.3	1.5	0.9	0.9	0.7	0.3	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1
United Kingdom[2]	–3.2	–4.4	–7.7	–5.1	–3.3	–3.8	–2.9	–3.1	–2.6	–1.4	–0.5	0.4	1.8	2.1	2.2
United States[2]	–1.9	–3.8	–5.8	–7.5	–5.8	–4.0	–2.0	–1.5	–1.1	–1.4	–1.4	–1.3	–1.5	–1.4	–1.4
Average	–0.9	–2.3	–4.3	–5.0	–3.8	–2.6	–1.5	–1.1	–0.9	–1.0	–0.8	–0.6	–0.5	–0.4	–0.4
Euro Area	0.4	–0.7	–2.2	–2.4	–1.1	0.1	1.1	1.1	1.1	0.8	0.8	1.0	1.1	1.1	1.2
G7	–1.2	–2.5	–4.5	–5.6	–4.4	–3.2	–1.9	–1.3	–1.1	–1.3	–1.1	–0.8	–0.8	–0.7	–0.6
G20 Advanced	–1.1	–2.3	–4.4	–5.4	–4.2	–3.0	–1.9	–1.3	–1.0	–1.2	–0.9	–0.7	–0.6	–0.5	–0.4

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 excluding net interest payments. For country-specific details, see Data and Conventions in text, and Table B.

[1] For 2015 data are preliminary. Fiscal projections for 2016–21 are not available at this time, given on-going negotiations with the authorities and European partners on the fiscal targets in a potential new adjustment program.

[2] The data for these countries include adjustments beyond the output cycle.

Table A5. Advanced Economies: General Government Revenue, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Australia	35.8	34.0	33.4	32.0	32.1	33.3	34.0	34.0	34.5	35.0	35.3	35.7	36.0	36.1	36.2
Austria	47.8	48.3	48.8	48.3	48.3	48.9	49.7	50.0	50.3	49.4	49.2	49.1	49.2	49.3	49.4
Belgium	48.3	49.2	48.8	49.3	50.3	51.6	52.7	52.0	51.2	50.7	50.8	50.5	50.1	49.9	49.9
Canada	40.4	39.1	39.6	38.4	38.4	38.5	38.5	38.5	38.6	38.6	38.4	38.5	38.6	38.6	38.7
Cyprus	41.4	39.7	37.0	37.6	36.9	36.2	37.7	40.3	39.6	38.9	38.6	38.7	38.7	38.7	38.7
Czech Republic	39.3	38.1	38.1	38.6	40.2	40.5	41.3	40.6	41.0	39.8	39.8	39.8	40.0	40.1	40.2
Denmark	54.6	53.7	54.0	54.3	54.8	54.8	55.5	57.4	51.9	50.6	49.7	49.4	49.1	49.0	49.0
Estonia	36.0	36.1	42.3	40.6	38.4	38.7	38.0	38.7	39.5	40.6	40.3	40.4	40.2	39.8	39.3
Finland	51.9	52.4	52.3	52.2	53.4	54.0	54.9	54.9	55.1	55.1	54.7	54.7	54.9	55.1	55.3
France	49.7	49.8	49.6	49.6	50.8	52.0	52.9	53.6	53.2	53.0	53.0	53.0	53.0	53.0	53.0
Germany	43.0	43.4	44.3	43.0	43.6	44.1	44.2	44.6	44.6	44.5	44.4	44.4	44.4	44.4	44.4
Greece[1]	40.4	40.6	38.9	41.3	44.0	45.7	46.2	46.0	45.8	. . .	. . .	. . .	. . .	. . .	. . .
Hong Kong SAR	21.3	18.9	18.8	20.7	22.4	21.4	21.0	20.8	19.1	20.6	20.1	20.7	20.5	20.4	20.4
Iceland	45.9	42.5	38.8	39.6	40.1	41.7	42.1	45.3	44.3	57.3	41.8	42.7	42.0	41.7	41.5
Ireland	36.1	34.9	33.4	33.4	33.0	33.8	33.9	34.4	32.8	31.8	31.6	31.4	31.4	31.4	31.3
Israel	41.3	38.9	36.1	37.0	37.1	36.0	36.9	37.1	37.3	37.3	37.3	37.5	37.5	37.5	37.5
Italy	45.3	45.1	45.9	45.6	45.7	47.8	48.1	48.2	47.8	47.7	46.7	46.7	46.7	46.6	46.6
Japan	31.2	31.6	29.6	29.6	30.8	31.1	32.1	33.6	34.0	33.8	34.3	34.8	34.8	34.8	34.8
Korea	22.6	22.3	21.3	21.0	21.6	22.1	21.5	21.2	20.9	20.9	20.6	20.6	20.6	20.6	20.6
Latvia	33.8	33.5	35.8	36.6	35.7	37.5	36.8	36.2	36.2	36.0	35.9	37.3	36.6	35.6	35.3
Lithuania	33.4	33.8	34.3	34.3	32.6	32.1	32.1	33.5	34.2	33.9	34.0	34.1	34.2	34.3	34.3
Luxembourg	41.4	42.6	44.3	43.3	43.8	44.7	44.0	43.8	43.2	43.2	42.2	42.1	42.1	42.1	42.2
Malta	38.9	38.4	38.6	37.9	38.4	38.8	39.3	41.1	41.6	39.8	39.8	39.7	39.7	39.7	39.7
Netherlands	42.7	43.8	42.7	43.2	42.7	43.2	44.0	43.9	44.0	43.4	43.3	43.3	43.4	43.5	43.6
New Zealand	36.7	36.1	34.9	34.0	33.9	33.9	33.9	34.1	35.0	35.1	35.0	34.8	34.9	34.9	34.9
Norway	56.5	57.4	55.4	55.0	56.2	55.8	53.8	53.3	53.1	55.0	53.1	53.3	53.5	53.4	53.2
Portugal	41.5	41.6	40.4	40.6	42.6	42.9	45.1	44.5	43.9	43.6	43.2	43.1	42.9	42.8	42.6
Singapore	23.8	24.0	17.4	21.1	23.2	22.3	21.6	21.4	21.4	21.7	21.9	22.3	22.6	22.7	22.7
Slovak Republic	34.2	34.3	36.1	34.5	36.4	36.0	38.4	38.9	40.6	38.5	38.4	38.3	38.2	38.1	38.0
Slovenia	39.8	40.4	39.8	40.8	40.6	41.7	41.0	41.5	40.8	40.9	40.5	40.6	40.6	40.7	40.7
Spain	40.9	36.7	34.8	36.2	36.2	37.5	38.2	38.6	38.5	38.3	38.4	38.4	38.4	38.4	38.4
Sweden	52.0	51.3	51.3	51.0	50.3	50.6	50.9	50.0	48.4	48.7	49.0	49.3	49.4	49.4	49.4
Switzerland	31.6	32.4	33.0	32.5	33.0	32.6	32.7	32.7	32.7	32.7	32.7	32.7	32.7	32.7	32.7
United Kingdom	36.5	37.1	35.1	35.7	36.2	36.2	36.4	35.4	35.7	36.5	36.7	36.7	37.1	37.0	37.0
United States	31.7	30.6	28.4	29.1	29.4	29.4	31.7	31.4	31.9	32.0	31.9	31.9	31.9	32.0	32.0
Average	36.9	36.7	35.1	35.1	35.7	35.7	37.0	37.0	36.6	36.6	36.6	36.6	36.6	36.6	36.6
Euro Area	44.6	44.4	44.4	44.3	44.8	46.0	46.5	46.8	46.5	46.2	45.9	45.9	45.8	45.8	45.8
G7	36.2	35.9	34.4	34.3	35.0	35.0	36.5	36.6	36.4	36.4	36.4	36.4	36.4	36.4	36.4
G20 Advanced	35.7	35.5	34.0	33.8	34.4	34.5	35.9	35.9	35.8	35.8	35.8	35.8	35.8	35.8	35.8

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 B.

[1] For 2015 data are preliminary. Fiscal projections for 2016–21 are not available at this time, given on-going negotiations with the authorities and European partners on the fiscal targets in a potential new adjustment program.

Table A6. Advanced Economies: General Government Expenditure, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Australia	34.4	35.1	37.9	37.1	36.5	36.8	36.8	36.9	37.2	37.4	36.8	36.2	36.2	36.2	36.2
Austria	49.1	49.8	54.1	52.7	50.8	51.1	50.9	52.7	51.9	51.2	50.6	50.5	50.2	50.3	50.5
Belgium	48.2	50.3	54.1	53.3	54.4	55.8	55.6	55.1	53.9	53.5	53.0	52.3	52.2	51.9	51.9
Canada	38.6	38.9	43.5	43.2	41.7	41.0	40.3	39.0	40.3	41.0	40.3	39.9	39.5	39.1	38.9
Cyprus	38.1	38.8	42.5	42.4	42.6	42.0	42.1	40.5	41.2	38.8	37.9	37.3	37.3	37.2	37.2
Czech Republic	40.0	40.2	43.6	43.0	42.9	44.5	42.6	42.6	42.9	41.5	41.2	41.0	41.1	41.3	41.3
Denmark	49.6	50.5	56.8	57.1	56.8	58.3	56.5	56.0	53.8	53.4	51.8	51.2	50.7	50.2	50.0
Estonia	33.6	39.0	44.2	40.4	37.4	39.1	38.3	38.0	38.9	40.0	40.3	40.4	40.2	39.8	39.3
Finland	46.8	48.3	54.8	54.8	54.4	56.1	57.4	58.2	58.5	57.9	57.4	56.9	56.6	56.4	56.1
France	52.2	53.0	56.8	56.4	55.9	56.8	57.0	57.5	56.9	56.4	55.9	55.3	54.7	54.0	53.4
Germany	42.7	43.4	47.3	47.0	44.4	44.0	44.1	44.3	44.0	44.4	44.3	44.1	43.8	43.7	43.6
Greece[1]	47.1	50.8	54.1	52.5	54.2	52.2	49.2	49.9	50.0	. . .	. . .	. . .	. . .	. . .	. . .
Hong Kong SAR	13.9	18.8	17.1	16.6	18.6	18.3	20.0	17.3	17.6	19.2	18.6	19.8	19.2	18.3	18.3
Iceland	41.0	55.7	48.5	49.4	45.7	45.4	44.0	45.3	43.6	42.9	42.4	42.2	42.2	42.5	42.5
Ireland	35.9	41.9	47.2	65.6	45.4	41.7	39.5	38.2	34.4	32.2	31.2	31.0	31.1	31.1	31.1
Israel	41.9	41.5	41.7	40.9	40.4	40.9	41.0	40.5	40.3	41.1	41.1	41.3	41.3	41.3	41.3
Italy	46.8	47.8	51.2	49.9	49.1	50.8	51.0	51.2	50.4	50.4	48.3	47.2	46.9	46.7	46.6
Japan	33.3	35.7	40.0	38.9	40.6	39.8	40.6	39.8	39.3	38.6	38.2	38.2	38.1	38.1	38.1
Korea	20.5	20.8	21.3	19.5	19.9	20.6	20.9	20.8	21.1	20.6	20.1	19.5	18.9	18.8	18.7
Latvia	33.2	36.7	42.8	43.1	38.8	37.4	37.4	37.9	37.7	37.3	37.5	37.5	37.0	36.0	35.8
Lithuania	34.4	37.0	43.6	41.2	41.5	35.2	34.7	34.1	34.9	35.0	35.0	34.9	34.9	34.9	35.0
Luxembourg	37.3	39.3	44.9	43.8	43.3	44.6	43.3	42.4	42.2	42.3	42.1	42.0	42.0	42.1	42.1
Malta	41.2	42.6	41.9	41.1	41.0	42.4	41.9	43.1	43.0	41.0	40.8	40.6	40.5	40.5	40.6
Netherlands	42.4	43.6	48.2	48.1	47.0	47.1	46.4	46.3	45.9	45.2	44.5	44.5	44.5	44.5	44.5
New Zealand	34.0	35.3	37.0	40.5	40.1	36.4	35.5	34.3	34.7	35.2	34.9	34.4	34.1	34.0	34.1
Norway	39.5	38.9	45.0	44.1	43.0	42.2	43.3	44.9	47.7	49.6	47.9	47.5	47.2	47.1	47.1
Portugal	44.5	45.3	50.2	51.8	50.0	48.5	49.9	51.7	48.2	46.5	46.1	45.9	45.8	45.6	45.4
Singapore	12.0	17.6	18.0	14.5	14.7	14.5	16.1	18.1	20.3	19.7	20.0	20.1	20.2	20.3	20.4
Slovak Republic	36.1	36.7	43.9	42.0	40.5	40.1	41.0	41.6	43.2	40.7	40.4	40.0	39.9	39.8	39.6
Slovenia	39.6	40.7	45.3	46.0	46.1	44.8	54.9	47.4	44.1	43.7	43.0	43.2	43.5	43.7	43.8
Spain	38.9	41.1	45.8	45.6	45.6	48.0	45.1	44.5	43.0	41.7	40.8	40.4	39.9	39.8	39.6
Sweden	48.7	49.3	52.0	51.0	50.4	51.5	52.2	51.7	49.3	49.6	49.8	49.7	49.6	49.4	49.1
Switzerland	30.0	30.7	32.4	32.2	32.6	32.6	32.9	32.9	33.0	33.0	32.9	32.8	32.7	32.7	32.7
United Kingdom	39.5	42.1	45.9	45.4	43.8	43.9	42.0	41.0	40.2	39.7	38.9	38.0	37.0	36.5	36.4
United States	34.5	37.3	41.6	40.0	38.9	37.3	36.1	35.6	35.7	35.8	35.6	35.4	35.6	35.8	35.9
Average	38.0	40.1	43.9	42.7	42.0	41.2	40.7	40.3	39.6	39.6	39.1	38.7	38.6	38.5	38.5
Euro Area	45.3	46.6	50.6	50.5	49.0	49.6	49.5	49.3	48.5	48.1	47.4	46.9	46.5	46.3	46.1
G7	38.3	40.4	44.3	43.1	42.4	41.4	40.9	40.4	39.8	39.8	39.3	39.0	38.9	38.8	38.8
G20 Advanced	37.6	39.7	43.5	42.1	41.4	40.5	40.0	39.5	39.0	39.0	38.6	38.2	38.1	38.0	38.0

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.
[1] For 2015 data are preliminary. Fiscal projections for 2016–21 are not available at this time, given on-going negotiations with the authorities and European partners on the fiscal targets in a potential new adjustment program.

Table A7. Advanced Economies: General Government Gross Debt, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Australia[1]	9.7	11.7	16.7	20.5	24.2	27.8	30.8	34.1	36.8	39.1	40.0	39.1	38.0	36.8	35.4
Austria	64.8	68.5	79.7	82.3	82.1	81.6	80.8	84.2	86.2	85.5	83.8	82.2	80.3	78.5	77.2
Belgium	86.9	92.4	99.5	99.6	102.2	104.1	105.1	106.7	106.3	106.8	106.5	105.5	104.8	103.8	102.9
Canada[1]	66.8	67.8	79.3	81.1	81.5	84.8	86.1	86.2	91.5	92.3	90.6	88.3	85.9	83.4	80.6
Cyprus	53.6	44.6	53.4	56.3	65.8	79.3	102.5	108.2	108.7	99.3	95.3	90.1	85.4	81.0	76.6
Czech Republic	27.8	28.7	34.1	38.2	39.9	44.6	45.2	42.7	40.9	41.3	41.0	40.6	40.3	40.1	39.8
Denmark	27.3	33.4	40.4	42.9	46.4	45.2	44.6	44.6	45.6	47.4	47.7	47.6	47.1	46.3	45.3
Estonia	3.7	4.5	7.0	6.6	5.9	9.5	9.9	10.4	10.1	9.7	9.2	8.6	8.2	7.7	7.2
Finland	34.0	32.7	41.7	47.1	48.5	52.9	55.4	59.3	62.4	64.3	66.2	67.1	67.2	66.6	65.6
France	64.2	67.9	78.8	81.5	85.0	89.4	92.3	95.6	96.8	98.2	98.8	98.5	97.3	95.4	92.6
Germany	63.6	65.0	72.5	81.0	78.4	79.7	77.4	74.9	71.0	68.2	65.9	63.4	60.8	58.4	56.0
Greece[2]	102.8	108.8	126.2	145.8	171.6	158.9	176.9	178.4	178.4	. . .	. . .	. . .	. . .	. . .	. . .
Hong Kong SAR[1]	1.0	0.9	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
Iceland	27.3	67.6	82.9	88.3	95.1	92.6	84.8	82.5	67.6	56.1	52.6	42.6	37.9	35.5	31.8
Ireland	23.9	42.4	61.8	86.8	109.3	120.2	120.0	107.5	95.2	88.6	84.6	80.4	77.2	74.3	71.2
Israel	72.7	71.6	74.3	70.6	68.8	67.9	67.2	67.1	64.6	66.0	67.7	68.7	69.4	70.0	70.5
Italy	99.8	102.4	112.5	115.4	116.5	123.3	128.9	132.5	132.6	133.0	131.7	129.4	126.8	124.2	121.6
Japan	183.0	191.8	210.2	215.8	231.6	238.0	244.5	249.1	248.1	249.3	250.9	251.8	251.9	251.8	251.7
Korea	28.7	28.2	31.4	30.8	31.5	32.1	33.8	35.1	35.9	37.3	37.5	37.2	36.3	35.3	34.2
Latvia	7.2	16.2	32.5	40.3	37.6	36.9	35.9	38.5	34.8	34.8	34.7	33.0	31.6	30.1	28.9
Lithuania	16.7	15.4	29.0	36.3	37.3	39.8	38.8	42.5	42.5	42.1	41.4	40.1	38.7	37.1	35.8
Luxembourg	7.0	14.4	15.4	19.6	19.1	22.0	23.3	22.9	21.8	21.7	22.1	22.4	22.5	22.6	22.7
Malta	62.4	62.7	67.8	67.6	69.8	67.4	68.5	66.9	63.7	62.9	60.8	59.4	57.7	56.0	54.4
Netherlands	42.4	54.5	56.5	59.0	61.7	66.4	67.9	68.2	67.6	66.6	64.9	64.0	63.1	62.1	61.0
New Zealand	14.5	16.9	21.7	26.9	31.5	31.9	30.8	30.8	30.4	29.9	29.0	26.6	25.3	24.3	22.9
Norway	49.2	47.3	42.0	42.4	28.9	30.0	30.3	27.9	27.9	27.9	27.9	27.9	27.9	27.9	27.9
Portugal	68.4	71.7	83.6	96.2	111.4	126.2	129.0	130.2	128.8	127.9	127.3	126.4	125.6	124.5	123.8
Singapore	84.7	95.3	99.7	97.0	101.0	105.5	102.5	98.5	98.2	98.2	97.9	96.9	95.7	94.3	92.9
Slovak Republic	29.9	28.2	36.0	40.8	43.3	51.9	54.6	53.3	52.6	52.1	51.9	51.2	50.4	49.7	48.8
Slovenia	22.7	21.6	34.4	37.9	46.1	53.4	70.5	80.8	83.3	80.7	81.8	83.1	84.2	85.4	86.6
Spain	35.5	39.4	52.7	60.1	69.5	85.4	93.7	99.3	99.0	99.0	98.5	97.6	96.2	94.6	92.8
Sweden	38.1	36.7	40.2	37.6	36.9	37.2	39.8	44.9	44.1	42.6	41.9	40.8	40.2	39.0	37.4
Switzerland	49.5	49.4	47.3	46.1	46.0	46.6	46.4	45.7	45.6	44.9	44.1	43.1	41.9	40.8	39.6
United Kingdom	43.5	51.7	65.7	76.6	81.8	85.3	86.2	88.2	89.3	89.1	87.9	86.4	83.1	79.4	75.8
United States[1]	64.0	72.8	86.0	94.7	99.0	102.5	104.8	105.0	105.8	107.5	107.5	106.8	106.4	106.1	106.0
Average	71.9	78.7	92.0	98.5	102.6	106.9	105.7	105.6	105.8	107.6	107.0	105.8	104.5	103.3	102.0
Euro Area	64.9	68.5	78.3	84.0	86.6	91.3	93.4	94.5	93.2	92.5	91.3	89.7	87.6	85.5	83.2
G7	81.1	89.1	103.9	111.9	117.1	121.3	119.6	118.9	118.4	120.1	119.6	118.3	117.0	115.8	114.5
G20 Advanced	77.3	85.1	99.3	106.1	110.7	114.6	113.1	112.6	112.5	114.6	114.1	112.8	111.5	110.2	108.9

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, and the United States) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans.

[2] For 2015 data are preliminary. Fiscal projections for 2016–21 are not available at this time, given on-going negotiations with the authorities and European partners on the fiscal targets in a potential new adjustment program.

Table A8. Advanced Economies: General Government Net Debt, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Australia[1]	–7.3	–5.3	–0.6	3.9	8.1	11.2	13.2	15.7	17.9	19.5	19.9	19.2	18.2	17.2	16.1
Austria	. . .	. . .	. . .	. . .	. . .	49.5	49.2	47.7	47.8	47.5	46.1	44.8	43.2	41.7	40.6
Belgium	54.2	55.1	61.0	59.5	60.7	62.4	63.5	63.2	63.8	65.2	65.9	66.0	66.3	66.5	66.6
Canada[1]	22.1	18.4	24.4	26.8	27.1	28.2	29.4	28.1	26.7	27.5	25.8	23.5	21.1	18.6	15.8
Cyprus	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Czech Republic	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Denmark	–4.6	–6.7	–5.9	–3.3	1.1	6.6	4.0	4.9	6.7	9.3	11.0	12.4	13.4	14.1	14.5
Estonia	–10.5	–7.9	–9.5	–7.9	–6.1	–2.6	–1.5	–1.3	–1.3	–1.2	–1.2	–1.1	–1.0	–0.9	–0.9
Finland	–69.7	–50.0	–59.6	–61.8	–48.8	–50.3	–53.9	–50.0	–46.3	–42.5	–38.9	–35.5	–32.6	–30.2	–28.3
France	57.7	60.3	70.1	73.7	76.4	81.7	84.6	87.9	89.1	90.5	91.1	90.8	89.6	87.7	84.9
Germany	48.1	48.0	54.3	56.7	55.0	54.4	53.4	51.9	48.8	46.7	44.9	43.0	41.0	39.1	37.3
Greece[2]	. . .	. . .	. . .	. . .	. . .	155.2	174.1	176.3	176.6	. . .	. . .	. . .	. . .	. . .	. . .
Hong Kong SAR	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Iceland	17.6	53.3	66.3	65.7	61.7	63.8	62.2	55.9	49.2	45.2	36.2	33.4	26.0	26.3	26.6
Ireland	14.2	22.5	36.6	66.6	77.6	86.7	89.7	87.8	76.8	71.6	68.4	64.9	62.3	60.0	57.4
Israel	65.8	65.0	66.7	64.5	64.0	63.0	62.7	63.4	61.1	62.6	64.4	65.6	66.4	67.2	67.8
Italy	84.1	86.2	94.2	98.3	100.4	104.9	109.7	112.6	111.4	111.8	110.7	108.8	106.6	104.4	102.2
Japan	80.5	95.3	106.2	113.1	127.2	129.0	124.2	126.2	128.1	129.6	131.2	132.2	132.2	132.2	132.0
Korea	26.8	26.9	29.6	28.9	29.4	30.0	31.6	33.0	33.9	35.3	35.6	35.4	34.6	33.7	32.7
Latvia	4.4	11.1	21.4	28.8	30.1	29.7	32.9	35.6	31.9	31.9	31.9	30.3	29.0	27.6	26.5
Lithuania	13.0	13.5	24.5	31.8	33.5	34.1	35.7	39.6	39.6	39.4	38.8	37.7	36.3	34.9	33.7
Luxembourg	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Malta	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Netherlands	17.7	16.2	20.2	23.3	26.8	28.3	31.2	33.0	34.7	35.4	35.5	35.5	35.5	35.3	35.1
New Zealand	–0.9	–2.3	–0.8	2.3	6.1	7.6	7.7	7.6	7.5	7.4	7.0	6.2	5.1	4.0	3.0
Norway	–143.7	–128.8	–158.3	–167.6	–162.4	–171.4	–205.3	–244.0	–278.3	–285.6	–280.9	–277.0	–273.8	–272.6	–272.3
Portugal	61.4	67.2	79.3	91.6	100.8	115.9	118.4	120.0	121.3	120.9	120.6	120.7	120.5	120.0	119.5
Singapore	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Slovak Republic	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Slovenia	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Spain	26.0	30.0	24.2	32.5	39.3	52.1	59.9	64.0	65.0	66.2	66.6	66.7	66.2	65.5	64.7
Sweden	–16.2	–8.5	–15.2	–17.1	–14.0	–17.9	–18.6	–19.3	–17.3	–15.6	–14.1	–13.1	–12.3	–11.8	–11.5
Switzerland	30.2	29.3	27.5	26.4	26.2	25.5	25.2	24.5	24.5	23.8	23.0	22.0	20.8	19.7	18.5
United Kingdom	38.2	45.7	58.7	69.2	73.3	76.6	77.8	79.7	80.7	80.6	79.3	77.8	74.5	70.8	67.2
United States[1]	44.5	50.5	62.0	69.5	75.9	79.4	80.9	80.6	80.6	82.2	82.2	81.6	81.4	81.4	81.6
Average	43.4	48.8	58.0	63.1	67.8	71.1	70.1	70.2	71.1	72.8	72.6	71.8	70.9	70.1	69.3
Euro Area	45.5	47.2	52.5	56.6	58.8	66.9	69.2	70.3	69.4	69.3	68.6	67.4	65.9	64.3	62.6
G7	52.1	58.3	69.3	75.6	81.3	84.1	83.2	83.2	83.0	84.4	84.1	83.2	82.2	81.3	80.4
G20 Advanced	49.6	55.6	66.2	71.6	76.7	79.4	78.6	78.8	79.0	80.6	80.3	79.4	78.4	77.4	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 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, and the United States) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans.

[2] For 2015 data are preliminary. Fiscal projections for 2016–21 are not available at this time, given on-going negotiations with the authorities and European partners on the fiscal targets in a potential new adjustment program.

Table A9. Emerging Market and Middle-Income Economies: General Government Overall Balance, 2007–21
(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Algeria	6.1	9.1	–5.5	–0.4	–0.4	–4.4	–0.4	–7.3	–15.3	–14.6	–11.6	–9.6	–8.0	–6.5	–5.0
Angola	4.7	–4.5	–7.4	3.4	8.7	4.6	–0.3	–6.6	–4.1	–7.1	–6.1	–4.9	–3.9	–3.6	–3.6
Argentina	0.2	0.4	–1.9	–1.2	–2.4	–2.7	–3.0	–4.1	–7.4	–6.4	–5.5	–4.5	–3.0	–3.0	–3.2
Azerbaijan	2.5	20.6	7.4	14.3	11.6	4.8	1.5	2.8	–3.4	–12.5	–4.6	–0.2	3.3	3.1	1.5
Belarus	1.5	1.9	–0.4	–0.5	4.2	1.7	–0.8	1.1	–0.3	–5.1	–6.7	–2.7	–2.9	–2.7	–2.7
Brazil	–2.7	–1.5	–3.2	–2.7	–2.5	–2.5	–3.0	–6.0	–10.3	–8.7	–8.5	–8.1	–7.3	–6.3	–5.9
Chile	7.9	3.9	–4.3	–0.4	1.4	0.7	–0.5	–1.5	–2.3	–3.0	–3.0	–2.4	–2.1	–2.0	–1.9
China	0.1	0.0	–1.8	0.6	–0.1	–0.7	–0.8	–0.9	–2.7	–3.1	–2.7	–2.4	–2.1	–2.2	–2.2
Colombia	–0.8	–0.3	–2.8	–3.3	–2.0	0.1	–0.9	–1.8	–2.8	–3.1	–2.7	–2.2	–1.6	–1.4	–1.2
Croatia	–2.4	–2.7	–5.8	–5.9	–7.8	–5.3	–5.4	–5.6	–4.0	–3.3	–2.8	–2.7	–2.6	–2.6	–2.6
Dominican Republic	0.1	–3.3	–3.0	–2.7	–3.0	–6.6	–3.6	–3.0	0.1	–3.5	–3.7	–3.2	–3.6	–3.8	–4.0
Ecuador	2.6	0.6	–3.6	–1.4	–0.1	–0.9	–4.6	–5.3	–5.3	–2.7	1.3	0.5	0.6	2.2	0.5
Egypt[1]	–7.2	–7.6	–6.6	–7.9	–9.3	–10.0	–13.4	–12.9	–11.7	–11.5	–10.1	–10.2	–9.7	–8.7	–7.5
Hungary	–5.1	–3.6	–4.6	–4.5	–5.5	–2.3	–2.5	–2.5	–2.2	–2.1	–2.2	–2.2	–2.0	–1.9	–1.8
India	–4.4	–10.0	–9.8	–8.4	–8.2	–7.5	–7.7	–7.0	–7.2	–7.0	–6.7	–6.4	–6.2	–6.0	–5.8
Indonesia	–0.9	0.1	–1.6	–1.2	–0.7	–1.6	–2.2	–2.1	–2.5	–2.7	–2.8	–2.8	–2.8	–2.8	–2.8
Iran	6.7	0.6	0.8	2.8	0.6	–0.3	–0.9	–1.2	–2.9	–2.5	–1.5	–1.3	–1.1	–1.0	–1.1
Kazakhstan	5.1	1.2	–1.3	1.5	6.0	4.5	5.0	1.8	–5.3	–4.0	–3.7	–2.7	–2.4	–1.0	–0.4
Kuwait	37.4	20.2	27.2	26.0	33.1	33.3	34.0	26.6	1.2	–13.4	–7.8	–6.3	–5.3	–5.3	–6.1
Libya	28.6	27.5	–5.3	11.6	–15.9	27.8	–4.0	–40.3	–54.4	–58.0	–46.0	–38.7	–29.7	–18.7	–14.7
Malaysia	–2.6	–3.5	–6.5	–4.5	–3.6	–3.8	–4.1	–2.7	–3.0	–3.3	–2.9	–2.7	–2.5	–2.3	–2.2
Mexico	–1.1	–0.8	–5.0	–3.9	–3.4	–3.8	–3.7	–4.6	–4.1	–3.5	–3.0	–2.5	–2.5	–2.5	–2.5
Morocco	–0.1	0.7	–1.8	–4.3	–6.6	–7.3	–5.2	–4.9	–4.3	–3.5	–3.0	–2.8	–2.5	–2.1	–1.7
Oman	12.4	17.3	–0.3	5.7	9.4	4.7	3.2	–1.6	–20.4	–19.7	–17.1	–13.9	–12.1	–11.7	–11.3
Pakistan	–5.1	–7.3	–5.0	–6.0	–6.7	–8.6	–8.4	–4.9	–5.3	–4.1	–3.3	–2.9	–2.8	–2.5	–2.5
Peru	3.3	2.7	–1.4	0.1	2.0	2.1	0.8	–0.3	–2.2	–2.2	–1.4	–1.2	–1.0	–0.6	–0.6
Philippines	–0.3	0.0	–2.7	–2.4	–0.4	–0.3	0.2	0.9	0.0	–0.6	–0.8	–0.9	–1.1	–1.2	–1.4
Poland	–1.9	–3.6	–7.3	–7.5	–4.9	–3.7	–4.0	–3.3	–2.9	–2.8	–3.1	–2.8	–2.5	–2.2	–1.9
Qatar	10.6	10.0	15.0	6.7	7.3	11.0	16.7	18.1	10.3	–2.7	–9.0	–7.0	–5.4	–4.8	–4.3
Romania	–3.1	–4.7	–7.1	–6.3	–4.2	–2.5	–2.5	–1.9	–1.5	–2.8	–2.8	–2.8	–2.8	–2.8	–2.8
Russia	5.6	4.6	–5.9	–3.2	1.4	0.4	–1.2	–1.1	–3.5	–4.4	–3.0	–1.9	–0.8	0.3	0.6
Saudi Arabia	11.8	29.8	–5.4	3.6	11.2	12.0	5.8	–3.4	–16.3	–13.5	–11.8	–11.0	–8.9	–9.0	–10.6
South Africa	1.2	–0.5	–4.7	–4.8	–3.9	–4.1	–4.0	–3.8	–4.0	–3.8	–3.6	–3.3	–3.2	–3.2	–3.1
Sri Lanka	–6.9	–7.0	–9.9	–8.0	–6.9	–6.5	–5.9	–6.0	–6.1	–5.4	–5.4	–5.4	–5.4	–5.4	–5.4
Thailand	0.2	0.8	–2.2	–1.3	0.0	–0.9	0.4	–0.8	0.3	–0.4	–0.5	–0.5	–0.5	–0.5	–0.5
Turkey	–2.0	–2.7	–6.0	–3.4	–0.6	–1.7	–1.3	–1.2	–1.0	–1.9	–1.3	–1.2	–1.1	–1.2	–1.4
Ukraine	–1.9	–3.0	–6.0	–5.8	–2.8	–4.3	–4.8	–4.5	–1.2	–3.7	–3.0	–2.5	–2.4	–2.2	–2.1
United Arab Emirates	21.8	20.1	–4.3	2.0	6.3	10.9	10.4	5.0	–4.9	–10.8	–8.5	–5.0	–3.4	–2.3	–2.0
Uruguay	0.0	–1.6	–1.6	–1.4	–0.9	–2.7	–2.3	–3.5	–3.5	–3.6	–3.3	–2.8	–2.5	–2.6	–2.6
Venezuela	–2.8	–3.5	–8.7	–10.4	–11.6	–16.5	–14.5	–15.2	–18.7	–24.5	–25.0	–22.2	–21.2	–20.9	–20.8
Average	1.0	0.8	–3.7	–1.9	–0.9	–1.1	–1.5	–2.4	–4.5	–4.7	–4.1	–3.6	–3.2	–3.0	–3.0
Asia	–1.1	–1.9	–3.4	–1.5	–1.6	–1.9	–1.9	–1.9	–3.2	–3.5	–3.2	–2.9	–2.7	–2.8	–2.8
Europe	1.5	0.8	–5.7	–3.7	–0.1	–0.6	–1.4	–1.4	–2.7	–3.4	–2.7	–2.0	–1.4	–0.9	–0.8
Latin America	–1.1	–0.8	–3.8	–3.1	–2.8	–3.2	–3.2	–5.1	–7.3	–6.5	–5.9	–5.1	–4.5	–4.0	–3.9
MENAP	10.7	12.8	–1.1	2.3	4.3	5.6	3.8	–0.6	–8.6	–10.0	–8.7	–7.5	–6.3	–5.6	–5.5
G20 Emerging	0.1	0.5	–3.9	–1.9	–1.1	–1.4	–1.9	–2.6	–4.5	–4.4	–3.9	–3.5	–3.1	–3.0	–3.0

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, the tables are not comparable to the authorities' numbers because of a different denominator.

Table A10. Emerging Market and Middle-Income Economies: General Government Primary Balance, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Algeria	6.0	8.8	–6.0	–0.8	–1.7	–5.3	–0.5	–7.4	–15.9	–14.9	–11.5	–9.4	–7.6	–6.0	–4.3
Angola	5.8	–2.5	–5.6	4.6	9.6	5.5	0.5	–5.4	–2.1	–4.8	–3.8	–2.6	–1.6	–1.3	–1.2
Argentina	1.7	1.8	–0.8	–0.4	–1.3	–1.4	–2.4	–3.4	–6.1	–4.8	–3.3	–1.8	–0.3	–0.3	–0.3
Azerbaijan	2.7	20.7	7.5	14.4	12.0	5.0	1.8	3.0	–3.2	–12.0	–4.1	0.4	4.0	3.9	2.4
Belarus	1.9	2.5	0.4	0.2	5.3	3.1	0.3	2.4	1.5	–2.9	–4.1	0.5	0.5	1.0	1.1
Brazil	3.2	3.8	1.9	2.3	2.9	1.9	1.7	–0.6	–1.9	–1.7	–1.4	–1.0	–0.3	0.9	1.6
Chile	7.7	3.6	–4.5	–0.3	1.5	0.8	–0.4	–1.4	–2.1	–2.8	–2.7	–2.1	–1.7	–1.6	–1.5
China	0.4	0.4	–1.4	1.1	0.4	–0.2	–0.3	–0.4	–2.2	–2.4	–1.8	–1.4	–1.0	–1.0	–1.0
Colombia	1.8	1.9	–1.1	–1.6	–0.1	1.6	1.2	0.3	0.3	0.2	0.3	0.8	1.2	1.2	1.2
Croatia	–1.0	–1.1	–3.9	–3.8	–5.1	–2.3	–2.3	–2.6	–0.9	0.0	0.5	0.8	0.9	0.8	0.8
Dominican Republic	1.6	–1.7	–1.2	–0.9	–1.0	–4.2	–1.2	–0.5	2.9	–0.5	–0.7	–0.1	–0.3	–0.4	–0.5
Ecuador	4.3	1.7	–3.0	–0.8	0.5	–0.2	–3.6	–4.3	–3.9	–1.1	3.3	2.5	2.6	4.2	2.5
Egypt[1]	–2.9	–3.7	–3.6	–3.6	–4.5	–4.9	–6.3	–5.8	–4.9	–4.3	–2.2	–2.0	–1.2	0.0	0.6
Hungary	–1.3	0.0	–0.6	–0.7	–1.7	1.9	1.8	1.3	1.3	1.1	0.8	0.7	0.9	1.2	1.5
India	0.4	–5.3	–5.2	–4.2	–3.9	–3.1	–3.1	–2.5	–2.6	–2.4	–2.2	–2.0	–1.9	–1.8	–1.8
Indonesia	0.9	1.7	–0.1	0.0	0.5	–0.4	–1.0	–0.9	–1.2	–1.2	–1.2	–1.1	–1.0	–1.0	–1.0
Iran	6.8	0.7	0.8	2.7	0.7	–0.2	–0.9	–1.1	–2.6	–1.9	–0.7	–0.3	0.0	0.1	0.0
Kazakhstan	4.2	1.5	–1.4	1.8	5.8	3.9	4.5	1.3	–4.9	–4.3	–4.1	–3.1	–2.8	–1.3	–0.7
Kuwait	25.6	11.1	18.1	16.9	26.5	26.6	25.8	17.5	–11.4	–27.6	–20.5	–17.9	–15.9	–15.2	–15.2
Libya	28.6	27.5	–5.3	11.6	–15.9	27.8	–4.0	–40.3	–54.4	–58.0	–46.0	–38.7	–29.7	–18.7	–14.7
Malaysia	–1.9	–2.1	–5.0	–2.9	–2.0	–2.0	–2.2	–0.8	–1.3	–1.5	–0.6	–0.4	–0.2	–0.2	–0.4
Mexico	1.5	1.7	–2.3	–1.4	–1.0	–1.2	–1.2	–1.9	–1.3	–0.5	0.2	1.0	1.1	1.1	1.2
Morocco	2.8	3.2	0.6	–2.0	–4.4	–4.8	–2.6	–2.2	–1.5	–0.8	–0.6	–0.3	0.0	0.8	1.2
Oman	10.8	16.0	–1.4	4.8	9.0	3.4	2.6	–2.3	–21.6	–20.8	–18.1	–14.6	–12.6	–11.7	–10.8
Pakistan	–1.1	–2.7	–0.2	–1.7	–2.9	–4.2	–3.9	–0.3	–0.5	0.2	1.2	1.4	1.4	1.3	1.3
Peru	5.2	4.1	–0.3	1.2	3.0	3.0	1.7	0.7	–1.3	–1.1	–0.1	0.1	0.3	0.7	0.7
Philippines	3.4	3.4	0.6	0.7	2.2	2.3	2.7	3.1	2.0	1.4	1.1	0.9	0.6	0.4	0.1
Poland	0.3	–1.5	–4.8	–5.0	–2.3	–1.0	–1.5	–1.4	–1.2	–1.1	–1.4	–1.0	–0.7	–0.5	–0.2
Qatar	11.2	10.4	16.0	7.9	8.7	12.4	17.8	19.3	11.6	–1.2	–7.3	–5.0	–3.2	–2.5	–1.8
Romania	–2.5	–4.1	–6.1	–5.0	–2.8	–0.7	–0.8	–0.4	–0.2	–1.5	–1.3	–1.2	–1.3	–1.4	–1.4
Russia	5.6	4.8	–6.2	–3.1	1.7	0.7	–0.8	–0.7	–3.1	–3.7	–2.1	–0.8	0.4	1.5	1.5
Saudi Arabia	11.5	29.2	–5.2	4.0	11.3	11.9	5.4	–4.0	–17.7	–16.6	–12.8	–11.8	–9.4	–9.0	–10.1
South Africa	3.7	2.0	–2.4	–2.2	–1.2	–1.3	–1.1	–0.7	–0.7	–0.2	0.1	0.4	0.6	0.7	0.8
Sri Lanka	–1.8	–2.2	–3.4	–1.7	–1.4	–1.1	–0.7	–1.6	–1.9	–0.9	–0.9	–0.8	–0.7	–0.8	–0.4
Thailand	1.1	1.6	–1.5	–0.7	0.8	–0.1	1.1	–0.1	0.8	0.2	0.2	0.2	0.2	0.2	0.2
Turkey	2.9	1.7	–1.4	0.3	2.1	1.1	1.4	1.0	1.2	0.2	0.8	0.9	1.1	1.0	1.1
Ukraine	–1.4	–2.5	–4.9	–4.1	–0.8	–2.4	–2.3	–1.2	3.0	0.9	1.2	1.8	1.6	1.7	1.7
United Arab Emirates	21.8	20.1	–4.1	2.3	6.5	11.2	10.8	5.3	–4.6	–10.5	–8.2	–4.7	–3.1	–2.1	–1.7
Uruguay	3.6	1.4	1.1	1.5	1.9	–0.2	0.4	–0.6	0.0	–0.5	–0.2	0.1	0.4	0.5	0.6
Venezuela	–1.2	–2.0	–7.2	–8.6	–9.4	–13.8	–11.5	–11.9	–15.4	–23.4	–24.7	–22.1	–21.1	–20.8	–20.7
Average	2.8	2.5	–1.9	–0.1	0.8	0.5	0.0	–0.7	–2.7	–2.9	–2.2	–1.6	–1.2	–0.9	–0.9
Asia	0.5	–0.5	–2.0	–0.2	–0.3	–0.6	–0.7	–0.6	–2.0	–2.1	–1.7	–1.3	–1.1	–1.1	–1.0
Europe	3.0	2.2	–4.2	–2.2	1.2	0.6	–0.2	–0.2	–1.4	–1.9	–1.1	–0.3	0.2	0.8	0.8
Latin America	2.5	2.4	–0.5	0.1	0.6	–0.2	–0.2	–1.7	–2.8	–2.5	–1.8	–0.8	–0.3	0.3	0.5
MENAP	10.7	12.8	–0.7	2.9	4.8	6.1	4.5	0.0	–8.0	–9.6	–7.6	–6.2	–4.8	–3.9	–3.8
G20 Emerging	2.3	2.4	–2.0	–0.1	0.8	0.3	–0.3	–0.9	–2.6	–2.6	–1.9	–1.5	–1.0	–0.9	–0.8

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. MENAP = Middle East, North Africa, and Pakistan.

[1] Based on nominal GDP series prior to the recent revision; therefore, figures are not comparable to the authorities' numbers because of a different denominator.

Table A11. Emerging Market and Middle-Income Economies: General Government Cyclically Adjusted Balance, 2007–21

(Percent of potential GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Algeria	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Angola	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Argentina	–0.7	0.3	–0.6	–1.0	–3.5	–3.0	–3.5	–4.3	–7.7	–6.0	–5.3	–4.6	–3.1	–3.0	–3.3
Azerbaijan	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Belarus	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Brazil	–3.3	–2.6	–3.0	–4.0	–4.1	–3.9	–4.7	–7.6	–9.3	–7.1	–7.0	–6.8	–6.4	–5.8	–5.6
Chile[1]	0.5	–1.5	–4.3	–2.5	–1.0	–0.1	–1.0	–1.5	–2.0	–2.3	–1.8	–1.2	–0.7	–0.6	–0.6
China	–0.1	–0.3	–1.8	0.6	–0.1	–0.5	–0.5	–0.5	–2.4	–2.9	–2.6	–2.3	–2.1	–2.2	–2.2
Colombia	–1.6	–0.6	–2.3	–2.7	–2.1	0.1	–1.1	–2.1	–3.0	–3.0	–2.5	–1.9	–1.5	–1.4	–1.2
Croatia	–4.1	–4.5	–5.3	–5.1	–7.0	–4.1	–3.9	–4.1	–3.1	–2.7	–2.4	–2.4	–2.5	–2.6	–2.6
Dominican Republic	–0.1	–3.9	–2.4	–3.2	–2.6	–6.4	–2.7	–2.7	0.4	–2.6	–3.0	–2.9	–3.2	–3.2	–3.4
Ecuador	4.8	–4.0	–3.2	–2.4	–2.5	–3.6	–8.8	–9.7	–4.9	–0.6	3.9	2.7	2.1	3.6	1.6
Egypt[2]	–7.2	–8.1	–7.1	–8.6	–9.6	–10.1	–13.2	–12.5	–11.5	–11.1	–9.8	–10.0	–9.5	–8.4	–7.1
Hungary[1]	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
India	–4.9	–9.6	–9.5	–8.8	–8.5	–7.4	–7.6	–6.9	–7.1	–7.0	–6.6	–6.3	–6.1	–6.0	–5.9
Indonesia	–0.9	–0.1	–1.6	–1.2	–0.7	–1.6	–2.3	–2.1	–2.4	–2.7	–2.8	–2.8	–2.8	–2.8	–2.8
Iran	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Kazakhstan	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Kuwait	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Libya	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Malaysia	–3.3	–3.6	–5.7	–4.4	–3.0	–3.8	–3.6	–2.3	–3.3	–3.7	–2.9	–2.6	–2.5	–2.3	–2.3
Mexico	–1.6	–1.2	–4.0	–3.6	–3.3	–3.9	–3.7	–4.5	–4.0	–3.4	–2.9	–2.5	–2.5	–2.5	–2.5
Morocco	–1.2	–0.4	–1.9	–4.3	–6.8	–7.4	–5.2	–6.2	–4.9	–4.4	–3.9	–3.0	–2.7	–2.3	0.0
Oman	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Pakistan	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Peru[1]	1.6	1.0	–0.2	–0.4	1.2	1.4	0.1	–0.2	–1.8	–1.7	–1.2	–1.0	–0.8	–0.6	–0.5
Philippines	–0.7	–0.5	–1.8	–2.5	0.0	–0.3	0.1	0.6	0.0	–0.6	–0.7	–0.9	–1.0	–1.2	–1.4
Poland	–2.6	–4.2	–7.2	–7.5	–5.6	–3.8	–3.2	–3.0	–2.8	–2.9	–3.3	–2.9	–2.5	–2.2	–1.9
Qatar	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Romania	–5.8	–9.4	–8.0	–6.1	–3.8	–1.6	–2.0	–1.4	–1.2	–2.9	–2.9	–2.9	–2.9	–2.9	–2.8
Russia	4.5	4.1	–5.9	–3.3	1.2	–0.1	–1.6	–0.2	–2.4	–4.3	–3.0	–2.1	–1.1	0.0	0.3
Saudi Arabia	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
South Africa	1.0	–0.7	–3.0	–3.5	–3.6	–3.9	–3.9	–3.5	–3.7	–3.2	–2.9	–2.8	–2.8	–2.8	–2.9
Sri Lanka	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Thailand	–0.2	0.4	–1.4	–1.4	0.0	–0.6	0.2	–0.4	0.7	0.0	–0.3	–0.4	–0.5	–0.5	–0.5
Turkey	–3.3	–3.1	–3.6	–2.8	–1.4	–1.8	–1.5	–1.1	–0.9	–1.9	–1.4	–1.2	–1.1	–1.2	–1.4
Ukraine	–3.6	–3.5	–2.1	–2.7	–3.1	–4.5	–4.6	–3.2	1.8	–2.1	–2.2	–2.1	–2.1	–2.2	–2.1
United Arab Emirates	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Uruguay	1.1	–1.1	–1.1	–1.9	–1.7	–3.4	–3.5	–4.6	–4.1	–3.9	–3.5	–2.9	–2.5	–2.6	–2.6
Venezuela	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Average	–1.1	–1.5	–3.7	–2.6	–2.0	–2.1	–2.4	–2.5	–3.6	–3.7	–3.4	–3.1	–2.8	–2.7	–2.7
Asia	–1.3	–2.0	–3.3	–1.6	–1.6	–1.7	–1.6	–1.5	–3.0	–3.4	–3.1	–2.9	–2.7	–2.7	–2.7
Europe	0.5	0.0	–5.5	–3.9	–0.9	–1.2	–2.0	–1.0	–1.9	–3.2	–2.6	–2.0	–1.5	–1.0	–0.9
Latin America	–1.9	–1.6	–2.9	–3.3	–3.3	–3.1	–3.7	–5.4	–6.3	–4.9	–4.4	–4.1	–3.7	–3.4	–3.3
MENAP	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
G20 Emerging	–0.9	–1.2	–3.5	–2.3	–1.9	–2.0	–2.3	–2.4	–3.7	–3.8	–3.5	–3.2	–2.9	–2.8	–2.8

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

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

[1] The data for these countries include adjustments beyond the output cycle.

[2] Based on nominal GDP series prior to the recent revision; therefore, the tables are not comparable to the authorities' numbers because of a different denominator.

Table A12. Emerging Market and Middle-Income Economies: General Government Cyclically Adjusted Primary Balance, 2007–21

(Percent of potential GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Algeria	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Angola	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Argentina	0.9	1.6	0.5	–0.2	–2.3	–1.7	–2.9	–3.5	–6.4	–4.4	–3.2	–1.9	–0.4	–0.3	–0.3
Azerbaijan	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Belarus	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Brazil	2.8	2.9	2.1	1.2	1.6	0.7	0.2	–1.9	–0.9	–0.5	–0.1	0.1	0.4	1.3	1.8
Chile[1]	0.3	–1.9	–4.5	–2.4	–0.9	0.0	–0.9	–1.3	–1.8	–2.1	–1.5	–0.9	–0.3	–0.2	–0.2
China	0.3	0.1	–1.4	1.0	0.4	0.0	0.0	0.1	–1.9	–2.2	–1.7	–1.3	–1.0	–1.0	–1.0
Colombia	1.1	1.6	–0.7	–1.1	–0.2	1.6	1.0	0.0	0.1	0.3	0.5	1.0	1.3	1.3	1.2
Croatia	–2.6	–2.8	–3.5	–3.1	–4.3	–1.2	–0.9	–1.3	–0.1	0.6	0.9	1.0	0.9	0.8	0.8
Dominican Republic	1.4	–2.3	–0.6	–1.3	–0.5	–4.0	–0.4	–0.2	3.3	0.4	0.0	0.2	0.1	0.2	0.1
Ecuador	6.5	–2.8	–2.7	–1.8	–1.9	–2.9	–7.8	–8.7	–3.5	1.0	5.8	4.6	4.0	5.6	3.5
Egypt[2]	–2.9	–4.1	–4.0	–4.1	–4.7	–4.9	–6.1	–5.5	–4.7	–4.1	–2.1	–1.9	–1.1	0.1	0.8
Hungary[1]	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
India	0.0	–5.0	–5.0	–4.5	–4.1	–3.1	–3.0	–2.4	–2.5	–2.4	–2.1	–1.9	–1.8	–1.8	–1.8
Indonesia	0.9	1.5	0.0	0.1	0.5	–0.4	–1.1	–0.9	–1.1	–1.2	–1.2	–1.1	–1.0	–1.0	–1.0
Iran	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Kazakhstan	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Kuwait	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Libya	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Malaysia	–2.5	–2.2	–4.2	–2.8	–1.4	–2.0	–1.7	–0.5	–1.6	–1.9	–0.6	–0.3	–0.1	–0.2	–0.4
Mexico	1.1	1.4	–1.4	–1.1	–0.9	–1.4	–1.2	–1.8	–1.2	–0.4	0.2	1.0	1.1	1.1	1.2
Morocco	1.8	2.2	0.4	–2.1	–4.6	–4.9	–2.7	–3.5	–2.2	–1.7	–1.4	–0.4	–0.1	0.7	4.3
Oman	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Pakistan	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Peru[1]	3.4	2.4	0.9	0.6	2.2	2.3	1.1	0.7	–0.8	–0.6	0.1	0.2	0.4	0.8	0.8
Philippines	3.1	3.0	1.5	0.6	2.5	2.3	2.6	2.9	2.0	1.4	1.1	1.0	0.7	0.4	0.1
Poland	–0.4	–2.0	–4.8	–5.0	–3.0	–1.1	–0.7	–1.0	–1.1	–1.2	–1.6	–1.2	–0.8	–0.5	–0.2
Qatar	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Romania	–5.2	–8.7	–7.0	–4.9	–2.3	0.1	–0.3	0.1	0.0	–1.5	–1.4	–1.3	–1.4	–1.4	–1.4
Russia	4.5	4.3	–6.2	–3.1	1.5	0.2	–1.3	0.2	–2.0	–3.6	–2.1	–1.0	0.1	1.2	1.1
Saudi Arabia	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
South Africa	3.5	1.7	–0.8	–1.0	–0.9	–1.2	–0.9	–0.4	–0.4	0.3	0.7	0.9	1.0	1.0	1.0
Sri Lanka	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Thailand	0.7	1.3	–0.7	–0.8	0.9	0.2	1.0	0.3	1.3	0.5	0.4	0.3	0.2	0.2	0.2
Turkey	1.8	1.3	0.7	0.9	1.4	1.0	1.2	1.1	1.3	0.3	0.8	0.9	1.1	1.0	1.1
Ukraine	–3.1	–3.0	–1.1	–1.1	–1.2	–2.6	–2.2	0.0	5.8	2.4	2.0	2.3	1.9	1.7	1.7
United Arab Emirates	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Uruguay	4.6	1.8	1.6	1.1	1.2	–0.8	–0.7	–1.7	–0.5	–0.8	–0.3	0.1	0.4	0.5	0.6
Venezuela	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Average	1.2	0.5	–1.8	–0.6	–0.1	–0.4	–0.6	–0.6	–1.6	–1.8	–1.3	–0.9	–0.6	–0.5	–0.5
Asia	0.2	–0.6	–1.9	–0.2	–0.3	–0.5	–0.4	–0.3	–1.8	–2.0	–1.6	–1.3	–1.1	–1.0	–1.0
Europe	2.0	1.5	–4.1	–2.5	0.4	0.1	–0.7	0.2	–0.6	–1.7	–1.0	–0.4	0.2	0.7	0.7
Latin America	1.9	1.8	0.4	0.1	0.3	–0.1	–0.6	–1.9	–1.7	–0.9	–0.2	0.2	0.6	1.0	1.2
MENAP	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
G20 Emerging	1.5	0.9	–1.6	–0.3	0.1	–0.3	–0.6	–0.6	–1.8	–1.9	–1.4	–1.1	–0.7	–0.6	–0.6

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 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] The 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, the tables are not comparable to the authorities' numbers because of a different denominator.

Table A13. Emerging Market and Middle-Income Economies: General Government Revenue, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Algeria	39.4	47.0	36.9	36.6	39.9	39.1	35.8	33.4	29.1	26.1	27.2	27.9	28.5	28.9	29.3
Angola	45.8	50.9	34.6	43.5	48.8	45.9	40.2	35.3	24.8	21.6	23.0	23.9	24.5	24.4	24.1
Argentina	24.7	26.4	26.9	27.9	28.8	30.6	32.1	33.6	36.6	35.8	35.5	35.6	35.6	35.6	35.6
Azerbaijan	28.5	51.7	41.2	46.0	45.5	41.5	39.5	39.1	35.1	27.9	34.7	40.9	43.4	43.4	41.2
Belarus	49.5	50.7	45.8	41.6	38.8	40.5	41.2	40.6	42.4	40.9	41.3	41.4	41.5	41.6	41.6
Brazil	34.9	35.9	33.9	36.1	35.1	34.8	34.6	33.1	31.6	32.0	32.6	32.7	33.1	33.2	33.1
Chile	27.2	25.8	20.7	23.1	24.4	24.0	22.7	22.5	23.5	23.5	24.5	25.5	26.3	26.4	26.6
China	18.3	22.6	24.0	24.8	27.2	28.1	28.0	28.3	29.2	28.4	28.4	28.2	27.9	27.6	27.3
Colombia	27.2	26.4	26.7	26.1	26.7	28.3	28.1	27.7	26.7	25.5	25.5	25.6	25.4	25.2	25.2
Croatia	42.5	41.9	41.6	41.2	41.0	41.7	42.5	42.6	43.5	43.7	44.4	44.7	45.0	45.2	45.4
Dominican Republic	16.4	15.1	13.3	13.1	12.8	13.6	14.6	15.1	18.0	14.6	14.5	14.4	14.3	14.3	14.2
Ecuador	26.7	35.8	29.4	33.3	39.3	39.3	39.3	38.7	34.0	30.4	30.9	31.6	32.2	32.6	32.8
Egypt[1]	26.4	26.6	26.3	23.9	20.9	21.1	21.9	23.7	21.7	21.8	22.5	22.8	23.3	23.4	23.4
Hungary	45.0	45.1	46.1	45.0	44.3	46.3	47.0	47.4	48.0	44.6	44.9	44.7	44.6	44.5	44.1
India	22.0	19.7	18.5	18.8	19.3	19.8	19.9	19.7	20.8	21.0	20.8	20.9	21.0	21.0	21.1
Indonesia	17.8	19.4	15.4	15.6	17.0	17.2	16.9	16.5	14.8	14.0	14.3	14.6	14.9	15.1	15.4
Iran	26.5	22.7	21.4	21.9	19.2	14.2	14.1	14.6	13.0	13.6	14.6	14.6	14.8	14.9	14.9
Kazakhstan	28.8	28.3	22.1	23.9	27.7	26.9	25.3	24.1	17.7	18.4	18.5	18.6	18.5	19.0	19.3
Kuwait	67.5	60.6	69.4	70.7	72.1	72.1	71.8	68.5	54.8	46.2	47.7	47.4	46.8	45.7	44.1
Libya	62.3	68.4	52.9	64.9	39.1	72.3	65.2	37.9	22.3	16.8	22.9	25.6	28.5	32.3	34.3
Malaysia	23.6	23.8	24.8	22.5	23.9	25.0	24.1	23.8	22.2	20.5	21.2	21.6	22.0	21.7	21.4
Mexico	22.2	25.0	23.3	22.8	23.7	23.9	24.3	23.4	23.5	22.3	22.0	22.1	22.1	22.1	22.0
Morocco	28.5	31.3	28.7	26.8	27.2	28.0	27.7	28.0	25.6	25.3	26.6	27.1	27.6	28.0	28.1
Oman	48.8	47.4	39.3	40.6	48.9	49.5	49.1	47.2	39.3	40.5	40.4	42.0	42.1	41.0	40.0
Pakistan	14.4	14.4	14.2	14.3	12.6	13.0	13.5	15.3	14.5	15.7	16.3	16.7	17.2	17.7	17.7
Peru	21.9	22.2	20.1	21.1	21.8	22.4	22.3	22.3	20.3	20.5	20.8	20.8	21.0	21.2	21.3
Philippines	18.7	18.7	17.4	16.8	17.6	18.6	18.8	19.3	19.4	19.5	19.5	19.6	19.6	19.6	19.6
Poland	41.2	40.8	37.9	38.1	38.8	38.9	38.4	38.8	38.7	39.4	39.6	39.7	39.7	39.6	39.5
Qatar	38.7	33.0	47.8	37.3	35.4	41.4	47.7	47.0	43.4	32.4	25.4	25.3	25.5	25.2	24.8
Romania	32.1	31.6	30.6	31.6	32.1	32.4	31.4	32.0	32.9	30.8	29.6	29.2	29.1	28.9	28.8
Russia	37.7	36.7	32.9	32.5	34.9	35.0	34.4	34.4	32.9	30.7	31.2	31.4	31.5	31.6	31.5
Saudi Arabia	41.2	56.5	31.7	37.5	44.5	45.3	41.4	36.9	24.6	23.5	24.2	25.8	26.5	26.5	26.2
South Africa	28.4	28.2	27.0	26.7	27.0	27.2	27.6	28.2	29.7	30.1	30.2	30.5	30.5	30.5	30.5
Sri Lanka	16.6	15.6	15.0	14.9	14.5	13.2	12.4	11.7	12.1	13.6	13.6	13.6	13.6	13.6	13.6
Thailand	20.2	20.0	19.5	20.7	21.1	21.3	22.3	21.4	22.6	22.3	22.1	22.2	22.3	22.3	22.4
Turkey	31.6	31.8	32.6	33.3	34.6	35.0	37.2	36.0	36.0	35.3	35.8	36.0	36.1	36.2	36.5
Ukraine	40.2	42.4	40.8	43.4	42.9	44.7	43.3	40.3	42.1	37.8	37.7	38.0	38.0	38.0	37.9
United Arab Emirates	39.5	42.0	30.7	34.7	37.8	40.1	41.0	37.5	31.0	27.2	26.6	28.0	27.8	27.0	26.3
Uruguay	28.9	27.1	28.1	29.0	28.3	27.7	29.5	28.7	28.4	28.5	28.7	28.8	29.0	29.0	29.1
Venezuela	33.1	31.4	24.6	21.2	27.9	23.5	23.5	26.4	22.4	14.0	12.0	14.4	15.1	15.3	15.2
Average	27.7	29.6	26.9	27.6	29.0	29.4	29.4	28.8	27.9	26.8	26.9	26.9	26.9	26.8	26.5
Asia	19.3	21.6	22.0	22.6	24.5	25.5	25.6	25.8	26.6	25.9	25.9	25.8	25.6	25.4	25.2
Europe	36.9	36.9	34.4	34.3	35.8	36.0	35.8	35.5	34.8	33.8	34.1	34.2	34.3	34.3	34.3
Latin America	28.6	30.1	28.3	29.5	30.1	29.8	29.9	29.2	28.4	27.3	27.4	27.7	27.9	27.9	27.8
MENAP	36.7	40.6	31.4	33.0	34.0	35.2	35.7	33.0	25.7	23.4	23.7	24.5	24.9	24.9	24.6
G20 Emerging	25.9	28.2	26.0	27.0	28.7	29.1	29.0	28.5	28.2	27.2	27.3	27.3	27.2	27.0	26.8

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 C. MENAP = Middle East, North Africa, and Pakistan.

[1] Based on nominal GDP series prior to the recent revision; therefore, figures are not comparable to the authorities' numbers because of a different denominator.

Table A14. Emerging Market and Middle-Income Economies: General Government Expenditure, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Algeria	33.3	37.9	42.3	37.0	40.3	43.5	36.2	40.7	44.4	40.6	38.8	37.6	36.5	35.4	34.3
Angola	41.2	55.4	41.9	40.0	40.2	41.3	40.5	41.9	28.9	28.7	29.1	28.7	28.4	28.0	27.7
Argentina	24.5	26.0	28.8	29.1	31.2	33.3	35.0	37.7	43.9	42.2	41.0	40.1	38.6	38.6	38.8
Azerbaijan	25.9	31.1	33.8	31.7	34.0	36.7	38.0	36.3	38.5	40.4	39.4	41.1	40.1	40.2	39.7
Belarus	47.9	48.8	46.2	42.1	34.5	38.9	41.9	39.5	42.6	46.1	47.9	44.1	44.4	44.3	44.2
Brazil	37.6	37.4	37.1	38.8	37.6	37.3	37.5	39.1	41.9	40.7	41.2	40.7	40.4	39.5	39.0
Chile	19.3	21.8	25.0	23.5	23.0	23.3	23.2	24.0	25.8	26.5	27.5	27.9	28.4	28.5	28.6
China	18.2	22.6	25.8	24.2	27.3	28.8	28.9	29.3	31.9	31.4	31.0	30.6	30.0	29.8	29.5
Colombia	28.0	26.6	29.5	29.4	28.6	28.3	29.0	29.5	29.6	28.6	28.2	27.7	27.0	26.6	26.3
Croatia	44.9	44.7	47.3	47.1	48.8	47.1	47.8	48.2	47.6	47.0	47.3	47.3	47.6	47.8	47.9
Dominican Republic	16.3	18.3	16.3	15.8	15.9	20.2	18.1	18.1	18.0	18.0	18.1	17.6	17.9	18.1	18.2
Ecuador	24.1	35.2	33.0	34.7	39.5	40.3	43.9	44.0	39.3	33.2	29.6	31.0	31.5	30.4	32.2
Egypt[1]	33.5	34.3	32.9	31.8	30.3	31.1	35.3	36.7	33.4	33.2	32.6	33.0	33.0	32.1	30.9
Hungary	50.1	48.7	50.6	49.6	49.7	48.6	49.5	49.9	50.2	46.7	47.1	46.9	46.6	46.4	45.9
India	26.4	29.7	28.3	27.2	27.5	27.3	27.6	26.7	27.9	28.0	27.6	27.3	27.1	27.0	26.9
Indonesia	18.7	19.4	17.0	16.9	17.7	18.8	19.1	18.6	17.4	16.7	17.1	17.4	17.7	17.9	18.2
Iran	19.7	22.1	20.6	19.1	18.5	14.5	15.0	15.7	15.9	16.1	16.1	15.9	15.9	15.9	16.0
Kazakhstan	23.7	27.1	23.5	22.5	21.8	22.4	20.2	22.3	23.0	22.4	22.2	21.3	20.9	20.0	19.8
Kuwait	30.1	40.4	42.2	44.7	39.1	38.8	37.8	41.9	53.6	59.6	55.5	53.7	52.1	51.0	50.2
Libya	33.7	40.8	58.2	53.4	55.0	44.5	69.2	78.2	76.7	74.8	69.0	64.3	58.3	51.0	49.0
Malaysia	26.3	27.3	31.3	27.0	27.5	28.8	28.2	26.5	25.2	23.8	24.1	24.3	24.5	24.1	23.6
Mexico	23.4	25.8	28.2	26.7	27.1	27.7	28.0	27.9	27.6	25.8	25.0	24.6	24.6	24.6	24.5
Morocco	28.6	30.6	30.4	31.1	33.8	35.3	32.9	33.0	29.9	28.8	29.7	29.9	30.1	30.1	29.8
Oman	36.4	30.1	39.6	35.0	39.5	44.8	45.9	48.8	59.7	60.2	57.6	55.9	54.2	52.7	51.3
Pakistan	19.5	21.7	19.3	20.3	19.3	21.7	21.8	20.2	19.8	19.8	19.6	19.7	20.0	20.2	20.2
Peru	18.6	19.6	21.4	21.0	19.8	20.3	21.6	22.6	22.6	22.7	22.3	22.1	21.9	21.8	21.8
Philippines	19.0	18.6	20.1	19.2	18.0	18.9	18.6	18.4	19.4	20.1	20.3	20.5	20.7	20.8	20.9
Poland	43.1	44.4	45.2	45.6	43.6	42.6	42.4	42.1	41.6	42.2	42.7	42.4	42.1	41.8	41.4
Qatar	28.1	23.0	32.9	30.6	28.2	30.4	31.0	28.9	33.1	35.1	34.4	32.3	30.8	30.0	29.1
Romania	35.2	36.3	37.8	37.9	36.3	34.9	33.9	33.9	34.3	33.6	32.4	32.0	31.9	31.7	31.6
Russia	32.1	32.2	38.8	35.7	33.5	34.6	35.6	35.4	36.4	35.1	34.2	33.3	32.3	31.3	30.9
Saudi Arabia	29.5	26.7	37.1	34.0	33.4	33.3	35.6	40.3	40.9	37.1	36.0	36.8	35.5	35.5	36.8
South Africa	27.2	28.7	31.7	31.5	30.9	31.3	31.7	32.0	33.7	33.9	33.8	33.8	33.7	33.7	33.6
Sri Lanka	23.5	22.6	24.9	22.8	21.4	19.7	18.3	17.7	18.3	19.0	19.0	19.0	19.1	19.1	19.0
Thailand	20.0	19.2	21.7	22.0	21.1	22.3	22.0	22.2	22.3	22.7	22.6	22.7	22.8	22.8	22.9
Turkey	33.6	34.5	38.6	36.7	35.2	36.6	38.4	37.3	37.0	37.2	37.2	37.2	37.3	37.5	37.9
Ukraine	42.1	45.4	46.8	49.2	45.7	49.0	48.1	44.8	43.2	41.6	40.7	40.5	40.4	40.2	40.0
United Arab Emirates	17.7	21.9	35.0	32.7	31.5	29.2	30.6	32.5	35.9	38.0	35.1	33.0	31.1	29.4	28.3
Uruguay	28.9	28.7	29.7	30.5	29.2	30.4	31.8	32.2	31.8	32.1	32.0	31.7	31.5	31.6	31.7
Venezuela	35.9	34.9	33.3	31.6	39.5	40.0	38.0	41.6	41.0	38.5	37.0	36.6	36.3	36.1	35.9
Average	26.8	28.8	30.6	29.5	30.0	30.5	30.9	31.2	32.3	31.5	31.0	30.6	30.1	29.8	29.5
Asia	20.4	23.5	25.4	24.1	26.1	27.3	27.5	27.7	29.8	29.4	29.0	28.7	28.3	28.2	28.0
Europe	35.4	36.1	40.1	38.0	35.9	36.6	37.2	36.9	37.5	37.3	36.8	36.2	35.7	35.2	35.1
Latin America	29.7	30.9	32.1	32.6	32.9	32.9	33.2	34.3	35.7	33.8	33.3	32.8	32.4	32.0	31.7
MENAP	26.0	27.8	32.4	30.7	29.7	29.6	31.9	33.6	34.3	33.4	32.4	32.0	31.1	30.5	30.1
G20 Emerging	25.8	27.8	29.9	28.9	29.7	30.5	30.9	31.1	32.6	31.6	31.2	30.8	30.3	30.0	29.8

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 C. MENAP = Middle East, North Africa, and Pakistan.

[1] Based on nominal GDP series prior to the recent revision; therefore, figures are not comparable to the authorities' numbers because of a different denominator.

Table A15. Emerging Market and Middle-Income Economies: General Government Gross Debt, 2007–21
(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Algeria	13.6	8.4	10.2	10.9	9.5	9.5	7.7	8.0	8.7	14.9	24.4	31.6	36.7	39.9	41.5
Angola	16.1	16.6	22.7	44.3	33.8	29.5	32.9	40.7	62.3	70.1	68.7	67.7	66.3	65.0	64.2
Argentina	44.4	39.3	47.6	39.1	35.9	37.6	41.5	45.1	56.5	60.7	60.9	59.5	57.5	56.3	56.8
Azerbaijan	8.6	7.3	11.8	11.1	10.1	11.6	13.8	16.0	36.1	40.1	43.8	47.4	51.2	54.7	58.3
Belarus	18.3	21.5	34.7	39.5	46.0	39.1	38.7	40.4	59.9	69.5	68.9	66.8	64.8	63.8	62.7
Brazil[1]	63.7	61.9	64.9	63.0	61.2	62.3	60.4	63.3	73.7	76.3	80.5	83.6	86.4	89.1	91.7
Chile	3.9	4.9	5.8	8.6	11.2	12.0	12.8	15.1	17.1	19.8	22.5	24.3	25.3	25.9	26.2
China	34.5	31.6	36.9	35.1	35.3	36.9	39.5	41.1	43.9	46.8	49.3	51.2	52.4	53.1	53.8
Colombia	32.5	32.1	35.2	36.4	35.6	34.1	37.8	44.3	49.4	49.3	48.0	46.0	43.3	41.0	40.3
Croatia	37.1	38.9	48.0	57.0	63.7	69.2	80.8	85.1	87.7	89.0	89.0	88.4	87.5	86.5	85.8
Dominican Republic	17.5	19.6	22.7	23.8	25.7	30.5	34.6	34.4	34.3	35.1	35.9	36.0	36.7	37.5	38.7
Ecuador	27.2	22.2	17.7	19.7	19.4	21.6	25.9	31.2	34.5	38.0	37.9	37.3	36.0	33.9	32.8
Egypt[2]	76.3	66.8	69.5	69.6	72.9	75.0	84.7	86.0	87.7	89.3	88.8	88.4	88.4	87.7	85.7
Hungary	65.6	71.6	78.0	80.6	80.8	78.3	76.8	76.2	75.5	74.8	74.5	73.5	72.2	71.3	70.3
India	74.0	74.5	72.5	67.5	68.8	67.7	66.2	66.4	67.2	66.5	65.6	64.3	62.9	61.5	60.1
Indonesia	32.3	30.3	26.5	24.5	23.1	23.0	24.8	24.7	27.2	27.6	28.4	29.3	29.9	30.4	30.9
Iran	12.0	9.3	10.4	12.2	8.9	16.8	15.4	15.6	17.1	17.5	17.7	18.0	17.8	17.6	15.6
Kazakhstan	5.9	6.8	10.2	10.7	10.4	12.4	12.9	14.7	23.3	22.1	20.5	20.2	20.1	18.8	18.3
Kuwait	11.8	9.6	11.0	11.3	8.5	6.8	6.4	7.1	10.6	18.8	22.1	24.9	26.8	28.8	31.1
Libya	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Malaysia	39.9	39.9	51.1	51.9	52.6	54.6	55.9	55.6	57.4	55.8	55.0	53.6	52.0	50.1	48.1
Mexico	37.5	42.8	43.9	42.2	43.2	43.2	46.4	49.5	54.0	54.9	54.9	54.5	53.9	53.0	52.1
Morocco	52.0	45.4	46.1	49.0	52.5	58.3	61.5	63.4	63.7	64.3	64.0	63.2	61.8	60.0	58.7
Oman	7.1	4.8	6.9	5.9	5.2	4.9	5.1	5.1	20.6	35.5	41.7	48.3	53.5	58.0	60.5
Pakistan	52.6	57.9	59.1	61.5	59.5	64.0	64.8	64.9	64.4	65.0	63.7	61.3	59.0	56.1	53.6
Peru	31.9	28.0	28.4	25.4	23.0	21.2	20.3	20.7	23.1	25.3	25.5	25.4	25.2	25.1	24.9
Philippines	44.6	44.2	44.3	43.5	41.4	40.6	39.2	36.4	37.1	35.7	33.8	31.9	30.2	28.6	27.3
Poland	44.2	46.6	49.8	53.3	54.4	54.0	55.9	50.4	51.3	52.0	52.8	52.8	52.3	51.5	50.4
Qatar	8.9	11.1	36.0	41.8	35.6	36.6	32.6	31.7	35.8	46.2	56.4	60.3	63.0	66.7	69.0
Romania	12.7	13.4	23.3	30.5	33.9	37.6	38.8	40.5	39.4	39.7	40.2	40.7	41.3	41.9	42.4
Russia	8.1	7.5	10.0	10.6	10.9	11.8	13.1	16.3	17.7	18.4	19.4	20.6	21.5	21.0	20.2
Saudi Arabia	17.1	12.1	14.0	8.4	5.4	3.6	2.2	1.6	5.8	17.2	25.8	33.3	38.7	44.3	51.0
South Africa	27.1	26.5	30.1	34.7	38.2	40.9	44.2	47.1	50.1	51.4	52.1	52.6	52.9	53.1	53.3
Sri Lanka	85.0	81.4	86.1	81.9	78.5	79.2	78.3	75.4	74.4	76.0	74.8	73.7	73.0	72.4	72.0
Thailand	36.0	34.9	42.4	39.9	39.1	41.9	42.2	43.6	43.1	43.7	44.5	45.3	45.9	45.9	45.6
Turkey	39.9	40.0	46.1	42.3	39.1	36.2	36.1	33.5	32.6	30.7	29.2	28.3	26.9	26.0	25.1
Ukraine	11.8	19.7	34.1	40.6	36.9	37.5	40.7	70.3	80.2	92.8	92.3	85.9	79.4	72.4	65.3
United Arab Emirates	7.9	12.5	24.1	22.2	17.6	17.0	15.9	15.7	19.4	21.2	19.7	18.5	17.5	16.5	15.7
Uruguay	68.0	67.8	63.1	59.4	58.1	57.9	60.2	61.2	61.8	63.0	64.0	64.3	64.2	64.7	64.8
Venezuela	29.1	23.1	27.7	34.6	43.8	44.3	52.4	48.5	48.8	36.0	27.1	23.2	21.9	21.4	21.3
Average	36.5	34.7	39.7	38.7	37.9	38.1	39.5	41.5	45.4	47.5	49.0	50.2	50.8	51.0	51.3
Asia	43.4	39.9	43.5	41.3	40.8	41.4	42.9	44.2	46.5	48.5	50.3	51.5	52.1	52.4	52.7
Europe	23.1	23.1	28.8	28.6	27.2	26.3	27.6	29.9	33.4	34.8	34.5	34.5	34.2	33.4	32.4
Latin America	45.6	45.8	49.1	48.2	48.0	47.9	48.7	51.6	57.4	58.4	59.7	60.6	60.9	61.2	61.8
MENAP	22.1	19.6	25.5	24.5	22.0	23.3	24.2	25.2	31.2	37.9	41.3	44.1	45.7	46.7	47.8
G20 Emerging	39.4	37.1	41.5	39.6	38.7	38.7	40.0	42.0	45.9	48.0	49.8	51.2	52.0	52.5	53.0

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] 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] Based on nominal GDP series prior to the recent revision; therefore, figures are not comparable to the authorities' numbers because of a different denominator.

Table A16. Emerging Market and Middle-Income Economies: General Government Net Debt, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Algeria	–20.7	–30.4	–33.1	–29.5	–27.6	–25.3	–25.7	–17.7	–3.2	10.7	20.6	28.1	33.4	36.9	38.7
Angola	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Argentina	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Azerbaijan	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Belarus	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Brazil	44.1	37.1	40.4	38.0	34.5	32.3	30.6	33.1	36.2	42.9	47.6	51.1	54.2	57.2	60.0
Chile	–13.0	–19.3	–10.6	–7.0	–8.6	–6.8	–5.6	–4.4	–4.5	–1.1	1.7	3.7	5.1	6.2	7.0
China	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Colombia	22.5	22.3	26.1	28.4	27.1	24.9	27.0	33.8	40.3	42.2	41.2	39.7	37.4	35.6	35.2
Croatia	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dominican Republic	17.5	19.6	22.7	23.8	25.7	30.5	34.6	34.4	34.3	35.1	35.9	36.0	36.7	37.5	38.7
Ecuador	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Egypt[1]	61.3	52.8	55.9	57.1	61.3	64.6	74.3	77.8	78.0	80.8	81.3	81.9	82.6	82.5	81.1
Hungary	63.1	63.6	72.2	75.2	74.4	72.1	71.2	71.0	71.6	71.0	70.9	70.0	69.0	68.2	67.3
India	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Indonesia	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Iran	–2.7	–2.8	2.5	2.0	–2.7	5.8	–1.7	–2.1	1.8	3.0	3.2	3.2	3.1	2.8	0.6
Kazakhstan	–13.8	–13.9	–11.0	–10.2	–13.0	–16.3	–18.0	–19.5	–32.8	–27.0	–20.3	–15.6	–11.8	–9.6	–8.5
Kuwait	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Libya	–77.6	–70.2	–93.6	–86.9	–170.5	–83.6	–92.1	–99.9	–62.1	–1.8	44.6	78.7	99.8	104.7	116.8
Malaysia	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Mexico	29.1	33.2	36.2	36.2	37.5	37.7	40.4	43.2	47.6	48.6	48.6	48.1	47.5	46.7	45.9
Morocco	50.5	44.7	45.5	48.5	52.1	57.8	61.0	62.9	63.2	63.8	63.5	62.7	61.3	59.5	58.2
Oman	–30.2	–25.4	–33.2	–30.2	–29.8	–29.5	–44.7	–45.5	–36.9	–29.7	–10.5	–1.3	10.1	20.8	30.8
Pakistan	44.8	52.6	52.0	52.8	52.3	56.5	59.1	58.2	57.8	58.4	57.5	55.6	53.9	51.6	49.5
Peru	16.7	13.0	12.2	10.3	7.2	4.5	3.5	3.6	5.6	7.5	8.5	9.3	9.7	9.7	9.7
Philippines	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Poland	9.1	8.9	13.7	19.2	23.8	24.9	28.6	22.5	24.4	26.1	27.9	28.9	29.4	29.6	29.5
Qatar	–31.0	–36.8	–39.0	–33.9	–42.3	–56.7	–76.7	–93.6	–114.7	–122.5	–107.7	–93.6	–84.0	–77.8	–75.2
Romania	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Russia	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Saudi Arabia	–16.1	–42.2	–43.4	–41.8	–41.9	–51.5	–56.7	–53.6	–41.6	–31.0	–18.6	–7.8	0.4	8.3	17.5
South Africa	22.8	21.7	25.4	28.5	31.3	34.7	37.6	40.4	44.7	46.2	47.1	48.0	48.9	49.5	49.9
Sri Lanka	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Thailand	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Turkey	32.7	32.5	37.5	34.7	31.3	27.8	27.3	24.6	23.5	21.9	20.6	19.7	18.4	17.4	18.8
Ukraine	9.7	17.5	30.8	38.5	34.5	35.3	38.4	68.8	77.4	90.6	90.4	84.1	77.9	71.0	64.0
United Arab Emirates	–215.1	–203.0	–247.1	–228.0	–201.6	–209.0	–216.1	–223.3	–258.8	–273.6	–251.2	–236.2	–223.4	–212.2	–203.6
Uruguay	37.8	31.6	30.7	30.6	28.3	25.3	24.2	22.9	23.3	25.7	27.7	29.0	30.1	31.1	31.9
Venezuela	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Average	12.8	9.2	12.4	14.0	12.7	9.8	9.1	9.9	11.2	14.5	17.9	20.4	22.2	23.6	25.0
Asia	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Europe	23.0	23.0	28.9	29.6	28.1	25.9	26.3	25.5	24.3	27.0	27.1	26.9	26.2	25.4	25.6
Latin America	32.7	30.7	33.9	33.1	31.2	29.5	29.6	32.5	35.6	39.4	41.6	43.1	44.0	44.8	45.7
MENAP	–32.7	–39.2	–38.3	–34.9	–33.9	–35.7	–42.9	–42.4	–37.1	–30.5	–22.3	–15.9	–11.1	–7.2	–4.2
G20 Emerging	29.8	24.8	28.6	27.8	25.4	21.9	21.3	23.0	26.6	30.1	33.2	. . .	. . .	. . .	. . .

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, figures are not comparable to the authorities' numbers because of a different denominator.

Table A17. Low-Income Developing Countries: General Government Overall Balance, 2007–21
(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bangladesh	–2.2	–4.0	–3.2	–2.7	–3.6	–3.0	–3.4	–3.1	–3.9	–4.4	–4.3	–4.1	–4.1	–4.0	–3.8
Benin	0.3	–0.1	–3.1	–0.4	–1.3	–0.3	–1.9	–2.3	–7.9	–3.8	–3.8	–4.2	–4.2	–4.1	–4.1
Bolivia	1.7	3.6	0.0	1.7	0.8	1.8	0.7	–3.4	–6.6	–6.9	–6.7	–6.2	–5.8	–5.5	–5.2
Burkina Faso	–5.6	–4.1	–4.7	–3.0	–1.4	–3.1	–3.9	–1.9	–1.5	–3.0	–3.1	–3.0	–3.0	–3.2	–3.2
Cambodia	–0.5	0.5	–4.1	–2.8	–4.1	–3.8	–2.1	–1.3	0.1	–2.7	–1.9	–2.0	–1.7	–1.4	–1.4
Cameroon	4.7	2.2	0.0	–1.1	–2.6	–1.6	–4.0	–4.7	–5.7	–7.9	–6.5	–6.0	–4.9	–4.9	–4.7
Chad	2.5	3.6	–9.2	–4.2	2.4	0.5	–2.1	–4.2	–4.9	–6.1	–2.1	–2.0	–1.8	–1.3	–1.9
Democratic Republic of the Congo	–0.2	–1.1	1.3	2.4	–0.5	1.8	3.0	1.3	1.9	1.1	1.1	1.2	0.9	0.9	1.5
Republic of Congo	9.4	23.4	4.8	16.1	16.5	6.4	–1.8	–7.7	–11.8	–12.6	–5.7	–1.2	0.2	–0.7	–0.1
Côte d'Ivoire	–0.5	–0.4	–1.4	–1.8	–5.4	–3.1	–2.2	–2.3	–3.2	–3.1	–3.0	–2.9	–2.8	–1.5	–1.1
Ethiopia	–3.6	–2.9	–0.9	–1.3	–1.6	–1.2	–1.9	–2.6	–2.5	–3.0	–2.9	–2.8	–2.6	–2.5	–2.5
Ghana	–5.4	–8.4	–7.0	–9.4	–7.3	–11.3	–12.5	–12.4	–5.0	–3.9	–1.6	–2.8	–2.5	–2.9	–1.8
Guinea	1.9	0.6	–7.1	–14.0	–1.3	–3.3	–5.3	–4.2	–9.0	–1.3	–0.4	–1.0	–1.8	–1.5	–1.7
Haiti	–2.5	–3.0	–3.5	–2.7	–2.5	–4.8	–7.1	–6.4	–2.6	–1.8	–1.9	–2.0	–2.2	–2.2	–2.2
Honduras	–1.6	–1.7	–4.5	–2.8	–2.8	–4.2	–7.6	–4.3	–1.4	–2.0	–1.9	–1.5	–1.0	–1.0	–0.4
Kenya	–2.4	–3.4	–4.3	–4.4	–4.1	–5.0	–5.7	–7.5	–8.4	–7.3	–6.2	–5.0	–4.2	–3.9	–3.8
Kyrgyz Republic	–0.6	1.0	–1.1	–5.8	–4.6	–5.7	–3.7	–3.1	–1.3	–4.5	–3.2	–0.3	–0.1	0.2	0.3
Lao P.D.R.	–2.7	–1.4	–4.1	–3.2	–1.7	–0.5	–5.6	–4.6	–2.9	–4.0	–4.5	–4.6	–4.8	–4.9	–4.8
Madagascar	–2.7	–2.0	–2.5	–0.9	–2.4	–2.6	–4.0	–2.3	–3.7	–3.1	–3.8	–4.0	–4.0	–3.6	–3.4
Mali	–2.8	–2.0	–3.7	–2.6	–3.4	–1.0	–2.4	–2.9	–2.1	–3.8	–3.8	–3.5	–3.0	–2.9	–2.8
Moldova	0.3	–0.9	–6.3	–2.5	–2.4	–2.2	–1.8	–1.7	–2.3	–3.2	–3.0	–2.5	–2.2	–2.2	–2.2
Mongolia	2.1	–3.1	–4.0	0.4	–4.0	–9.1	–8.9	–11.1	–8.3	–9.1	–7.1	–6.0	–4.7	–3.8	–3.7
Mozambique	–2.5	–2.1	–4.9	–3.9	–4.8	–3.8	–2.6	–10.7	–6.0	–4.0	–4.3	–4.3	–4.2	–4.2	–4.2
Myanmar	–3.1	–2.2	–4.3	–4.1	–3.1	–1.9	–2.1	0.0	–4.7	–4.7	–4.2	–4.3	–4.3	–4.1	–4.2
Nepal	–0.8	–0.4	–2.6	–0.8	–1.0	–0.6	2.1	1.5	1.0	–1.4	–2.0	–1.6	–1.0	–0.7	–0.6
Nicaragua	1.5	–0.2	–1.5	0.1	0.1	–0.1	–0.6	–1.2	–1.4	–1.0	–1.1	–1.0	–1.3	–1.4	–1.7
Niger	–1.0	1.5	–5.3	–2.4	–1.5	–1.1	–2.6	–8.0	–7.4	–6.6	–4.5	–2.7	–2.2	–2.1	–2.3
Nigeria	–1.1	5.8	–6.0	–4.2	0.4	0.2	–2.3	–2.1	–4.0	–4.7	–4.3	–4.0	–4.2	–4.1	–4.1
Papua New Guinea	9.0	2.5	–9.6	3.1	1.7	–3.2	–8.0	–7.2	–7.7	–6.0	–4.7	–4.0	–3.6	–3.3	–3.5
Rwanda	–1.7	0.9	0.0	0.4	–1.7	–1.6	–2.5	–3.6	–2.8	–3.1	–2.9	–2.2	–2.0	–1.9	–1.8
Senegal	–3.5	–4.4	–4.6	–4.9	–6.1	–5.2	–5.5	–5.0	–4.8	–4.2	–3.7	–3.2	–2.9	–2.7	–2.5
Sudan	–3.5	0.6	–5.1	0.3	0.1	–3.3	–2.3	–1.3	–1.7	–1.7	–1.6	–1.5	–1.4	–1.5	–1.5
Tajikistan	–5.5	–5.1	–5.2	–3.0	–2.1	0.6	–0.8	0.0	–2.2	–5.0	–3.7	–3.2	–3.0	–2.6	–3.0
Tanzania	–1.5	–1.9	–4.5	–4.8	–3.6	–4.1	–3.9	–3.0	–3.7	–3.6	–3.0	–3.0	–2.9	–2.7	–2.5
Uganda	–0.9	–2.5	–2.1	–5.7	–2.7	–3.0	–4.0	–3.5	–2.9	–4.4	–4.2	–4.8	–4.5	–3.5	–2.4
Uzbekistan	4.6	7.7	2.5	3.6	7.8	7.8	2.4	2.2	0.9	–0.3	–0.2	–0.1	–0.1	0.0	0.1
Vietnam	–2.0	–0.5	–6.0	–2.8	–1.1	–6.8	–7.4	–6.1	–6.5	–6.4	–5.8	–5.5	–5.3	–5.1	–5.1
Yemen	–7.2	–4.5	–10.2	–4.1	–4.5	–6.3	–6.9	–4.1	–10.8	–10.0	–7.1	–5.8	–5.4	–5.4	–5.6
Zambia	–1.0	–0.7	–2.1	–2.4	–1.8	–2.8	–6.2	–6.0	–8.1	–8.3	–6.3	–5.1	–4.1	–3.5	–3.0
Zimbabwe	–3.0	–2.0	–2.1	0.7	–1.2	–0.5	–1.9	–1.5	–1.2	–1.6	–1.5	–1.4	–1.7	–1.5	–1.5
Average	–1.4	1.1	–4.2	–2.7	–1.1	–2.0	–3.4	–3.2	–4.1	–4.5	–4.0	–3.7	–3.6	–3.5	–3.4
Oil Producers	–0.6	5.1	–5.4	–3.3	0.2	–0.3	–2.8	–2.6	–4.6	–5.2	–4.5	–4.1	–4.2	–4.0	–4.0
Asia	–1.7	–1.9	–4.6	–2.6	–2.3	–4.3	–4.8	–3.9	–4.8	–5.1	–4.7	–4.5	–4.3	–4.2	–4.1
Latin America	0.0	0.3	–2.2	–0.6	–0.8	–1.1	–2.7	–3.6	–3.9	–4.0	–4.0	–3.7	–3.5	–3.4	–3.3
Sub-Saharan Africa	–1.2	2.4	–4.3	–3.5	–1.0	–1.3	–3.2	–3.3	–4.2	–4.5	–3.9	–3.6	–3.6	–3.4	–3.3
Others	–2.3	0.8	–4.0	–0.2	0.9	–0.5	–1.8	–0.9	–2.5	–3.0	–2.5	–2.1	–1.9	–1.9	–1.9

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, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bangladesh	–0.6	–1.9	–1.0	–0.8	–1.9	–1.1	–1.4	–1.0	–1.8	–2.4	–2.0	–1.9	–1.8	–1.7	–1.7
Benin	1.8	0.3	–2.6	0.1	–0.9	0.3	–1.4	–1.9	–7.1	–2.5	–2.6	–3.0	–2.8	–2.7	–2.6
Bolivia	4.3	5.5	1.7	3.1	2.1	2.8	1.6	–2.4	–5.6	–5.7	–5.4	–4.9	–4.4	–4.1	–3.8
Burkina Faso	–5.2	–3.7	–4.3	–2.6	–0.8	–2.4	–3.3	–1.2	–0.8	–2.3	–2.4	–2.4	–2.4	–2.6	–2.6
Cambodia	–0.3	0.7	–3.8	–2.5	–3.8	–3.3	–1.4	–1.0	0.4	–2.3	–1.5	–1.6	–1.4	–1.1	–1.2
Cameroon	5.2	2.6	0.2	–0.8	–2.2	–1.2	–3.6	–4.3	–5.1	–6.9	–5.4	–4.8	–3.5	–3.4	–3.2
Chad	2.8	3.8	–8.8	–3.6	3.0	0.9	–1.5	–3.6	–4.6	–5.5	–1.4	–1.0	–1.0	–0.4	–1.2
Democratic Republic of the Congo	0.9	–0.1	2.7	3.9	1.3	3.3	4.2	2.3	2.8	1.9	2.0	2.1	1.7	1.6	2.2
Republic of Congo	11.9	25.8	6.1	17.0	16.5	6.5	–1.5	–7.5	–11.6	–12.4	–5.5	–1.0	0.5	–0.5	0.1
Côte d'Ivoire	1.2	1.3	0.1	–0.3	–2.9	–1.4	–0.9	–1.1	–2.0	–2.0	–2.0	–1.8	–1.8	–0.6	–0.2
Ethiopia	–2.9	–2.4	–0.6	–0.9	–1.2	–0.9	–1.6	–2.2	–2.1	–2.3	–2.1	–2.0	–1.8	–1.7	–1.7
Ghana	–3.5	–6.2	–4.2	–6.2	–4.6	–7.8	–7.8	–6.1	1.7	2.8	4.1	2.8	3.2	2.6	3.2
Guinea	4.3	3.2	–5.0	–12.0	0.7	–1.6	–4.1	–2.9	–8.0	0.4	0.8	0.1	–0.9	–0.7	–1.0
Haiti	–1.8	–2.3	–2.9	–2.2	–2.1	–4.4	–6.7	–5.9	–2.3	–1.2	–1.3	–1.3	–1.4	–1.4	–1.4
Honduras	–2.2	–2.7	–5.4	–3.4	–3.0	–4.3	–7.1	–3.8	–0.4	–0.6	–0.3	0.1	0.6	0.5	0.4
Kenya	–0.8	–1.8	–2.7	–2.5	–2.2	–2.9	–3.3	–4.8	–5.6	–4.6	–3.5	–2.4	–1.7	–1.5	–1.5
Kyrgyz Republic	0.0	1.7	–0.3	–5.0	–3.6	–4.7	–2.9	–2.2	–0.3	–3.2	–2.0	0.7	0.9	1.2	1.3
Lao P.D.R.	–2.2	–0.8	–3.8	–2.8	–1.2	0.2	–4.5	–3.7	–1.9	–2.9	–3.3	–3.2	–3.2	–3.0	–2.8
Madagascar	–1.5	–1.2	–1.8	–0.1	–1.5	–1.9	–3.3	–1.7	–2.9	–2.2	–2.8	–3.0	–2.9	–2.5	–2.3
Mali	–2.4	–1.7	–3.4	–2.2	–2.8	–0.4	–1.9	–2.3	–1.4	–3.2	–3.2	–2.9	–2.4	–2.3	–2.2
Moldova	1.5	0.2	–4.9	–1.7	–1.6	–1.4	–1.2	–1.2	–1.4	–1.8	–1.3	–1.3	–1.1	–1.1	–1.1
Mongolia	2.4	–2.9	–3.6	0.9	–3.7	–8.3	–7.5	–8.8	–5.1	–5.1	–2.8	–1.3	–0.4	0.2	0.9
Mozambique	–2.0	–1.7	–4.4	–3.2	–3.9	–2.8	–1.8	–9.7	–4.6	–2.1	–2.4	–2.4	–2.3	–2.4	–3.3
Myanmar	–2.6	–1.7	–3.5	–3.2	–2.0	–0.7	–0.6	1.4	–3.3	–3.3	–2.8	–2.9	–2.8	–2.7	–2.8
Nepal	–0.1	0.3	–1.9	0.0	–0.1	0.2	2.8	2.1	1.4	–0.7	–1.4	–0.9	–0.3	0.0	0.2
Nicaragua	1.9	–0.1	–1.2	0.3	0.5	0.5	–0.2	–0.7	–1.0	–0.5	–0.5	–0.4	–0.7	–0.7	–1.0
Niger	–0.7	1.7	–5.1	–2.2	–1.1	–0.8	–2.3	–7.6	–6.8	–5.8	–3.5	–1.7	–1.3	–1.3	–1.6
Nigeria	–0.5	6.5	–5.2	–3.6	1.2	1.2	–1.3	–1.1	–2.9	–3.9	–3.3	–2.9	–2.9	–2.8	–2.8
Papua New Guinea	10.9	4.3	–7.6	4.4	3.0	–1.8	–6.6	–4.9	–5.3	–2.8	–1.3	0.1	0.7	1.2	1.2
Rwanda	–1.2	1.4	0.4	0.9	–1.3	–1.1	–1.8	–2.8	–2.0	–2.2	–2.0	–1.3	–1.1	–1.0	–0.9
Senegal	–2.8	–3.8	–3.9	–4.0	–4.6	–3.7	–4.0	–3.3	–2.8	–2.4	–1.9	–1.3	–1.0	–0.9	–0.8
Sudan	–2.5	1.5	–4.1	1.4	1.3	–2.2	–1.8	–0.5	–1.0	–1.0	–1.0	–1.0	–0.9	–1.0	–1.0
Tajikistan	–5.1	–4.8	–4.7	–2.5	–1.6	1.1	0.1	0.4	–1.6	–4.2	–2.6	–2.1	–1.8	–1.4	–1.7
Tanzania	–0.6	–1.2	–3.8	–4.1	–2.8	–3.1	–2.7	–1.6	–2.0	–1.7	–1.0	–0.8	–0.7	–0.6	–0.3
Uganda	0.1	–1.4	–1.1	–4.8	–1.7	–1.7	–2.7	–1.9	–1.2	–2.2	–1.9	–2.5	–2.3	–1.2	–0.1
Uzbekistan	4.7	7.8	2.5	3.6	7.8	7.8	2.4	2.2	0.9	–0.2	–0.2	–0.1	0.0	0.0	0.1
Vietnam	–1.0	0.5	–4.9	–1.6	0.0	–5.6	–5.9	–4.5	–4.6	–4.3	–3.6	–3.2	–2.9	–2.7	–2.6
Yemen	–4.9	–2.1	–7.7	–1.7	–0.2	–0.9	–1.5	1.5	–3.2	–3.8	–0.9	0.0	0.1	–0.1	–0.8
Zambia	0.3	0.7	–0.7	–1.0	–0.8	–1.5	–4.7	–3.7	–5.3	–4.7	–2.6	–1.3	–0.2	0.4	0.9
Zimbabwe	–1.2	0.3	0.4	1.9	–0.2	0.4	–1.0	–0.6	0.0	0.0	0.1	0.2	0.3	0.5	0.3
Average	–0.4	2.0	–3.2	–1.7	0.0	–0.8	–2.1	–1.8	–2.6	–3.0	–2.4	–2.1	–1.9	–1.8	–1.7
Oil Producers	0.2	5.9	–4.4	–2.5	1.3	0.9	–1.5	–1.3	–3.2	–4.0	–3.2	–2.7	–2.5	–2.4	–2.4
Asia	–0.5	–0.6	–3.2	–1.3	–1.1	–2.9	–3.2	–2.2	–3.0	–3.2	–2.6	–2.4	–2.2	–2.0	–2.0
Latin America	0.9	0.9	–1.7	–0.1	–0.2	–0.5	–2.0	–2.9	–3.0	–2.9	–2.8	–2.5	–2.3	–2.2	–2.1
Sub-Saharan Africa	–0.2	3.2	–3.4	–2.6	0.0	–0.2	–2.0	–2.0	–2.8	–3.2	–2.5	–2.2	–2.0	–1.8	–1.7
Others	–1.3	1.9	–3.0	0.9	2.4	1.1	–0.4	0.7	–0.8	–1.4	–0.8	–0.5	–0.4	–0.5	–0.6

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, 2007–21
(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bangladesh	9.3	9.8	9.5	10.0	10.4	11.2	11.2	10.9	9.9	10.5	11.6	12.2	12.6	12.9	12.9
Benin	21.9	19.8	20.2	18.9	18.8	19.2	18.6	17.4	16.9	18.3	17.9	18.1	18.3	18.4	18.4
Bolivia	34.4	38.9	35.8	33.2	36.2	37.8	39.1	39.9	35.3	33.9	33.0	32.9	32.9	32.7	32.5
Burkina Faso	20.0	16.8	19.5	19.8	20.7	22.4	23.9	21.4	19.8	21.6	22.6	23.4	24.0	23.8	24.0
Cambodia	13.7	15.9	15.8	17.1	15.6	16.9	18.5	19.6	18.3	18.6	18.8	19.0	19.3	19.6	19.7
Cameroon	20.3	21.2	17.4	16.6	17.9	17.9	18.0	18.4	17.8	15.9	16.1	16.2	16.4	16.4	16.4
Chad	19.7	22.5	15.0	20.2	24.8	24.4	20.8	17.9	12.2	13.3	13.5	14.1	15.2	16.1	16.5
Democratic Republic of the Congo	10.4	11.5	15.2	20.2	15.2	17.2	15.3	14.6	16.1	16.7	16.6	16.8	17.2	17.5	19.4
Republic of Congo	39.3	47.0	29.5	37.5	42.5	42.6	46.9	42.3	27.7	30.7	31.5	33.3	33.7	34.2	35.1
Côte d'Ivoire	19.2	19.9	18.5	18.1	19.2	18.9	19.8	20.9	19.5	19.5	19.7	19.7	19.9	20.9	21.1
Ethiopia	17.0	15.9	16.2	17.2	16.6	15.5	15.8	14.9	16.1	15.9	16.1	16.2	16.3	16.4	16.5
Ghana	17.5	15.9	16.4	16.7	19.1	18.5	16.7	18.4	19.3	21.0	20.3	19.7	21.2	20.3	20.5
Guinea	15.1	16.1	16.5	15.7	20.7	22.9	20.2	22.3	19.4	24.4	24.6	25.1	25.5	26.3	26.6
Haiti	15.5	15.1	16.8	19.9	22.0	23.8	20.9	19.1	19.4	19.5	19.7	19.8	19.9	20.1	20.4
Honduras	24.5	26.4	24.4	24.1	23.1	22.5	22.9	24.4	26.5	26.4	26.7	26.7	26.9	27.0	27.0
Kenya	19.7	19.4	18.8	19.8	19.5	19.1	19.8	19.9	20.2	20.5	20.8	20.9	21.0	21.1	21.2
Kyrgyz Republic	31.2	30.3	33.3	31.3	32.8	34.9	34.4	35.6	37.8	35.7	35.7	35.3	36.1	36.1	36.6
Lao P.D.R.	15.6	15.9	17.1	22.6	22.4	24.1	23.9	23.5	23.3	23.3	22.3	22.4	22.4	22.6	22.9
Madagascar	16.0	15.9	11.5	13.2	11.7	10.8	10.9	12.4	11.8	13.1	13.5	13.7	14.1	14.4	14.7
Mali	18.7	17.0	19.1	17.7	17.1	14.6	17.4	17.0	18.2	18.8	19.1	19.5	19.8	20.0	20.3
Moldova	42.9	40.6	38.9	38.3	36.6	37.9	36.7	37.9	36.1	35.3	35.4	35.4	35.6	35.5	35.5
Mongolia	29.9	23.0	23.2	32.0	33.9	29.8	31.2	27.8	25.6	26.0	25.4	25.4	25.6	25.8	25.9
Mozambique	21.6	21.8	24.0	26.1	27.3	27.0	31.4	31.8	29.4	30.9	31.0	31.1	31.2	30.9	25.1
Myanmar	12.3	11.6	10.7	11.5	11.6	21.8	22.2	24.4	21.2	20.9	21.4	22.1	22.4	22.8	22.9
Nepal	14.2	14.9	16.8	18.0	17.7	18.7	19.3	20.6	20.8	18.3	20.6	20.8	21.0	21.3	21.5
Nicaragua	22.7	21.5	21.1	22.5	23.5	24.1	24.0	23.6	25.0	25.7	25.6	25.5	25.3	25.5	25.4
Niger	22.2	24.1	18.6	18.2	17.9	21.4	24.6	23.0	23.6	23.7	23.6	24.0	24.2	24.4	24.2
Nigeria	17.6	20.6	11.2	12.4	17.7	14.3	11.0	10.5	7.8	5.9	6.8	7.3	7.7	8.3	8.5
Papua New Guinea	37.3	32.6	27.3	31.3	30.4	29.2	28.2	27.3	24.9	26.4	27.0	26.9	26.9	26.9	26.9
Rwanda	21.2	25.2	24.1	26.3	24.8	24.2	25.1	24.1	24.4	24.1	22.0	23.0	23.0	23.0	23.0
Senegal	24.0	21.8	22.0	22.1	22.7	23.3	22.6	24.8	25.1	24.4	24.4	24.3	24.4	24.4	24.3
Sudan	21.9	24.0	15.5	19.3	18.1	9.9	10.8	11.5	10.8	10.3	10.3	10.4	10.4	10.5	10.5
Tajikistan	22.5	22.1	23.4	23.2	24.9	25.1	26.9	28.4	29.8	28.8	29.1	29.6	30.3	30.1	30.0
Tanzania	16.6	16.6	15.7	15.5	15.6	15.7	15.5	14.9	15.1	16.0	16.2	16.3	16.5	16.7	16.9
Uganda	14.3	13.5	13.2	13.2	14.5	13.5	12.8	13.7	15.1	16.0	15.6	15.7	16.1	16.5	17.5
Uzbekistan	35.6	40.7	36.7	37.0	40.2	41.5	35.9	34.9	35.3	33.3	33.4	33.3	33.3	33.3	33.3
Vietnam	26.1	26.6	25.6	27.3	25.9	22.6	23.1	21.9	22.1	21.7	22.0	22.2	22.2	22.3	22.2
Yemen	33.2	36.7	25.0	26.1	25.3	29.9	23.9	23.6	13.2	13.6	17.2	18.1	17.8	18.1	18.1
Zambia	18.9	18.8	15.7	15.6	17.7	18.7	17.6	18.9	17.5	16.9	17.2	17.0	17.1	17.3	17.7
Zimbabwe	2.9	2.2	12.0	23.3	26.7	28.0	27.7	26.6	27.3	25.7	25.8	25.7	25.7	25.9	25.5
Average	19.5	21.0	17.1	18.0	19.9	18.9	17.7	17.3	16.1	15.3	15.6	15.8	16.2	16.6	16.8
Oil Producers	19.8	22.6	13.9	14.8	19.3	16.7	13.7	13.2	9.9	8.3	9.3	9.7	10.1	10.7	10.9
Asia	17.5	17.8	16.9	18.2	18.2	19.0	19.1	18.7	17.6	17.4	18.1	18.4	18.7	18.9	18.9
Latin America	26.2	28.5	27.0	26.8	28.4	29.4	30.1	30.7	29.4	28.9	28.8	28.8	29.0	29.0	29.0
Sub-Saharan Africa	18.1	19.7	14.7	15.5	18.6	16.7	15.0	14.5	13.2	12.2	12.4	12.7	13.2	13.7	14.1
Others	28.6	31.5	25.0	26.5	27.2	26.4	24.0	23.9	21.4	19.6	19.9	20.2	20.2	20.4	20.5

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 A20. Low-Income Developing Countries: General Government Expenditure, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bangladesh	11.5	13.8	12.7	12.7	14.0	14.2	14.6	14.0	13.8	14.9	15.8	16.3	16.7	16.9	16.7
Benin	21.6	19.9	23.2	19.2	20.1	19.5	20.5	19.7	24.9	22.1	21.7	22.4	22.5	22.5	22.5
Bolivia	32.7	35.3	35.8	31.5	35.4	36.0	38.4	43.3	41.9	40.8	39.7	39.1	38.7	38.2	37.7
Burkina Faso	25.7	20.9	24.2	22.8	22.1	25.5	27.8	23.4	21.3	24.6	25.7	26.4	27.0	27.0	27.2
Cambodia	14.3	15.4	19.9	19.9	19.7	20.7	20.7	20.9	18.2	21.3	20.7	20.9	21.0	21.0	21.1
Cameroon	15.6	19.0	17.5	17.7	20.5	19.5	21.9	23.1	23.5	23.8	22.6	22.3	21.2	21.3	21.1
Chad	17.1	18.9	24.2	24.4	22.4	23.9	22.9	22.1	17.1	19.5	15.5	16.1	17.0	17.4	18.4
Democratic Republic of the Congo	10.6	12.6	13.9	17.7	15.7	15.4	12.2	13.3	14.2	15.6	15.5	15.6	16.2	16.6	17.9
Republic of Congo	29.9	23.6	24.7	21.4	26.1	36.2	48.7	50.1	39.6	43.3	37.3	34.6	33.5	34.9	35.2
Côte d'Ivoire	19.7	20.3	19.9	20.0	24.6	22.1	22.1	23.2	22.7	22.6	22.8	22.6	22.7	22.4	22.1
Ethiopia	20.5	18.8	17.1	18.5	18.2	16.6	17.8	17.5	18.6	18.9	19.0	19.0	18.9	18.9	19.0
Ghana	22.9	24.4	23.5	26.1	26.5	29.8	29.2	30.8	24.4	24.8	21.9	22.5	23.7	23.2	22.2
Guinea	13.2	15.6	23.7	29.7	21.9	26.1	25.5	26.5	28.5	25.7	25.1	26.1	27.2	27.7	28.3
Haiti	18.1	18.0	20.3	22.7	24.5	28.6	28.0	25.5	22.0	21.3	21.7	21.9	22.1	22.3	22.6
Honduras	26.1	28.1	28.9	27.0	25.9	26.7	30.6	28.7	28.0	28.5	28.6	28.2	27.9	28.0	27.4
Kenya	22.1	22.8	23.1	24.2	23.6	24.2	25.5	27.4	28.6	27.9	27.0	25.9	25.3	25.0	25.0
Kyrgyz Republic	31.8	29.3	34.4	37.1	37.4	40.6	38.1	38.7	39.1	40.2	38.9	35.6	36.2	35.9	36.2
Lao P.D.R.	18.3	17.3	21.3	25.9	24.1	24.6	29.6	28.1	26.2	27.3	26.9	27.0	27.2	27.5	27.7
Madagascar	18.7	17.9	14.1	14.0	14.1	13.4	14.9	14.7	15.5	16.3	17.3	17.8	18.1	18.0	18.1
Mali	21.5	19.0	22.8	20.3	20.6	15.5	19.7	19.9	20.3	22.6	22.8	23.0	22.8	23.0	23.1
Moldova	42.6	41.6	45.3	40.8	39.0	40.1	38.5	39.6	38.3	38.5	38.4	38.0	37.8	37.7	37.7
Mongolia	27.8	26.1	27.2	31.6	37.9	38.9	40.1	38.8	33.8	35.1	32.5	31.4	30.4	29.6	29.6
Mozambique	24.1	23.9	28.9	30.0	32.2	30.7	34.0	42.5	35.4	34.9	35.3	35.4	35.4	35.1	29.3
Myanmar	15.4	13.9	15.0	15.6	14.6	23.6	24.2	24.4	25.9	25.6	25.6	26.4	26.7	26.9	27.1
Nepal	15.0	15.4	19.4	18.8	18.7	19.3	17.2	19.1	19.9	19.7	22.7	22.3	22.0	22.0	22.1
Nicaragua	21.2	21.7	22.6	22.4	23.4	24.2	24.7	24.8	26.4	26.7	26.7	26.5	26.6	26.9	27.0
Niger	23.2	22.6	23.9	20.6	19.4	22.5	27.2	31.0	31.1	30.3	28.1	26.7	26.3	26.5	26.5
Nigeria	18.7	14.7	17.2	16.7	17.4	14.1	13.4	12.6	11.8	10.6	11.1	11.3	11.9	12.5	12.6
Papua New Guinea	28.3	30.1	36.9	28.2	28.7	32.4	36.1	34.4	32.6	32.4	31.7	30.9	30.5	30.3	30.5
Rwanda	22.9	24.3	24.1	25.9	26.5	25.9	27.6	27.7	27.2	27.3	24.9	25.3	25.1	24.9	24.8
Senegal	27.5	26.3	26.6	27.0	28.8	28.5	28.1	29.8	29.9	28.7	28.1	27.5	27.2	27.1	26.8
Sudan	25.4	23.5	20.6	19.0	18.0	13.3	13.1	12.8	12.5	12.0	11.9	11.8	11.8	12.0	12.0
Tajikistan	28.0	27.2	28.6	26.1	27.0	24.6	27.7	28.4	32.0	33.8	32.8	32.8	33.3	32.7	33.0
Tanzania	18.1	18.5	20.2	20.2	19.1	19.8	19.4	18.0	18.8	19.6	19.2	19.3	19.4	19.4	19.4
Uganda	15.2	16.0	15.3	18.8	17.2	16.5	16.8	17.1	18.0	20.4	19.8	20.5	20.6	20.1	19.9
Uzbekistan	31.0	33.0	34.3	33.4	32.4	33.7	33.6	32.8	34.4	33.6	33.5	33.5	33.4	33.3	33.2
Vietnam	28.1	27.1	31.6	30.0	26.9	29.4	30.5	28.0	28.7	28.1	27.8	27.7	27.5	27.4	27.3
Yemen	40.3	41.2	35.2	30.2	29.8	36.2	30.8	27.8	24.0	23.7	24.3	23.9	23.2	23.5	23.7
Zambia	19.9	19.5	17.8	18.1	19.5	21.5	23.8	24.9	25.6	25.2	23.6	22.1	21.2	20.7	20.7
Zimbabwe	5.9	4.3	14.0	22.6	27.8	28.5	29.6	28.1	28.5	27.3	27.3	27.1	27.4	27.3	27.0
Average	20.9	19.9	21.3	20.7	21.0	20.9	21.1	20.5	20.3	19.7	19.6	19.6	19.8	20.1	20.2
Oil Producers	20.5	17.5	19.3	18.1	19.1	17.0	16.5	15.7	14.6	13.5	13.8	13.8	14.3	14.8	14.9
Asia	19.2	19.7	21.5	20.8	20.5	23.3	23.9	22.6	22.4	22.6	22.8	23.0	23.1	23.1	23.0
Latin America	26.2	28.1	29.1	27.4	29.2	30.5	32.9	34.3	33.2	32.9	32.8	32.6	32.5	32.5	32.2
Sub-Saharan Africa	19.2	17.3	19.0	19.0	19.6	18.1	18.1	17.8	17.3	16.7	16.3	16.4	16.8	17.1	17.3
Others	30.9	30.7	29.0	26.7	26.3	26.9	25.8	24.8	23.9	22.6	22.4	22.2	22.1	22.3	22.4

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 D.

Table A21. Low-Income Developing Countries: General Government Gross Debt, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bangladesh	41.9	40.6	39.5	36.6	35.3	33.8	34.5	33.9	34.0	34.3	34.2	34.0	33.9	33.6	33.6
Benin	19.5	25.0	25.6	28.7	29.9	26.8	25.4	30.9	37.5	39.5	40.6	42.0	43.1	44.0	44.9
Bolivia	40.5	37.2	40.0	38.5	34.7	33.3	32.5	33.0	39.7	45.6	48.3	50.2	51.6	52.8	53.8
Burkina Faso	25.3	25.2	28.5	29.3	29.8	28.3	28.7	28.6	31.0	32.6	33.0	33.2	33.4	33.8	34.4
Cambodia	30.5	27.8	29.1	29.4	30.3	32.1	33.3	33.4	33.6	33.4	33.0	32.3	31.6	30.5	29.7
Cameroon	12.0	9.7	10.1	11.5	13.2	15.4	18.7	28.0	33.5	38.0	41.3	43.8	45.1	46.6	48.0
Chad	22.2	20.0	31.7	30.1	29.5	28.2	30.1	36.7	39.3	43.1	38.5	35.2	30.7	27.8	25.8
Democratic Republic of the Congo	86.9	90.5	93.2	31.9	26.3	23.2	19.1	16.8	18.8	19.8	22.2	24.8	26.0	27.2	26.5
Republic of Congo	98.0	68.1	61.6	22.9	33.1	34.1	38.2	47.5	64.9	78.8	69.0	64.6	59.9	58.5	54.5
Côte d'Ivoire	74.0	70.8	64.2	63.0	93.3	44.8	39.9	36.6	34.7	33.0	31.5	30.1	28.9	26.6	24.3
Ethiopia	63.1	39.5	36.0	39.6	38.2	32.8	36.9	40.7	48.6	55.4	59.0	59.9	58.0	55.9	54.1
Ghana	31.0	33.6	36.1	46.3	42.6	49.1	56.2	69.0	73.3	74.1	72.2	71.1	67.6	65.1	62.1
Guinea	92.4	90.2	89.3	99.6	79.4	35.4	40.3	42.9	48.4	48.4	44.7	42.5	41.0	39.4	37.8
Haiti	34.5	38.0	27.8	17.3	11.8	16.3	21.5	26.5	30.4	35.2	36.2	36.5	35.9	34.3	32.6
Honduras	24.7	23.0	27.5	30.7	32.1	35.2	45.7	46.4	47.4	48.6	49.8	47.4	46.3	44.6	42.0
Kenya	38.4	41.5	41.1	44.4	43.0	41.7	41.6	47.0	52.7	55.2	55.0	54.6	53.5	52.4	50.6
Kyrgyz Republic	56.8	48.5	58.1	59.7	49.4	49.0	46.1	52.6	68.8	72.3	73.5	72.0	71.1	70.2	67.7
Lao P.D.R.	64.2	60.3	63.2	62.1	56.9	62.2	60.1	63.7	64.3	64.1	66.1	67.7	69.3	70.2	70.8
Madagascar	32.8	31.5	33.7	31.8	32.6	33.7	34.0	34.7	35.6	39.2	38.1	38.1	38.4	38.3	40.8
Mali	17.5	21.8	21.0	25.4	25.1	25.0	25.7	30.8	36.3	35.2	36.1	37.2	37.8	38.7	39.4
Moldova	24.6	19.3	29.1	26.9	24.1	24.5	23.8	31.4	42.0	44.0	45.0	45.0	44.3	43.3	42.7
Mongolia	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Mozambique	36.0	36.3	41.8	43.2	37.9	39.9	50.9	57.0	74.8	87.4	82.0	80.0	78.8	77.9	60.1
Myanmar	62.4	53.0	55.1	49.6	46.0	40.1	32.8	29.7	32.0	32.0	32.2	32.8	33.4	33.9	34.3
Nepal	43.2	41.9	38.5	34.0	31.7	34.5	31.9	27.7	28.7	29.9	29.5	29.5	29.6	29.3	28.9
Nicaragua	31.6	26.5	29.4	30.9	29.3	28.6	29.8	29.5	31.2	31.6	32.2	32.7	33.1	33.4	33.8
Niger	25.1	21.1	27.7	24.3	27.8	26.8	27.2	32.9	43.5	46.9	47.9	47.0	46.1	44.7	44.9
Nigeria	. . .	. . .	9.6	9.6	10.2	10.4	10.5	10.6	11.5	13.3	14.0	14.3	14.9	15.9	16.9
Papua New Guinea	33.7	31.7	31.4	25.6	23.0	26.7	34.0	35.6	40.8	43.2	42.7	45.1	46.2	46.9	47.7
Rwanda	26.7	20.9	22.4	22.6	23.1	20.1	26.5	29.0	34.6	41.5	43.3	43.7	43.6	43.8	43.5
Senegal	23.5	23.9	34.2	35.5	40.7	42.8	46.9	54.2	56.8	57.3	56.2	54.8	53.1	51.5	50.0
Sudan	70.7	68.8	72.1	73.1	70.6	94.2	88.4	73.6	68.9	58.3	52.4	47.9	44.1	41.3	38.7
Tajikistan	34.6	30.0	36.2	36.3	35.4	32.4	29.2	28.3	35.9	50.3	54.4	59.6	62.0	63.7	61.4
Tanzania	21.6	21.5	24.4	27.3	27.8	29.2	30.9	35.2	40.5	42.4	42.6	42.6	42.5	42.5	42.5
Uganda	19.6	19.3	19.2	22.9	23.6	24.2	27.7	31.2	35.4	37.9	40.2	43.1	45.0	46.0	45.5
Uzbekistan	15.8	12.7	11.0	10.0	9.1	8.6	8.3	7.6	10.7	16.3	15.2	14.0	12.5	12.3	10.9
Vietnam	40.9	39.4	45.2	48.1	46.7	48.5	52.4	55.5	59.3	62.4	64.8	66.4	67.6	68.4	69.0
Yemen	40.4	36.4	49.8	42.4	45.7	47.3	48.2	48.7	68.6	67.3	58.2	54.5	52.7	52.5	53.3
Zambia	21.9	19.2	20.5	18.9	20.8	24.9	26.5	35.1	52.9	57.9	58.6	59.1	58.2	56.9	55.8
Zimbabwe	50.1	68.9	68.3	63.2	51.8	56.7	54.8	51.1	53.0	55.0	54.9	58.1	58.6	54.5	51.2
Average	42.0	39.6	33.2	30.8	30.2	30.3	30.8	31.5	35.6	36.8	36.6	36.5	36.7	37.0	37.1
Oil Producers	. . .	. . .	18.0	15.3	16.5	15.4	15.7	16.2	18.7	20.0	20.1	20.0	20.5	21.3	22.2
Asia	43.6	41.5	43.5	42.5	40.9	40.7	41.6	42.0	43.8	44.9	45.7	46.3	46.7	46.9	47.1
Latin America	32.9	31.0	32.5	32.0	30.1	31.0	34.3	35.2	39.3	42.9	44.7	45.2	45.7	45.9	45.8
Sub-Saharan Africa	. . .	. . .	25.3	22.2	22.4	21.6	22.5	24.2	28.1	29.9	29.8	30.0	30.4	30.8	31.1
Others	48.4	44.5	47.8	47.1	44.6	51.3	48.3	43.6	48.3	47.4	43.9	41.0	38.6	37.2	35.8

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 A22. Low-Income Developing Countries: General Government Net Debt, 2007–21

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bangladesh	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Benin	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bolivia	27.3	20.6	23.1	18.4	14.4	11.0	10.1	13.2	25.7	36.9	44.2	50.1	51.6	52.8	53.8
Burkina Faso	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cambodia	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cameroon	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Chad	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Democratic Republic of the Congo	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Republic of Congo	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Côte d'Ivoire	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Ethiopia	55.2	34.7	32.0	35.5	32.8	27.6	31.3	36.1	43.5	51.0	55.2	56.6	55.2	53.5	52.0
Ghana	23.3	30.1	32.6	43.0	38.8	47.0	52.9	66.1	70.9	72.1	70.5	68.9	65.0	62.3	59.3
Guinea	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Haiti	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Honduras	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Kenya	34.4	37.1	36.9	40.2	39.1	38.0	38.2	43.3	49.6	53.1	53.0	52.6	51.6	50.5	48.7
Kyrgyz Republic	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Lao P.D.R.	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Madagascar	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Mali	12.2	16.1	11.5	17.0	18.3	20.8	19.8	23.4	30.2	31.0	32.1	33.9	34.7	35.5	35.9
Moldova	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Mongolia	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Mozambique	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Myanmar	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nepal	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nicaragua	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Niger	1.5	1.9	0.9	4.3	2.6	2.0	2.9	3.6	5.6	4.8	4.1	3.8	4.0	3.5	3.2
Nigeria	. . .	. . .	6.7	8.8	9.0	8.1	9.9	10.0	11.0	12.8	13.6	14.0	14.6	15.6	16.6
Papua New Guinea	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Rwanda	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Senegal	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sudan	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Tajikistan	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Tanzania	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Uganda	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Uzbekistan	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Vietnam	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Yemen	35.2	31.4	43.6	38.3	42.3	45.3	46.7	47.8	67.5	66.5	57.5	54.0	52.3	52.1	53.0
Zambia	17.6	16.3	16.5	15.9	16.4	19.5	24.0	29.0	48.4	55.5	56.7	57.5	56.6	55.3	54.1
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, 2016[3]	Average Term to Maturity, 2016 (years)[4]	Debt-to-Average Maturity, 2016	Projected Interest Rate–Growth Differential, 2016–21 (percent)	Precrisis Overall Balance, 2000–07	Projected Overall Balance, 2016–21	Nonresident Holding of General Government Debt, 2015 (percent of total)[5]
Australia	0.8	21.7	1.6	52.1	3.7	6.8	5.8	–0.5	1.2	–0.8	46.7
Austria	0.5	13.7	1.8	62.8	6.4	7.9	10.8	–0.4	–2.1	–1.3	82.4
Belgium	1.5	45.6	2.2	80.3	17.9	8.0	13.4	–0.5	–0.5	–2.2	65.1
Canada	1.0	24.0	1.1	39.7	11.6	5.4	17.2	–0.8	1.1	–1.2	22.4
Cyprus	0.4	0.7	. . .	. . .	6.2	4.5	21.8	–0.8	–2.3	1.1	74.8
Czech Republic	0.0	1.9	0.7	26.9	7.7	4.8	8.6	–1.4	–3.8	–1.3	38.2
Denmark	–1.2	–36.9	1.4	44.1	7.3	8.1	5.9	–1.1	2.5	–1.7	40.6
Estonia	–0.5	–13.4	0.3	13.4	. . .	. . .	. . .	–4.4	1.2	0.1	74.3
Finland	1.6	21.8	1.4	43.2	8.1	5.7	11.3	–1.1	4.0	–1.9	84.3
France	–0.1	–16.8	0.8	29.8	14.0	7.0	14.0	–0.9	–2.7	–2.0	64.8
Germany	1.4	40.0	0.9	36.8	4.2	5.9	11.5	–1.3	–2.3	0.4	62.0
Hong Kong SAR	1.4	36.6	. . .	. . .	. . .	. . .	. . .	. . .	0.0	1.5	. . .
Iceland	0.4	7.5	2.6	88.2	–7.8	13.0	4.3	–0.1	1.2	2.0	37.2
Ireland	1.3	37.7	0.8	29.0	6.6	11.5	7.7	–1.6	1.5	0.2	66.0
Israel	0.4	13.0	0.3	13.6	. . .	5.6	11.8	1.4	–4.3	–3.8	14.2
Italy	0.1	–1.8	1.1	39.4	18.7	6.4	20.6	0.9	–3.0	–0.8	40.0
Japan	–0.7	–7.7	2.0	62.4	41.4	7.2	34.6	–0.6	–5.7	–3.7	9.3
Korea	2.0	72.5	2.4	81.9	2.4	5.3	7.1	0.7	2.0	1.2	12.8
Latvia	–1.4	–39.6	0.7	23.9	. . .	4.6	7.5	–1.9	–1.3	–0.7	82.8
Lithuania	1.5	33.6	0.8	30.4	7.3	5.7	7.4	–0.7	–1.8	–0.8	80.8
Luxembourg	2.2	59.2	1.0	38.3	. . .	7.6	2.9	–3.4	2.4	0.2	41.3
Malta	0.0	6.4	. . .	. . .	8.9	8.0	7.8	–1.2	–4.9	–1.0	10.6
Netherlands	0.9	28.8	3.8	122.4	8.3	6.3	10.5	–1.3	–0.6	–1.2	56.6
New Zealand	2.5	69.4	2.3	75.7	1.5	6.4	4.7	1.1	2.4	0.5	66.8
Norway	1.1	28.1	1.5	53.6	. . .	4.6	6.1	–0.6	13.2	5.8	52.5
Portugal	1.0	22.7	2.5	82.6	18.4	6.8	18.8	0.8	–4.4	–2.9	72.4
Singapore[6]	0.7	21.8	. . .	. . .	. . .	3.9	25.4	–3.4	7.0	2.2	. . .
Slovak Republic	–0.5	–1.0	0.8	29.8	8.0	7.0	7.5	–1.9	–5.0	–1.8	68.5
Slovenia	0.6	36.9	0.9	34.6	8.9	6.3	12.7	0.4	–1.0	–2.8	73.2
Spain	–0.2	18.6	2.1	71.9	18.1	6.1	16.2	–0.3	0.4	–2.0	50.9
Sweden	–0.8	–25.4	0.4	15.8	6.0	4.9	8.8	–2.4	1.2	–0.3	43.7
Switzerland	0.5	15.2	3.2	106.4	1.9	8.9	5.1	–0.9	0.3	–0.1	13.1
United Kingdom	0.3	9.1	1.6	54.5	9.4	14.8	6.0	–1.0	–2.1	–0.9	30.0
United States	1.5	35.6	3.8	117.3	19.8	5.7	18.9	–1.1	–3.1	–3.8	32.5
Average	0.9	23.2	2.5	80.8	17.2	6.7	17.0	–0.9	–2.2	–2.2	37.6
G7	0.9	22.7	2.7	84.5	19.4	6.7	18.8	–0.9	–3.0	–2.7	35.0
G20 Advanced	1.0	24.5	2.6	83.3	18.3	6.7	18.0	–0.9	–2.7	–2.5	34.6

Sources: Bloomberg 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 U.S. dollars at average market exchange rates in the years indicated and based on data availability.

[1] 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).

[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 2016; for more details on the assumptions, see note 1 in Table 1.3. Data are from Bloomberg L.P. and IMF staff projections.

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

[5] Nonresident holding of general government debt data are for 2015:Q3 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 U.S. dollars is converted to local currency, then taken as a percentage of 2015 gross general government debt.

[6] 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, 2016[3]	Average Term to Maturity, 2016 (years)[4]	Debt-to-Average Maturity, 2016	Projected Interest Rate–Growth Differential, 2016–21 (percent)	Precrisis Overall Balance, 2000–07	Projected Overall Balance, 2016–21	Nonresident Holding of General Government Debt, 2015 (percent of total)[5]
Algeria	. . .	. . .	1.4	51.8	. . .	. . .	. . .	–3.3	7.3	–9.2	5.5
Angola	. . .	. . .	0.4	13.0	. . .	. . .	. . .	–10.1	3.1	–4.9	. . .
Argentina	1.0	44.7	1.3	49.7	10.5	10.0	6.0	–10.3	–0.2	–4.3	21.7
Azerbaijan	4.9	134.2	0.4	14.9	. . .	. . .	. . .	–1.3	0.9	–1.6	. . .
Belarus	2.3	64.9	0.9	31.2	. . .	1.4	51.5	–4.8	1.0	–3.8	39.6
Brazil	1.8	98.9	1.7	61.8	18.0	6.6	11.6	3.4	–3.6	–7.5	13.9
Chile	–0.9	–20.4	1.4	50.0	4.1	8.9	2.2	–1.8	2.4	–2.4	19.8
China	2.7	83.7	1.3	47.1	. . .	. . .	. . .	–5.0	–1.8	–2.4	. . .
Colombia	–0.7	–26.7	2.1	74.9	5.3	8.7	5.7	0.6	–1.9	–2.0	28.0
Croatia	–1.2	–48.9	1.5	51.9	19.1	4.6	19.5	0.9	–4.2	–2.8	41.1
Dominican Republic	0.1	5.4	0.8	31.0	6.9	8.2	4.3	0.9	–1.9	–3.6	68.2
Ecuador	1.0	39.4	0.9	33.5	6.2	5.6	6.8	6.2	1.2	0.4	58.0
Egypt[6]	2.6	50.8	0.4	15.9	60.8	2.3	38.2	–2.0	–8.5	–9.6	8.2
Hungary	–1.9	–35.8	1.2	42.7	19.3	4.2	17.7	–0.3	–6.5	–2.1	58.0
India	0.0	–0.6	0.4	14.3	11.1	9.4	7.1	–4.0	–7.9	–6.4	6.3
Indonesia	0.2	6.8	0.4	13.2	4.5	9.3	3.0	–3.3	–0.7	–2.8	55.1
Iran	2.0	97.2	1.1	41.6	. . .	. . .	. . .	–4.2	3.2	–1.4	. . .
Kazakhstan	1.0	27.9	0.6	19.9	. . .	11.2	2.0	–6.3	4.5	–2.4	25.5
Kuwait	4.1	169.8	0.7	28.7	. . .	0.5	36.7	–2.6	29.0	–7.4	. . .
Libya	. . .	0.0	1.0	38.8	. . .	. . .	. . .	–10.2	16.4	–34.3	. . .
Malaysia	0.3	13.1	0.8	28.3	9.9	5.7	9.9	–2.7	–3.8	–2.7	24.9
Mexico	1.2	10.9	1.1	41.0	10.0	9.2	6.0	0.2	–2.0	–2.8	31.8
Morocco	. . .	0.0	0.7	25.6	12.4	6.5	9.8	–1.1	–3.3	–2.6	21.9
Oman	0.5	25.6	0.8	33.8	. . .	3.6	9.9	1.4	10.4	–14.3	. . .
Pakistan	0.1	6.2	0.2	8.0	31.7	2.2	29.1	–2.6	–2.9	–3.0	. . .
Peru	0.7	29.5	0.9	35.3	5.1	16.6	1.5	–0.2	–0.4	–1.2	41.1
Philippines	0.2	6.1	0.4	15.7	7.4	10.3	3.5	–3.6	–2.4	–1.0	28.2
Poland	–0.8	–23.9	1.6	56.3	9.9	5.0	10.4	–1.8	–4.2	–2.5	56.6
Qatar	. . .	0.0	0.7	27.4	. . .	4.4	10.6	–0.6	8.9	–5.5	. . .
Romania	–0.1	1.5	1.1	38.9	9.4	5.1	7.8	–1.8	–2.6	–2.8	48.1
Russia	1.8	58.3	0.9	30.5	5.2	7.9	2.3	1.6	4.2	–1.5	13.8
Saudi Arabia	2.5	87.5	0.8	30.2	. . .	6.3	2.7	1.4	6.9	–10.8	. . .
South Africa	0.5	16.6	1.0	37.2	11.6	12.4	4.1	0.0	–0.6	–3.4	29.3
Sri Lanka	0.7	24.4	0.5	18.7	28.7	4.9	15.6	–2.7	–7.9	–5.4	38.7
Thailand	2.7	82.4	1.4	48.4	6.3	5.9	7.4	–2.4	–0.4	–0.5	11.2
Turkey	–1.6	–36.4	1.6	59.5	4.6	6.3	4.9	–1.1	–6.6	–1.4	35.8
Ukraine	3.5	113.6	0.9	31.5	10.0	5.3	17.7	–5.7	–2.3	–2.7	51.0
United Arab Emirates	0.7	26.7	0.9	35.4	. . .	. . .	. . .	–3.8	13.7	–5.3	. . .
Uruguay	0.4	27.9	1.3	47.9	11.9	13.8	4.6	–4.7	–2.0	–2.9	45.9
Venezuela	. . .	. . .	. . .	. . .	. . .	7.9	4.5	–93.0	0.1	–22.4	. . .
Average	1.7	54.1	1.1	40.1	11.8	6.9	8.0	–3.5	–1.0	–3.6	24.0
G20 Emerging	1.9	60.7	1.1	41.2	10.1	7.0	7.0	–3.4	–1.8	–3.4	20.8

Sources: Bloomberg 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 U.S. dollars at average market exchange rates in the years indicated and based on data availability.

[1] 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).

[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 2016. Data are from IMF staff projections. See Table 1.4.

[4] Average term to maturity data refer to government securities; the source is Bloomberg L.P.

[5] Nonresident holding of general government debt data are 2015:Q3 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 U.S. dollars is converted to local currency, then taken as a percentage of 2015 gross general government debt.

[6] Projections do not incorporate the potential impact of the investment agreements reached at the March 2015 Economic Development Conference.

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, 2016 (years)[3]	Debt-to-Average Maturity, 2016	Projected Interest Rate–Growth Differential, 2016–21 (percent)	Precrisis Overall Balance, 2000–07	Projected Overall Balance, 2016–21	Nonresident Holding of General Government Debt, 2015 (percent of total)[4]
Bangladesh	0.4	17.9	0.4	15.5	4.4	7.8	–5.6	–2.8	–4.1	. . .
Benin	0.0	1.9	0.4	16.3	3.7	10.6	–3.7	–2.3	–4.0	. . .
Bolivia	0.3	22.9	1.0	37.9	15.9	2.9	–4.7	–3.6	–6.1	43.6
Burkina Faso	–0.1	1.9	0.6	21.9	2.4	13.7	–5.4	–1.8	–3.1	76.4
Cambodia	0.3	12.1	0.4	14.7	. . .	. . .	–7.9	–3.4	–1.8	. . .
Cameroon	–0.1	–0.1	0.3	11.5	7.4	5.2	–3.4	5.7	–5.8	. . .
Chad	0.0	–0.2	0.2	9.2	. . .	. . .	–2.8	–2.4	–2.5	. . .
Côte d'Ivoire	0.0	–0.2	. . .	0.0	. . .	. . .	–5.6	–1.0	–2.4	. . .
Democratic Republic of the Congo	0.0	–0.3	0.5	17.2	. . .	. . .	–3.7	–1.2	1.1	. . .
Republic of Congo	0.0	1.1	0.4	15.0	. . .	. . .	–3.0	6.5	–3.4	. . .
Côte d'Ivoire	0.0	–0.2	. . .	0.0	. . .	. . .	–5.6	–1.0	–2.4	. . .
Ethiopia	0.0	0.6	0.4	14.9	. . .	. . .	–12.7	–4.8	–2.7	. . .
Ghana	0.0	3.7	0.6	21.5	3.1	23.6	–3.8	–4.4	–2.6	. . .
Guinea	0.0	0.0	0.3	11.3	. . .	. . .	–8.9	–3.4	–1.3	. . .
Haiti	. . .	0.0	0.4	13.7	. . .	. . .	–6.8	–1.9	–2.1	. . .
Honduras	0.0	2.3	1.4	52.2	1.1	44.0	–1.0	–3.3	–1.3	. . .
Kenya	0.1	8.2	0.4	14.4	5.3	10.5	–5.6	–1.4	–5.1	. . .
Kyrgyz Republic	0.7	22.1	1.1	40.6	. . .	. . .	–7.7	–5.1	–1.3	. . .
Lao P.D.R.	0.0	0.9	0.4	14.3	. . .	. . .	–6.4	–4.0	–4.6	. . .
Madagascar	0.0	1.4	0.5	18.4	. . .	. . .	–7.4	–3.4	–3.7	72.5
Mali	–0.3	–3.1	0.3	13.1	2.4	14.8	–4.3	1.3	–3.3	. . .
Moldova	1.1	49.8	1.7	61.3	0.4	109.4	–5.4	–0.2	–2.5	50.2
Mongolia	6.1	218.4	1.4	51.0	. . .	. . .	. . .	–0.8	–5.7	. . .
Mozambique	–0.1	–1.5	0.4	15.9	0.3	272.7	–12.9	–3.3	–4.2	. . .
Myanmar	. . .	0.0	. . .	0.0	. . .	. . .	–9.7	–4.2	–4.3	. . .
Nepal	0.0	3.4	0.6	22.2	. . .	. . .	–7.5	–1.0	–1.2	. . .
Nicaragua	0.6	26.5	1.6	61.1	2.0	16.2	–7.9	–1.2	–1.2	79.9
Niger	–0.1	–1.6	0.4	13.4	. . .	. . .	–5.9	2.6	–3.4	. . .
Nigeria	–0.1	–1.3	0.3	11.2	4.6	2.9	–3.7	2.3	–4.2	. . .
Papua New Guinea	0.0	0.5	1.0	35.9	. . .	. . .	2.5	1.2	–4.2	29.2
Rwanda	0.1	5.6	1.5	56.1	. . .	. . .	–8.4	–0.6	–2.3	. . .
Senegal	–0.1	3.3	0.5	18.7	4.2	13.7	–4.8	–1.2	–3.2	. . .
Sudan	0.0	0.9	0.4	12.9	. . .	. . .	–12.2	–1.1	–1.5	. . .
Tajikistan	1.0	29.6	0.5	16.5	. . .	. . .	–7.6	–2.8	–3.4	. . .
Tanzania	–0.1	1.7	0.5	17.2	3.3	12.8	–5.8	–1.8	–2.9	. . .
Uganda	–0.1	–0.6	0.3	11.9	3.0	12.5	–4.1	–0.8	–4.0	58.5
Uzbekistan	2.5	96.0	0.9	34.0	. . .	. . .	–13.0	0.6	–0.1	. . .
Vietnam	2.2	82.2	1.0	38.6	3.5	17.8	–4.9	–1.7	–5.6	. . .
Yemen	–0.4	5.7	0.3	12.4	. . .	. . .	–8.4	–0.7	–6.5	. . .
Zambia	. . .	0.0	0.7	26.1	4.7	12.3	–5.9	–0.4	–5.1	. . .
Zimbabwe	. . .	. . .	. . .	. . .	. . .	. . .	–1.9	–3.9	–1.5	. . .
Average	0.4	16.2	0.5	18.4	2.0	4.0	–5.8	–0.2	–3.8	7.1

Sources: Bloomberg 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 U.S. dollars at average market exchange rates in the years indicated and based on data availability.

[1] Pension projections are based on Clements, Frank, and Gupta, *Equitable and Sustainable Pensions: Challenges and Experience* (IMF, 2014). Projections rely on authorities' estimates when these are available.

[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 L.P.

[4] Nonresident holding of general government debt data are 2015:Q3 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 U.S. dollars is converted to local currency, then taken as a percentage of 2015 gross general government debt.

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Fiscal Monitor Archives

Navigating the Fiscal Challenges Ahead	May 2010
Fiscal Exit: From Strategy to Implementation	November 2010
Shifting Gears	April 2011
Addressing Fiscal Challenges to Reduce Economic Risks	September 2011
Balancing Fiscal Policy Risks	April 2012
Taking Stock: A Progress Report on Fiscal Adjustment	October 2012
Fiscal Adjustment in an Uncertain World	April 2013
Taxing Times	October 2013
Public Expenditure Reform: Making Difficult Choices	April 2014
Back to Work: How Fiscal Policy Can Help	October 2014
Now Is the Time: Fiscal Policies for Sustainable Growth	April 2015
Acting Now, Acting Together	April 2016

I. Adjustment

Fiscal Consolidations with Progressive Measures	April 2014, Box 2.4
Constructing an Index of the Difficulty of Fiscal Adjustment	October 2013, Box 1
Medium-Term Fiscal Adjustment in an Uncertain World	April 2013, Chapter 2
Fiscal Adjustment in the United States: Making Sense of the Numbers	April 2013, Box 5
The Appropriate Pace of Short-Term Fiscal Adjustment	April 2013, Box 2
Taking Stock: A Progress Report on Fiscal Adjustment	October 2012, Chapter 2
Distributional Consequences of Alternative Fiscal Consolidation Measures: Reading from the Data	October 2012, Appendix 1
Easy Does It: The Appropriate Pace of Fiscal Consolidation	April 2012, Chapter 3
Fiscal Multipliers in Expansions and Contractions	April 2012, Appendix 1
Early Lessons from Experiences with Large Fiscal Adjustment Plans	April 2012, Appendix 2
Experience with Large Fiscal Adjustment Plans in Ireland and Portugal	April 2012, Box A2.1
Fiscal Adjustment Plans and Medium-Term Fiscal Outlook	November 2010, Chapter 3
To Tighten or Not to Tighten: This Is the Question	November 2010, Box 1.2
Fiscal Adjustment and Income Distribution in Advanced and Emerging Economies	November 2010, Appendix 3
The Fiscal Policy Outlook: Adjustment Needs and Plans	May 2010, Chapter 3
Adjustment Measures and Institutions	May 2010, Chapter 4
Fiscal Adjustment Requirements: Gross and Net Debt Targets	May 2010, Appendix 2

II. Commodities and Energy

Reforming Energy Subsidies	April 2015, Box 1.2
The Fiscal Impact of Lower Oil Prices	April 2015, Chapter 1
Reforming Energy Subsidies	April 2013, Appendix 1
Fiscal Developments in Oil-Producing Economies	September 2011, Box 3
Fuel and Food Price Shocks and Fiscal Performance in Low-Income Countries	September 2011, Box 8

III. Country Cases

IV. Crises, Shocks

V. Emerging Markets

VI. Employment

Can Fiscal Policies Do More for Jobs?	October 2014, Chapter 2
Methodology for Estimating the Impact of Fiscal Consolidation on Employment	October 2014, Appendix 1
Do Old Workers Crowd Out the Youth?	October 2014, Box 2.2
Fiscal Policies to Address Weak Employment	October 2012, Appendix 2

VII. Financial Sector

The Fiscal Implications of International Bond Issuance by Low-Income Developing Countries	October 2014, Box 1.2
Nonresident Holdings of Emerging Market Economy Debt	April 2014, Box 1.2
A One-Off Capital Levy?	October 2013, Box 6
Bond Yields and Stability of the Investor Base	April 2013, Box 3
Long-Run and Short-Run Determinants of Sovereign Bond Yields in Advanced Economies	October 2012, Box 3
Financial Sector Support	October 2012, Box 4
Reassuring Markets about Fiscal Sustainability in the Euro Area	September 2011, Chapter 2
Determinants of Domestic Bond Yields in Emerging Economies	September 2011, Box 4
Financial Sector Support and Recovery to Date	September 2011, Box 7
Financial Sector Support and Recovery to Date	April 2011, Box 1.1
Sovereign Financing and Government Debt Markets	November 2010, Chapter 2
Advanced Economies: Financial Market Spillovers among Sovereigns	November 2010, Box 2.2
Market Concerns about Economies and Default Risks	November 2010, Box 2.1
Are Sovereign Spreads Linked to Fundamentals?	November 2010, Appendix 2
Measures to Finance the Cost of Financial Sector Support	May 2010, Box 3

VIII. Fiscal Outlook

Navigating a Risky World	April 2016, Chapter 1
Recent Fiscal Developments and Outlook	April 2015, Chapter 1
Recent Fiscal Developments and Outlook	October 2014, Chapter 1
Recent Fiscal Developments and Outlook	April 2014, Chapter 1
Recent Fiscal Developments and the Short-Term Outlook	October 2013, Chapter 1
Recent Fiscal Developments and the Short-Term Outlook	April 2013, Chapter 1
The Fiscal Outlook	October 2012, Chapter 1
Moving Forward	October 2012, Chapter 3
Continued Fiscal Tightening Is in Store for 2012, Particularly among Advanced Economies	April 2012, Chapter 1
Conclusion and Risk Assessment	April 2012, Chapter 7
Risk to the Baseline	September 2011, Box 2
Fiscal Developments in Oil-Producing Economies	September 2011, Box 3
The Fiscal Indicators Index	September 2011, Box 5
Addressing Fiscal Challenges to Reduce Economic Risks: Introduction	September 2011, Chapter 1
Addressing Fiscal Challenges to Reduce Economic Risks: Conclusion	September 2011, Chapter 7
Too Good to Be True? Fiscal Developments in Emerging Economies	September 2011, Chapter 4
Shocks to the Baseline Fiscal Outlook	April 2011, Chapter 3
Fiscal Developments and Near-Term Outlook	November 2010, Chapter 1
Fiscal Adjustment Plans and Medium-Term Fiscal Outlook	November 2010, Chapter 3

Assessing Fiscal Risks	November 2010, Chapter 4
The Near- and Medium-Term Fiscal Outlook	May 2010, Chapter 1

IX. Government Debt

Skeletons in the Closet? Shedding Light on Contingent Liabilities	April 2016, Box 1.2
Lowflation and Debt in the Euro Area	October 2014, Box 1.1
Moment of Truth: Unfunded Pension Liabilities and Public Debt Statistics	April 2014, Box 1.1
Public Debt Dynamics and Fiscal Adjustment in Low-Income Countries in Sub-Saharan Africa	April 2013, Box 6
Debt Ratios Are Still on the Rise, but Peaks Are within Sight	April 2012, Chapter 2
High Gross Debt Levels May Overstate Challenges in the Short Run . . .	April 2012, Chapter 4
. . . But Long-Run Debt-Related Challenges Remain Large	April 2012, Chapter 5
The Legacy of the Crisis: How Long Will It Take to Lower Public Debt?	September 2011, Chapter 5
Factors Underlying the Debt Increase Precrisis versus End-2015	September 2011, Box 6
The Importance of Monitoring Both Gross and Net Debt	September 2011, Appendix 3
Stock-Flow Adjustments and Their Determinants	September 2011, Appendix 4
Fiscal Deficits and Debts: Development and Outlook	April 2011, Chapter 1
Sovereign Financing and Government Debt Markets	April 2011, Chapter 2
Debt Dynamics and the Interest Rate-Growth Differential	April 2011, Box 3.1
Sovereign Financing and Government Debt Markets	November 2010, Chapter 2
Are Sovereign Spreads Linked to Fundamentals?	November 2010, Appendix 2
Risks to Medium-Term Public Debt Trajectories Methodological and Statistical Appendix	November 2010, Appendix 4
Implications of Fiscal Developments for Government Debt Markets	May 2010, Chapter 2
Debt Dynamics in G-20 Economies: An Update	May 2010, Box 1
Gross versus Net Debt	May 2010, Box 2
Fiscal Adjustment Requirements: Gross and Net Debt Targets	May 2010, Appendix 2
Government Debt and Growth	May 2010, Appendix 3

X. Growth

Taxation and Growth: Details Matter	October 2013, Box 4
Debt Dynamics and the Interest Rate-Growth Differential	April 2011, Box 3.1
Interest Rate-Growth Differential	November 2010, Appendix 1
Government Debt and Growth	May 2010, Appendix 3

XI. Innovation, Entrepreneurship, Research and Development

Fiscal Policies for Innovation and Growth	April 2016, Chapter 2
The Role of Patents for Innovation	April 2016, Box 2.1
Fiscal Policy and Green Innovation	April 2016, Box 2.2
Does Preferential Tax Treatment of Income from Intellectual Property Promote Innovation?	April 2016, Box 2.3
Innovation in Brazil, Russia, India, China, and South Africa	April 2016, Box 2.4
Programs for Young Innovators and Start-Ups	April 2016, Box 2.5
Fiscal Policy, Research and Development, and Total Factor Productivity Growth	April 2016, Annex 2.1
Corrective Fiscal Incentives for Research and Development	April 2016, Annex 2.2
Taxation and Entrepreneurship	April 2016, Annex 2.4

XII. Interest Rates

XIII. Low-Income Countries

XIV. Policy and Reform

XV. Privatization, Public Enterprises

XVI. Refugees

XVII. Revenue

XVIII. Social Expenditures

XIX. Stabilization

XX. Stimulus

XXI. Subsidies

Reforming Energy Subsidies	April 2015, Box 1.2
Reforming Petroleum Subsidies	April 2010, Appendix 5

XXII. Sustainability and Risk Management

Developing a Fiscal Risk Management Framework	April 2016, Box 1.4
Reassuring Markets about Fiscal Sustainability in the Euro Area	September 2011, Chapter 2
Assessing and Mitigating Fiscal Sustainability Risks	April 2011, Chapter 4
Assessing Fiscal Sustainability Risks: Deriving a Fiscal Sustainability Risk Map	April 2011, Appendix 3

XXIII. Taxes

Taxation and Foreign Direct Investment	April 2016, Annex 2.3
Taxation and Entrepreneurship	April 2016, Annex 2.4
Taxing Our Way out of—or into?—Trouble	October 2013, Chapter 2
Learning from the Crisis? Taxation and Financial Stability	October 2013, Box 3
Taxation and Growth: Details Matter	October 2013, Box 4
A One-Off Capital Levy?	October 2013, Box 6
Increasing Revenue from Real Property Taxes	October 2013, Appendix 3
Do Pensioners Get Special Treatment on Taxes?	October 2012, Box 5
Containing Tax Expenditures	April 2011, Appendix 5
Selected Spending and Tax Issues	November 2010, Chapter 5

XXIV. Trade

The Fiscal Implications of Slowing Global Trade for Emerging Market and Developing Economies	April 2016, Box 1.1

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IMF EXECUTIVE BOARD DISCUSSION OF THE OUTLOOK, APRIL 2016

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 March 28, 2016.*

Executive Directors broadly shared the assessment of global economic prospects and risks. They noted that while the global economy continues to expand modestly, prospects have weakened across a wide range of countries, and downside risks are rising. Risks to global financial stability have also increased amid volatility in global asset markets, weaker confidence, and geopolitical tensions. Directors agreed that the current conjuncture increases the urgency of a broad-based policy response, both individually and collectively, to raise growth, manage vulnerabilities, and boost confidence.

Directors observed that growth in advanced economies is projected to remain modest, in line with the 2015 outcomes. A stronger recovery continues to be restrained by weak external demand, low productivity growth, unfavorable demographic trends, growing income inequality, and legacies from the 2008–09 global financial crisis. Meanwhile, deflation risks remain a concern in Japan and several euro area countries.

Directors noted the generally weakening outlook for emerging market and developing economies, reflecting tighter global financial conditions and a weaker commodity market outlook. Growth prospects differ considerably across countries, and many have demonstrated more resilience to shocks given existing buffers and strengthened fundamentals and policy frameworks. China's transition toward more sustainable growth, backed by ample policy buffers, is a welcome development; however, given the increasingly prominent role of China in the world economy and financial markets, challenges and uncertainties in the process could have potential international implications.

Directors concurred that the outlook for global financial stability is clouded by downside risks. They noted in particular market pressures on banking systems and life insurance sectors in advanced economies. Emerging market economies face volatile capital flows and exchange rate pressures, as well as corporate sector vulnerabilities. A more balanced and potent policy mix that includes strong supervision, macroprudential frameworks, and implementation of the regulatory reform agenda is therefore vital.

Directors underscored that a combination of structural reforms and supportive monetary and fiscal policies is needed to raise actual and potential output. They generally endorsed the main policy recommendations in the reports, although the appropriate mix should be tailored to each country's circumstances. Directors also highlighted the importance of clear communication of policy intentions, especially by large economies. Commitment by policymakers to facilitate cross-border trade flows and global rebalancing remains crucial and must be followed through in order to achieve strong, sustainable, and balanced global growth. The fragile conjuncture calls for concerted efforts to identify potential responses to downside risks were they to materialize, to ensure strong, well-coordinated oversight and global financial safety nets and to ring-fence spillovers from noneconomic shocks.

Directors broadly agreed that, in advanced economies, securing higher sustainable growth requires a bold three-pronged approach consisting of mutually reinforcing (1) structural reforms, (2) continued monetary policy accommodation, and (3) prudent fiscal support. Recognizing the need to avoid overburdening monetary policy and preserve debt sustainability, Directors saw as a key element of this strategy a well-designed and -sequenced country-specific structural reform agenda that takes into account both the short- and medium-term impact of reforms. Reforms that entail fiscal support and reduce barriers to entry in product and services markets would best help strengthen near-term demand, while well-targeted tax and spending policies to encourage innovation and education investment could also play a useful role.

Directors stressed that accommodative monetary policy remains important, particularly in Japan and the euro area. Mindful of the side effects of extremely low—and, in some countries, negative—interest rates on domestic financial institutions, exchange rates, and other countries, they stressed the importance of complementary efforts to enhance policy transmission and accelerate balance sheet repair. The growing systemic importance of the insurance sector, in an environment of low interest rates, warrants a strong macroprudential approach to supervision and regulation.

Directors agreed that, where needed and where fiscal space is available, fiscal policy in advanced economies should be supportive of short- and medium-term growth—with a focus on boosting future productive capacity, in particular through infrastructure investment, and financing demand-friendly structural reforms. To preserve debt sustainability and anchor expectations, any fiscal relaxation should be based on a credible plan to return fiscal policy settings back toward targets over the medium term. Where fiscal space is limited, the emphasis should be placed on a more growth-friendly composition of the budget.

While recognizing the diverse challenges facing policymakers in emerging market and developing economies, Directors agreed that common policy priorities center on reducing macroeconomic and financial vulnerabilities and rebuilding resilience. They stressed that, in many countries, better fiscal and debt management frameworks that anchor longer-term plans will help mitigate procyclical policy and build resilience, while structural reforms are urgently needed to raise productivity and remove bottlenecks to production. Exchange rate flexibility, where feasible, can help cushion external shocks, although its effects on inflation and the balance sheets of the private and public sectors would need to be monitored closely.

Directors noted that the positive growth effects of the decline in commodity prices in commodity-importing economies have been less pronounced than expected. Commodity-exporting countries, on the other hand, have been hit hard and many have run down their policy buffers. Some of these countries need to adjust public spending to lower fiscal revenues. This adjustment should be complemented by further efforts to improve revenue diversification and phase out poorly targeted and wasteful spending, including fuel subsidies. For commodity importers, depending on their needs, part of the windfall gains from lower oil prices could be used to finance critical structural reforms or growth-enhancing spending.

Directors concurred that, in low-income countries, policies must respond to the heightened challenges and vulnerabilities stemming from the difficult external environment, taking account of domestic circumstances. For many commodity exporters whose fiscal and external balances are deteriorating, a tight macroeconomic policy stance is required to preserve hard-won macroeconomic stability. Directors also stressed the need to make further progress toward the Sustainable Development Goals, particularly through economic diversification, domestic revenue mobilization, and financial deepening. Appropriate policy advice and adequate financial assistance from the IMF and development partners remain important in that regard.

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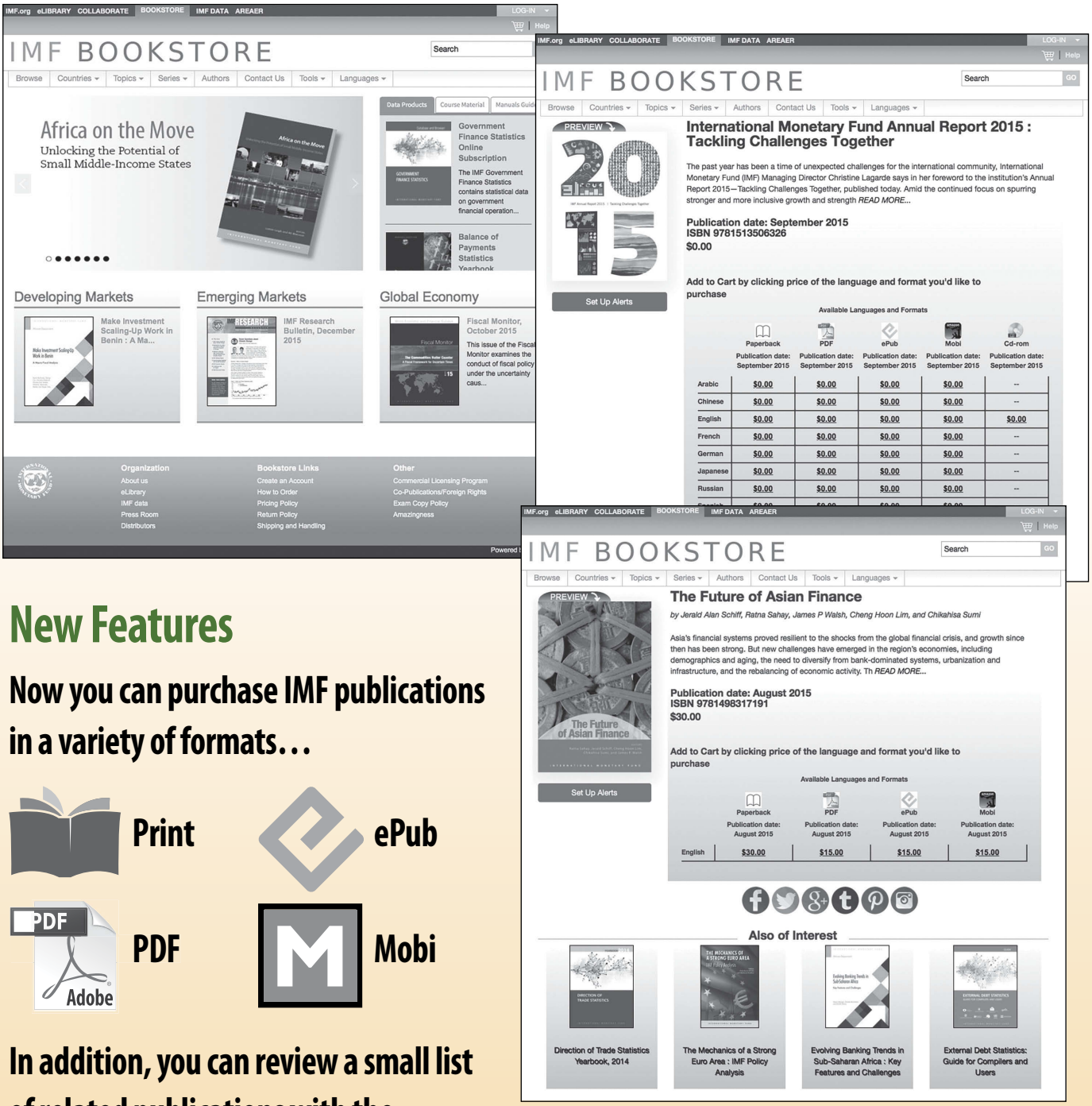

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