

## Introduction

Low growth and investment, adverse shocks, and low inflation and interest rates during the past few years put fiscal policy at the forefront. The COVID-19 pandemic of 2020 has strengthened the case for fiscal policy action and heightened its urgency. In the past few years, growth has been subdued in advanced economies, reflecting various factors including a moderation in capital accumulation (Box 2.1). Sustained high and inclusive growth is critically needed for development in emerging market and developing economies. Inflation has trended down since the 1980s and is currently below targets in two-thirds of inflation-targeting countries. In advanced economies, inflation expectations are anchored at low levels. Nominal interest rates are at historical lows, shifting the balance of cyclical demand support toward fiscal policy. This is because the natural rate of interest—the interest rate that keeps the economy at full employment with stable inflation—is estimated to have fallen significantly and is now below zero in some economies (Rachel and Summers 2019). Consequently, the effective lower bound on policy rates binds more frequently. Moreover, the nominal interest rate on new government borrowing, although at times volatile, is currently negative in many advanced economies (something historically unprecedented). These patterns have been exacerbated by the COVID-19 pandemic (Chapter 1), resulting in a global recession this year, and are likely to persist during the post-shutdown recovery.

This chapter explores how fiscal policies can respond to weak growth with IDEAS: (1) Investing for the future in infrastructure, low-carbon technologies, health care, education, and research; (2) enacting Discretionary measures that can be deployed contingent upon a particular state of the economy (Chapter 2 of the April 2020 *World Economic Outlook*); and (3) Enhancing Automatic Stabilizers—particularly by improving unemployment benefits and social safety nets—that are key fiscal tools being used by countries in response to the pandemic. In discussing the IDEAS

approach, the chapter will emphasize maximizing the benefits from sustainable, resilient public investment and improving social safety nets (that is, noncontributory transfer programs financed by general government revenue) (Figure 2.1).

Low-for-long interest rates present an opportunity for quality public investment across the world to boost growth. Discretionary fiscal policies can have larger fiscal multipliers when policy rates are at the effective lower bounds and economic slack and fiscal space exist, because the policies can lead to a virtuous cycle that spurs private consumption and investment through higher inflation expectations and lower real interest rates (Christiano, Eichenbaum, and Rebelo 2011; Eggertsson 2011; Woodford 2011; Auerbach and Gorodnichenko 2012, 2013; Correia and others 2013; Farhi and Werning 2016). With significant supply disruptions, the size of fiscal multipliers is more uncertain during pandemics and before the recovery phase. High levels of public debt, however, remain a vulnerability and impose constraints on the use of countercyclical fiscal policies in downturns (Romer and Romer 2019; April 2018 *Fiscal Monitor*). Moreover, when public debt is high, the multiplier effects of discretionary fiscal policies are lower (Bi, Shen, and Yang 2016). At high debt levels, automatic stabilizers can still be effective at reducing macroeconomic fluctuations. To that end, strengthening social safety nets can be highly effective, so it is an urgent priority to tailor the safety nets to the special situation of the pandemic.<sup>1</sup>

<sup>1</sup>The merits of improving tax-benefit systems go well beyond stabilization. Reducing tax distortions and providing incentives to encourage labor supply and investment, along with well-designed benefit systems, could contribute to supply potential and long-term growth. A strong safety net and unemployment insurance can reduce inequality and the need for precautionary savings (underlying causes of prolonged demand weaknesses), particularly for emerging market and developing economies (Di Maggio and Kermani 2016; Hsu, Matsa, and Melzer 2018). At the same time, if the burden of structural reforms and the cost of deleveraging fall on low-income households and small businesses, a well-designed safety net can alleviate such costs.

Figure 2.1. A Road Map for Fiscal Policies



Source: IMF staff.

### Investment for Growth

The slowdown in global growth has been linked, in part, to a moderation of capital accumulation. In advanced economies, total investment per person (public and private) was essentially unchanged for a decade: at \$9,867 in 2007 and \$9,991 in 2017, in constant 2017 US dollars (IMF Investment and Capital Database). In a range of countries, high-return public investment could act as a bridge to sustainable, resilient, and inclusive economic growth, including by lifting productivity, creating jobs, and spurring private sector investment. It could also improve public sector net worth because the value of the resulting assets would likely exceed the liabilities incurred (October 2018 *Fiscal Monitor*). In many emerging market and developing countries, infrastructure bottlenecks are impediments to long-term development (Chapter 3 of the October 2014 *World Economic Outlook*; Figure 2.2).

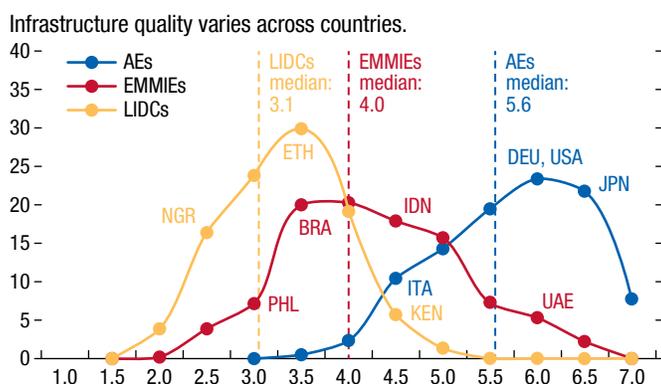
Investment inefficiencies and other structural rigidities, especially in emerging market and developing economies, could reduce expected returns on public capital and raise debt-to-GDP ratios following a scale-up of public investment. Decisions, including whether and how much to scale up quality public investment, will depend on the needs in specific sectors and their returns, prospects for sustainable financing (debt financed versus budget neutral), and the efficiency of public investment. A sizable increase in public investment—particularly if undertaken in a range of countries—could affect inflation and interest rates, which are especially relevant during the current macroeconomic situation for many advanced economies. For emerging market and developing countries, while investment needs are large and inefficiencies greater, a critical challenge is to finance development in a fiscally responsible way given high, and in many cases still rising, public debt (Schwartz and others 2020).

- *Sustainable investment areas:* Public investment is particularly desirable in sectors that have large positive externalities and could crowd in private sector investment (Acemoglu, Aghion, and Zilibotti 2006). Investment in health and emergency services will improve living standards, enhance resilience, and help mitigate risks from future epidemics. Key priorities include infrastructure, low-carbon technologies, and progress toward other Sustainable Development Goals. Additional investment needs are estimated at 1.3 percent of global GDP per year (Figure 2.3) or, on a cumulative basis, exceeding \$20 trillion (measured in current US dollar terms) over the next two decades, although these estimates are subject to considerable uncertainty. Investment needs consist of the following:

- *Infrastructure:* According to the Group of Twenty (G20) initiative on the global infrastructure outlook, an additional investment of 0.5 percent of global GDP per year is needed over the next two decades to cover infrastructure gaps,

Figure 2.2. Distribution of Overall Infrastructure Quality, by Income Group

(Frequency in percent, 2007–17 average)

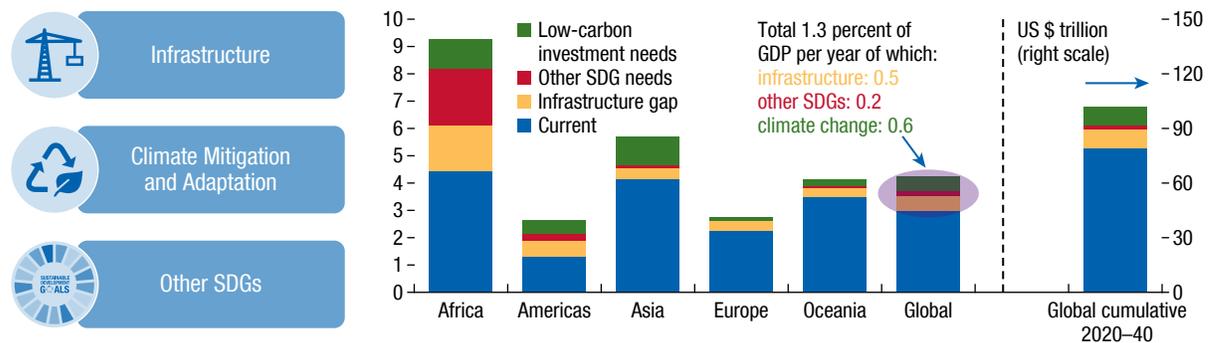


Source: World Bank.

Note: Based on the scoring of infrastructure quality for more than 150 countries across the world. Scoring of overall infrastructure quality ranges from 1 (lowest) to 7 (highest). Data labels use International Organization for Standardization (ISO) country codes. AEs = advanced economies; EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries.

**Figure 2.3. Global Investment Needs for Infrastructure, Climate Change, and Other SDGs**  
(Percent of annual regional GDP; trillions of US dollars, right scale)

Additional global investment needs are large and concentrated in emerging market and developing economies.



Sources: Global Infrastructure Hub; Oxford Economics; and IMF staff estimates.

Note: The blue bars show the current investment levels across regions as of the end of 2017. Additional global investment needs are estimated, on average, at 1.3 percent of global GDP per year during 2020–40 (exceeding \$20 trillion in current US dollars), and comprise infrastructure (0.5 percent of GDP), other SDGs (0.2 percent of GDP), and low-carbon investment (0.6 percent of GDP). The right panel shows the cumulative investment needs in trillions of US dollars (constant 2019 prices and exchange rates) over the next two decades. SDGs = Sustainable Development Goals.

- mostly for transportation.<sup>2</sup> In addition, investment needs for upgrading health infrastructure (medical facilities and equipment) are large.
- *Climate change:* An additional investment of 0.6 percent of global GDP per year is needed for adaptation to climate change as well as the transition to cleaner energy systems—to limit the rise in global temperatures to below 2 degrees Celsius in this century compared with preindustrial levels (October 2019 *Fiscal Monitor*).<sup>3</sup>
  - *Other Sustainable Development Goals:* Meeting these goals (for access to clean water, sanitation, and affordable electricity) requires an additional 0.2 percent of global GDP in investment per year up to 2030, according to the G20 initiative on the global investment outlook. These additional investment needs are over and above needs described in the first bullet on infrastructure

<sup>2</sup>The size of infrastructure needs in energy, telecommunications, transportation (airports, ports, rail, and roads), and water sectors for each of the 50 countries is calculated based on trend investment projections relative to best performers (that is, the 75th percentile) among countries with similar income levels. Missing data from remaining countries are scaled by their relative GDP weights to arrive at regional and global infrastructure needs. Additional Sustainable Development Goal investment needs for access to clean water, sanitation, and electricity are over and above those infrastructure needs indicated above.

<sup>3</sup>Investment needs for climate adaptation are estimated at \$1.8 trillion globally cumulatively over 2020–30, or 0.2 percent of global GDP per year (Global Commission on Adaptation 2019). Key areas include early warning systems, climate-resilient infrastructure, dryland agriculture crop production, mangrove protection, and water resource management.

and are mostly concentrated in sub-Saharan Africa and other low-income developing countries, amounting to 5 percent of regional GDP per year in Africa.<sup>4</sup>

- *Investment management:* Scaling up public investment too much and too fast, going beyond a country's absorptive capacity, risks waste rather than sustained output growth (Presbitero 2016). Across countries, losses and waste in public investment are prevalent. On average, more than one-third of funds for public infrastructure are estimated to be lost owing to inefficiencies (IMF 2015a; Baum, Mogues, and Verdier 2020). Weaknesses in infrastructure governance, such as optimism bias in project appraisal, limited interagency coordination, corruption, and weak budget processes, are critical factors behind such inefficiencies and poor investment outcomes, particularly in the allocation and implementation of public investment (Schwartz and others 2020; April 2019 *Fiscal Monitor*). In countries where subnational governments are critical in executing public investment, the fragmentation of public infrastructure delivery, local capacity constraints (Germany, Italy), or unclear delineation of land rights (India) could emerge as obstacles to large public investment. For example, in Germany, where two-thirds of public investment is executed by local governments (states and municipalities), earmarked deferral funds for

<sup>4</sup>Including health and education investment toward the Sustainable Development Goals could add an additional 0.2 percent of global GDP per year to the global investment needs (Gaspar and others 2019).

investment are underutilized. That is largely because of capacity constraints in some localities and price pressures in the construction industry, even though local municipalities have backlogs of investment needs. India’s budget allocations for capital expenditure are not fully executed, particularly at the state level. Bolivia experiences weak intergovernmental coordination.

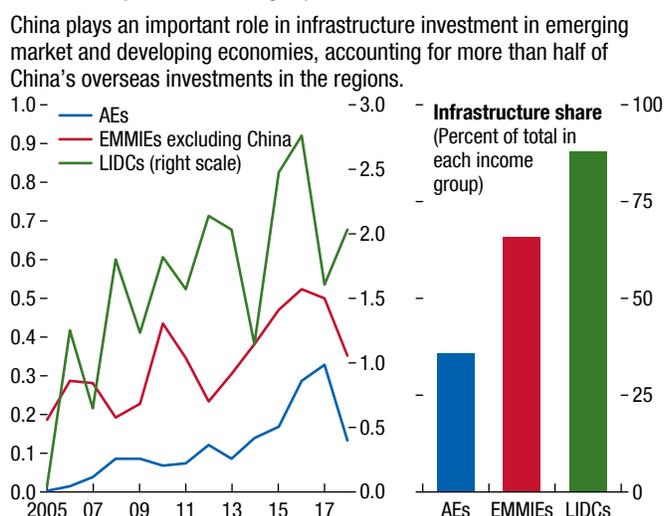
To increase the long-term output gains from increased public investment, investment efficiency needs to be improved. Sound institutional processes, including careful project selection, management, and evaluation, as well as a clear delineation of responsibilities and mechanisms to ensure coordination between central and subnational governments, should be in place to ensure productive investment (IMF 2015a). Improving public investment management (to the 90th percentile of best performers in each income group) could halve the size of investment inefficiencies across countries (Baum, Mogues, and Verdier 2020). Improving investment efficiency is by no means limited to emerging market and developing economies. Advanced economies can improve public investment processes. For example, policymakers can establish a central register of infrastructure projects, tighten financial rules on public-private partnerships, and disclose more ex post reviews and audits of capital projects. Policymakers can also strengthen the links among the national planning framework, the long-term capital plan, and the budgeting process (*Ireland*) (IMF 2017). Most countries should also accelerate their decision-making processes and strengthen implementation capacity (*Italy, Germany*).

- **Sustainable financing:** While government borrowing costs in many advanced economies have declined to unprecedented low levels, the rates of return on private capital have largely held up (Farhi and Gourio 2018). Considering weak private investment, to the extent that the risk-adjusted social return on new public investment is higher than government financing costs, a greater set of public investment projects is worth undertaking (Blanchard 2019). In this environment, public investment is less likely to crowd out private activity. In contrast, public investment in electricity networks could encourage, for example, private investment in low-carbon technologies (October 2019 *Fiscal Monitor*). However, in some countries

with high debt-to-GDP ratios—including several advanced economies—adverse market reactions to large public investment scale-up could emerge, resulting in higher financing costs and further increases in debt vulnerabilities. In such cases, a budget-neutral increase in investment would deliver better outcomes (that is, higher output and lower debt ratios).

In most emerging market and developing economies, meeting large investment needs in a fiscally responsible way is challenging (October 2019 *Regional Economic Outlook: Sub-Saharan Africa*). Over the past decade, large emerging market economies, such as China, have played an important role in financing infrastructure investment in many emerging and developing economies, such as *Cambodia, Ethiopia, and Venezuela* (Figure 2.4; see also IMF 2019a; Scissors 2019). Loans from China accounted for 17 percent of total public external debt of low-income developing countries in 2018—a fourfold increase from the 2008 levels (IMF 2019b). Governments have relied on public-private partnerships to encourage private sector participation in

**Figure 2.4. Overseas Investment by China, 2005–18**  
(Percent of recipients’ GDP and infrastructure share of total overseas investment by China in the region)



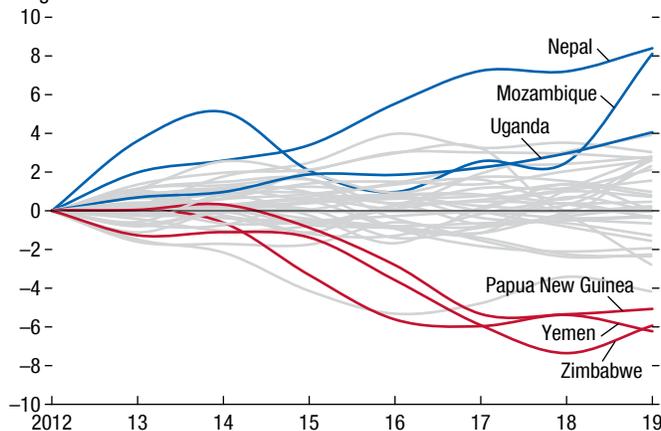
Sources: China Global Investment Tracker database; Scissors 2019; and IMF staff estimates.  
Note: Based on more than 3,000 individual transactions during 2005–18 for 150 economies. Data include both private and public investment projects. Infrastructure share indicates the percentage of infrastructure investment (construction, energy, transportation, and utilities sectors) in total overseas investment financed by China in each income group. AEs = advanced economies; EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries.

infrastructure projects. Given the sizable investment needs, direct private investment and financing are critical and could be facilitated by structural reforms, such as improving the business environment. Furthermore, supranational coordinated investment projects could play a role in regional infrastructure development or when the depth of challenges surpasses the capacity of individual countries (for example, cross-country renewable energy networks). The rise of multinational state-owned enterprises globally has also contributed significantly to cross-border investment flows, including in infrastructure (Chapter 3).

Countries need to balance the risks to debt sustainability against the benefits of additional public investment. This would call for stronger governance and institutions, better capture of the returns to investment, management of fiscal risks arising from public-private partnerships (Irwin, Mazraani, and Saxena 2018), greater debt transparency, and improved coordination with creditors to ensure debt sustainability. Based on current trends, meeting the Sustainable Development Goals in low-income developing countries would likely imply new borrowings on nonconcessional terms and could lead to a substantial increase in average interest rates by 110 basis points (IMF 2019b). Increasing tax-to-GDP ratios (Figure 2.5), seeking concessional financing, and involving the private sector are critical.

**Figure 2.5. Low-Income Developing Countries: Change in Tax Revenues, 2012–19**  
(Percent of GDP)

Progress in tax collection is mixed.



Source: IMF, World Economic Outlook database.

Note: The lines show the cumulative changes in tax revenue-to-GDP ratios of individual countries since 2012.

What would be the macroeconomic effects of higher public investment to meet the needs estimated in Figure 2.3? Can such scaling up of investment “move the needle” on growth, inflation, and real interest rates? A general equilibrium model can help quantify (1) the growth and debt implications of meeting global investment needs, and in a separate scenario, of addressing Europe’s green investment (which is specified in the Sustainable Europe Investment Plan) and infrastructure needs; and (2) estimated effects on inflation and interest rates, illustrating the extent to which fiscal policy can support monetary authorities in achieving inflation targets (model description is provided in Annex 1.1).<sup>5</sup>

- When public investment is efficient (that is, assuming demand inadequacy but not supply constraints), a sustained increase in public investment across the world (1.3 percent of global GDP initially, then declining very gradually) could increase (1) global GDP by an estimated 1.4 percent per year, on average, over a 20-year horizon;<sup>6</sup> (2) inflation by 66 basis points per year initially; and (3) the real interest rate by 14 basis points over the 20-year horizon. The impact on the public debt-to-GDP ratio would be limited. In a separate exercise for the European Union (EU), a sustained public investment increase of 0.6 percent of EU GDP on infrastructure and decarbonization would increase EU output by 0.7 percent per year, on average, over a 20-year horizon. For illustrative purposes, the green investment needs of 0.25 percent of EU GDP are assumed to be new financing rather than from rebalanced EU budget expenditure. A public investment increase would also add to inflation initially, raise long-term interest rates modestly, and result in a modest rise in the public debt-to-GDP ratio (see panels 1 and 3 of Figure 2.6).
- However, when supply-side bottlenecks and absorptive capacity constraints are binding (in skills, institutions, and management), investment efficiency

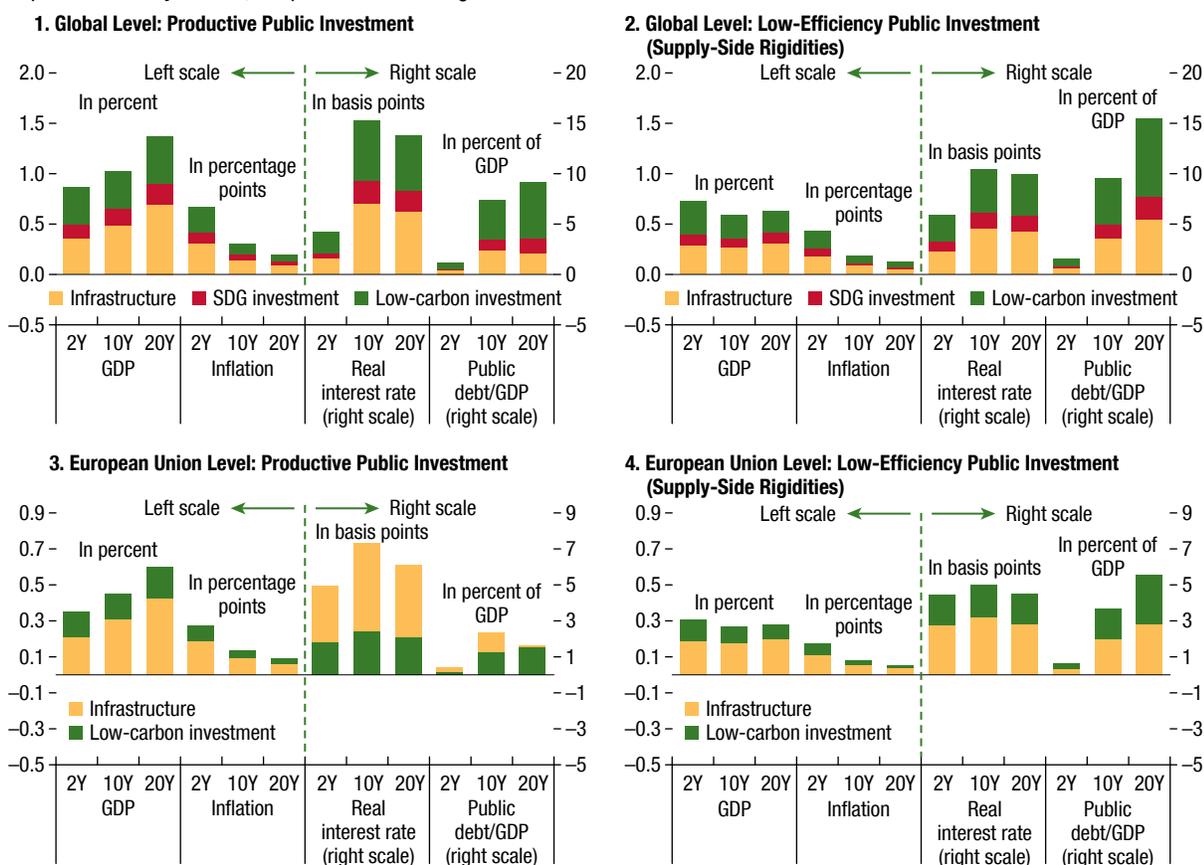
<sup>5</sup>The model assumes manageable financing costs and does not distinguish between different types of capital and thus does not capture the complementarity or substitutability of green investment with existing capital. If countries levy higher carbon taxes to mitigate climate change, parts of the existing capital (for example, brown assets from coal mines to oil fields) will be replaced by new “green” capital if carbon pricing is combined with supporting policies to encourage private investment in low-carbon technologies. Further research is needed to study these effects.

<sup>6</sup>The cumulative public investment injection over 20 years is 18 percent of global GDP and the increase in GDP is estimated to be 28 percent (assuming efficient investment). Thus, the cumulative multiplier is above 1 in both simulation exercises.

**Figure 2.6. Simulated Macroeconomic Effects of a Public Investment Push**

(Average annual deviations from the path without a public investment push for GDP, inflation, and real interest rates; cumulative change in percent of GDP over time horizon for public debt)

High-quality efficient public investment, if persistent, can lift growth, inflation, and interest rates. If investment is inefficient, the macro impact will be only modest, but public debt will surge.



Source: IMF staff estimates based on a revised version of the model developed in Traum and Yang 2015.

Note: In panels 1 and 2, additional global investment needs are estimated at 1.3 percent of global GDP initially and are assumed to decline gradually over time. Those needs are composed of infrastructure (0.5 percent of GDP), low-carbon energy investment (0.6 percent of GDP), and investment in other SDGs (0.2 percent of GDP). The supply-side rigidities scenario assumes efficiency of additional public investment at almost one-half that in the productive scenario. In panels 3 and 4, additional investment needs for the European Union are estimated at 0.6 percent of regional GDP initially and are assumed to decline gradually over time. Those needs are composed of infrastructure (0.35 percent of GDP) and low-carbon investment (0.25 percent of GDP). Model assumptions are outlined in Online Annex 1.1. SDGs = Sustainable Development Goals.

would be lower (Shen, Yang, and Zanna 2018; Berg and others 2019). In that case, scaling up public investment would have smaller effects on growth and inflation (with little support for monetary policy in achieving inflation targets) while leading to a large rise in debt-to-GDP ratios (see panels 2 and 4 of Figure 2.6).

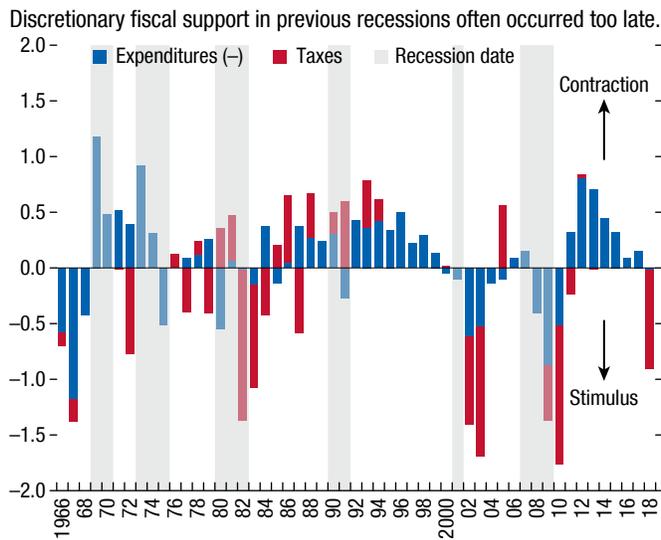
### Discretionary Measures

Given the information, decision, and implementation lags in enacting discretionary measures, policy-makers should identify high-quality measures that can

be deployed quickly when downside risks materialize. In previous recessions, discretionary measures were usually undertaken too late and were, at times, not effective. For example, discretionary measures in the *United States* came late in half of previous recessions (Figure 2.7). US county-level data also show that the discretionary stimulus from the American Recovery and Reinvestment Act during the Great Recession was not well targeted to areas where the recession was more severe (Crucini and Vu 2017).

Well-prepared countercyclical discretionary measures can be effective, as fiscal multipliers tend to be larger in downturns than under normal circumstances.

**Figure 2.7. Breakdown of Discretionary Expenditure and Revenue Measures in the United States, 1966–2018**  
(Percent of GDP)



Sources: Congressional Budget Office 2013; Romer and Romer 2010; and IMF staff. Note: Gray-shaded areas indicate recession periods. Negative (positive) numbers refer to stimulus (contractions).

Such measures are particularly appropriate in response to deep and prolonged downturns, where support through existing automatic stabilizers and social safety nets is not sufficient. To improve the timeliness of discretionary stimulus, an option is to enact discretionary measures that will be automatically activated—that is, a rules-based fiscal stimulus (Chapter 2 of the April 2020 *World Economic Outlook*)—when economic conditions deteriorate (for example, a decline in job creation below a certain threshold or a large increase in the unemployment rate above a certain level or duration) (Solow 2005; Blanchard, Dell’Ariccia, and Mauro 2010; Boushey, Nunn, and Shambaugh 2019; Eichenbaum 2019; Blanchard and Summers 2020). The rules-based fiscal stimulus should be designed in ways that prevent a continued debt buildup over the long term. On the revenue side, examples include temporary value-added tax cuts or tax policies targeted at low-income households (such as a flat, refundable tax rebate) or tax policies affecting firms (such as cyclical investment tax credits). On the expenditure side, measures include temporary extensions of the coverage and duration of unemployment benefits (for example, emergency unemployment compensation programs in the *United States*) or well-targeted transfers to low-income or liquidity constrained households, as they are more vulnerable to shocks and have a higher marginal

propensity to consume (Landais and Spinnerwijn 2019). These policies can also be tailored to respond to the ongoing health crisis (Chapter 1).

To avoid policy lags when stimulus is most needed, a pipeline of appraised projects (especially those involving upgrades, maintenance, and repairs) can be identified for timely implementation when needed. At the current juncture, the scope for large public investment is limited considering supply disruptions (lockdowns and quarantines). Since public investment has a long lead time, however, efforts should start now to review the pipeline, identify bottlenecks, and prepare a set of ready-to-implement projects that can be deployed. Maintenance and repairs can be quickly scaled up as part of broad-based stimulus when supply disruptions ease. Some governments (*Australia, Ireland, New Zealand, Norway*) have a rolling pipeline of public infrastructure projects within a budget constraint over the long term, which provides details on the timing, sequencing, and scale of future public investment at different levels of government. In downturns, implementation of smaller projects can be accelerated.

### Enhancing Automatic Stabilizers

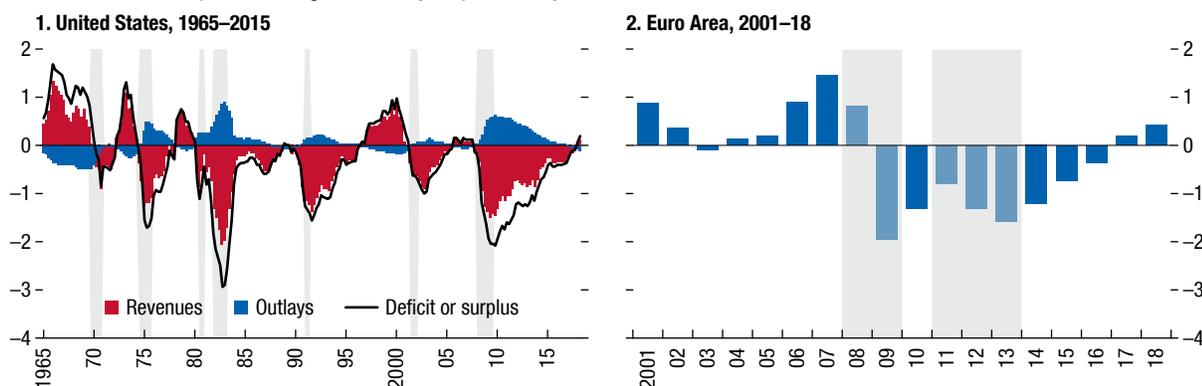
Enhancing automatic stabilizers by improving their design is another promising route toward reducing macroeconomic volatility and building resilience against downturns (Baunsgaard and Symansky 2009; Blanchard, Dell’Ariccia, and Mauro 2010; Spilimbergo and others 2010; Oh and Reis 2012; McKay and Reis 2016). The pandemic has highlighted the importance of automatic stabilizers in protecting people from losing jobs and incomes (Chapter 1). Automatic stabilizers are mechanisms built into government budgets that raise (reduce) spending or reduce (increase) taxes when the economy slows (expands). They primarily include, on the revenue side, progressive income taxes and, on the spending side, unemployment benefits and various social safety nets. Automatic stabilizers can attenuate a business cycle or limit the loss of incomes during a pandemic through channels such as the following:<sup>7</sup>

- *Disposable income*: Under progressive income taxation, household income (after accounting for taxes paid and transfers received) does not increase

<sup>7</sup>While progressive taxation (for example, on labor and capital income) can reduce inequality and the volatility of disposable income, it can also make it more likely that wealthy individuals will seek to avoid taxation, and lower firms’ willingness to invest domestically (Pisani-Ferry 2019; Saez and Zucman 2019).

**Figure 2.8. Automatic Stabilizers in the United States and the Euro Area**  
(Percent of GDP)

Automatic stabilizers provide a large and timely response to cyclical downturns.



Source: Congressional Budget Office 2013.

Note: Shaded areas indicate recession periods as identified by the National Bureau of Economic Research.

Source: European Commission.

Note: Shaded areas indicate recession periods as identified by the Center for Economic and Policy Research.

as much during upswings and does not fall as drastically during slowdowns, thereby stabilizing aggregate demand.

- *Social insurance and redistribution*: This would insure incomes when people become unemployed and protect poor households that are more likely than high-income families to consume most of their incomes, thereby stabilizing aggregate demand in recessions.

In downturns, automatic stabilizers support aggregate demand promptly, reach those affected by downturns, and come to an end when conditions improve. They account for more than one-half of overall fiscal stabilization—measured as the sensitivity of the overall budget balance to the output gap—in two-thirds of advanced economies. They also account for 30 percent of total fiscal stabilization in emerging market and developing economies, although the extent of stabilization varies greatly across countries (April 2015 *Fiscal Monitor*). Automatic stabilizers provided a sizable boost to output during the Great Recession—about 2 percent of GDP in the United States and slightly less than that in the euro area, reflecting the difference in severity of the shock (Figure 2.8). Several studies suggest that automatic stabilizers can absorb one-third of income shocks and 40 percent of unemployment shocks in major advanced economies (Gali 1994; Auerbach and Feenberg 2000; Fatas and Mihov 2001; Debrun, Pisani-Ferry, and Sapir 2008; Debrun and Kapoor 2010; Dolls, Fuest, and Peichl 2012).

Their aggregate demand stabilization impact would be more effective (beyond smoothing disposable income through taxes) if unemployment benefits and social safety nets were strengthened. This is because a higher share of liquidity-constrained households would be able to smooth their consumption more effectively when facing income shocks (McKay and Reis 2016; Hellwig, forthcoming).

Practical measures to improve automatic stabilizers on the revenue side, including tax measures with desirable stabilization properties, are discussed in Box 2.2. On the expenditure side, automatic stabilizers can be enhanced by strengthening social safety nets and introducing two-pillar unemployment benefit systems: the first pillar is unemployment insurance financed from contributions, and the second pillar is unemployment assistance financed from government revenues for those who have either not contributed or have exhausted their insurance benefits.<sup>8</sup> Increasing the generosity of unemployment benefits plays an important role in macroeconomic stabilization (Kekre 2019). Similarly, increasing the take-up of transfer programs, raising benefit levels and their duration based on predefined formulas, and easing eligibility criteria during recessions could boost aggregate demand. Nonetheless, to increase the effectiveness of safety net programs,

<sup>8</sup>For example, a 1 standard deviation increase in the generosity of US unemployment insurance would attenuate the effect of adverse shocks on employment growth by 7 percent (Di Maggio and Kermani 2016).

their design should be improved to strike a balance between demand support and work disincentives (Landais, Michailat, and Saez 2018; McKay and Reis 2019). An option includes gradually removing benefits as employment incomes increase. Although extending unemployment benefits can adversely affect workers’ job search efforts, an extension’s impact on macroeconomic outcomes is not settled in the literature (Chodorow-Reich, Coglianesi, and Karabarbounis 2019; Hagedorn and others 2016). During the pandemic, extending unemployment benefits and enhancing social safety nets would likely have limited effects on work incentives.

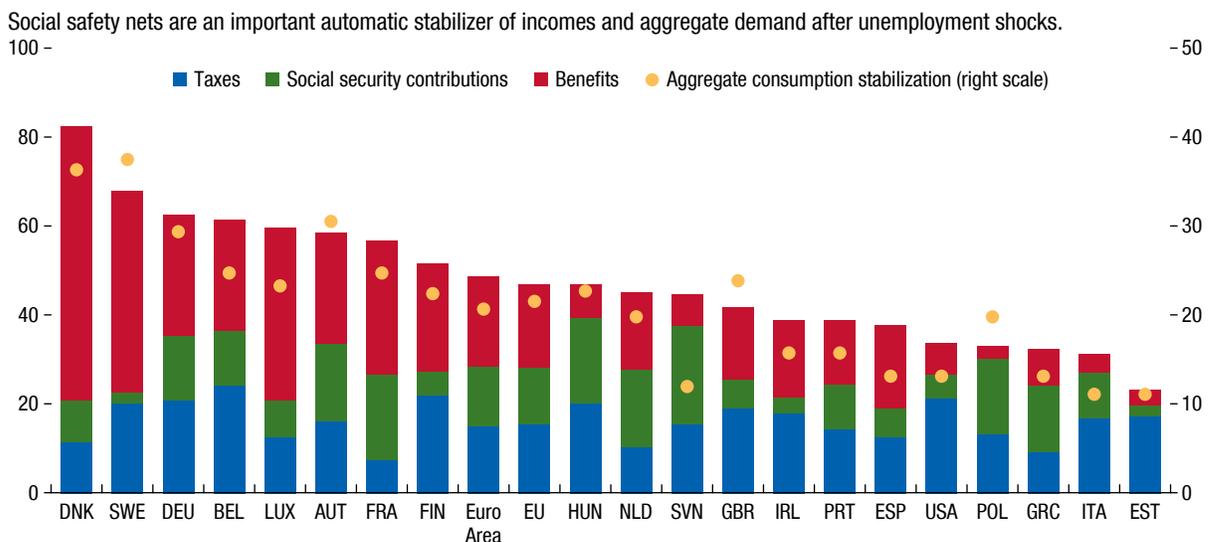
**How Can Spending-Side Automatic Stabilizers Be Enhanced?**

Strengthening unemployment benefit systems and social safety nets promotes two complementary objectives: (1) reinforcing spending-side automatic stabilizers and (2) protecting households by providing adequate income support in difficult times. Evidence suggests that cushioning personal incomes from shocks through automatic stabilizers does not necessarily translate one to one to aggregate consumption stabilization (Auerbach and Feenberg 2000; Dolls,

Fuest, and Peichl 2012). This is because progressive taxes contribute more to automatic income stabilization of high-income households than do unemployment benefits and social safety nets. The opposite is true for low-income households, whose consumption depends more closely on income support. At the aggregate level, the impact of automatic stabilizers on consumption depends on the extent to which each group (high and low income) saves the additional income (from lower taxes or higher benefits) and the relative size of each group in the country’s aggregate income (Figure 2.9). Recent research shows that well-designed unemployment benefit systems and social safety nets can play a large role in the stabilization of aggregate demand because such payments are directly tied to consumption of low-income households (McKay and Reis 2016; Dolls, Fuest, and Peichl 2012).

Unemployment benefits and social safety nets are important features of the tax-benefit systems in Organisation for Economic Co-operation and Development (OECD) countries, stabilizing households’ incomes in a typical recession. In most OECD countries, the first line of defense for a typical household is unemployment insurance. On average, the household receives insurance and other benefits of 70 percent of its last

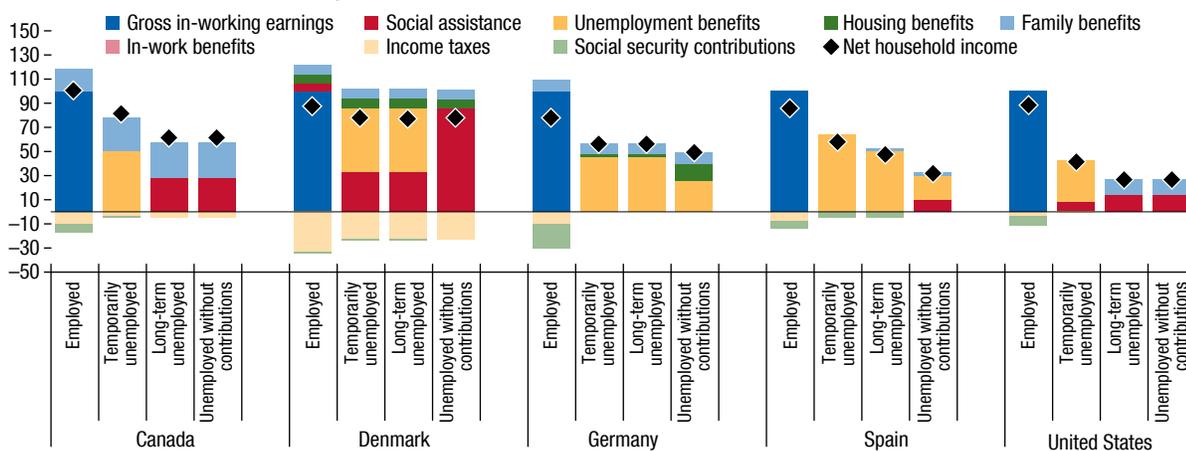
**Figure 2.9. Automatic Income and Demand Stabilization, by Fiscal Instrument**  
*(Percent of gross in-work earnings, left scale; percent of aggregate consumption loss restored, right scale)*



Sources: Dolls, Fuest, and Peichl 2012; and IMF staff calculations.  
 Note: Yellow dots show the extent to which the loss in aggregate consumption after an unemployment shock is restored by countries’ tax-benefit systems. For example, if aggregate consumption falls by 1 percent, the tax-benefit system in Denmark restores one-third of this loss. Fiscal instruments include taxes, social security contributions, and benefits. Data labels use International Organization for Standardization (ISO) country codes.

**Figure 2.10. Simulated Results on Average Working Income after Tax Liabilities and Benefit Entitlements during Typical Downturns**  
(Percent of gross in-work earnings)

Benefit entitlements and duration vary across countries and result in different levels of income stabilization.



Source: Organisation for Economic Co-operation and Development's tax-benefit web calculator.

Note: The focus is on a representative household of four (with two children and one working adult) and its net income under four scenarios: (1) baseline in which the working adult earns an average income; (2) unemployed for three months after nine years of unemployment insurance contributions; (3) long-term unemployed for more than one year with the same nine years of unemployment insurance contributions; and (4) becoming unemployed without previous unemployment insurance contributions.

employment income. However, a long unemployment spell would eventually exhaust the insurance benefits. Some countries provide unemployment assistance (as part of labor market regulations) that, if combined with other benefits, would present a replacement rate of 60 percent of previous employment incomes. The fall in net incomes is sharper in countries without unemployment assistance (*United States*). In some cases, in lieu of unemployment assistance, other income-support schemes, such as guaranteed minimum income programs, are in place (*Denmark*). In several countries, people who become unemployed without prior insurance contributions could face hardship in recessions owing to a lack of unemployment assistance (*United States*) or an adequately funded and covered national guaranteed minimum income program (*Spain, United States*). In addition to tax design (Box 2.2), the variation of income stabilization across countries depends on policy instruments for income support as well as on design features of benefit entitlements. The size of income stabilization by the tax-benefit systems varies from 95 percent in *Denmark*, given its generous safety net, to below 20 percent in the *United States* (Figure 2.10).

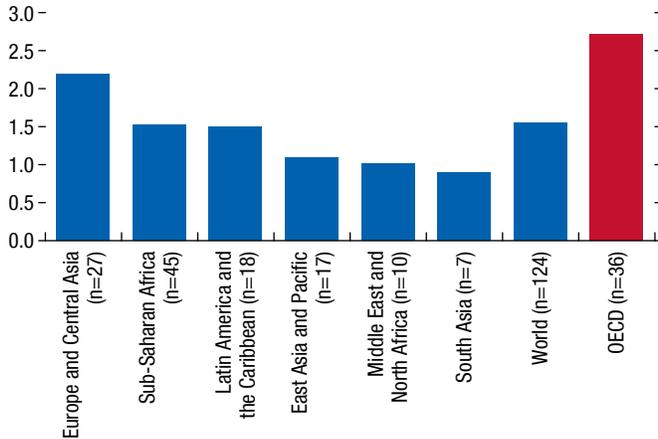
Social safety nets are noncontributory transfer programs aimed at low-income households or the

vulnerable (World Bank 2018; IMF 2019c). They are financed from government revenues and typically include (1) cash transfers, food stamps, child allowances, and social pensions; (2) in-kind transfers; (3) income-support schemes for low-income households, conditional on education or health; (4) public works; and (5) fee waivers, including for health care. These programs have contributed to a reduction of poverty gaps—the distance between the poverty line and the average income of poor households—by 45 percent worldwide, on average (World Bank 2018). The size of social safety nets varies across countries, averaging 2.7 percent of GDP in OECD countries and 1.5 percent of GDP at the global level (Figure 2.11). Within the safety nets, old-age social pension programs have grown rapidly across many emerging market and developing economies because of demographics, among other reasons (Figure 2.12).

The choice of instruments, coverage of the poor, adequacy of benefits, and implementation of social safety net programs varies significantly across emerging market and developing countries. For example, for coverage of the poorest quintile of households, the following programs stand out: unconditional cash transfers in *Malaysia*; conditional cash transfers in *Uruguay*; and social pensions in *Georgia, Mauritius,*

**Figure 2.11. Social Safety Net Spending, by Region**  
(Percent of GDP)

Spending on social safety nets is relatively low in the South Asia and Middle East and North Africa regions.



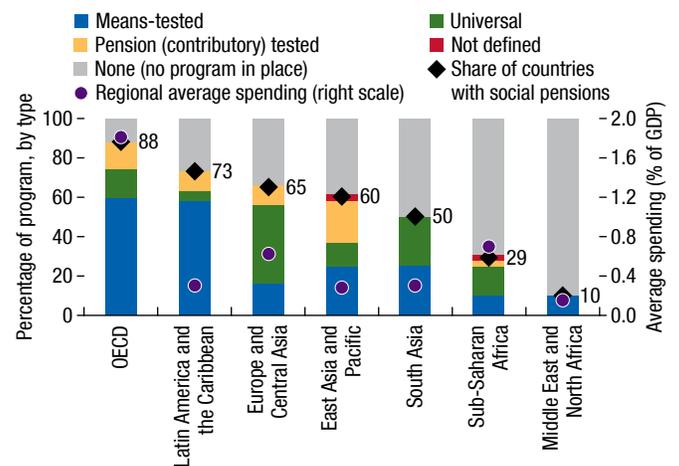
Source: World Bank, ASPIRE database.  
Note: Simple average across regions. The number of countries in each region is in parentheses. OECD = Organisation for Economic Co-operation and Development.

and *South Africa*, covering between 60 percent and 100 percent of the poorest quintile of households. Unconditional cash transfer programs in *Georgia* and *Rwanda* are effective in poverty alleviation, and those in *Malawi* have a large impact on households' consumption (World Bank 2018). A strong safety net is also important for countries that plan to raise revenues by introducing a value-added tax or to reduce energy subsidies. For example, *Egypt* scaled up its means-tested cash transfer program to support energy price increases. *Bolivia* has made significant progress in poverty reduction by expanding safety net programs. In sub-Saharan Africa, while the social safety nets cover a small share of the poorest quintile of the population, the adequacy of benefits for this group is relatively high (Figure 2.13).

A good social safety net usually has four attributes (Grosh and others 2008). First, it provides broad coverage and adequate benefits to vulnerable groups in a progressive way within the overall tax-benefit system (IMF 2019c)—that is, more generous benefits to the poorest beneficiaries. Second, it strives to be cost effective by avoiding program fragmentation and beneficiary overlaps. Third, it tries to preserve work incentives and enhance human capital by linking transfers to required or voluntary programs such as public works, obtaining health care, and attending education and training. Fourth, it is financially sustainable

**Figure 2.12. Social Pensions, by Region**  
(Percent of program, left scale; percent of GDP, right scale)

Many countries provide social pensions.



Source: World Bank 2018.  
Note: Data are as of 2014. OECD = Organisation for Economic Co-operation and Development.

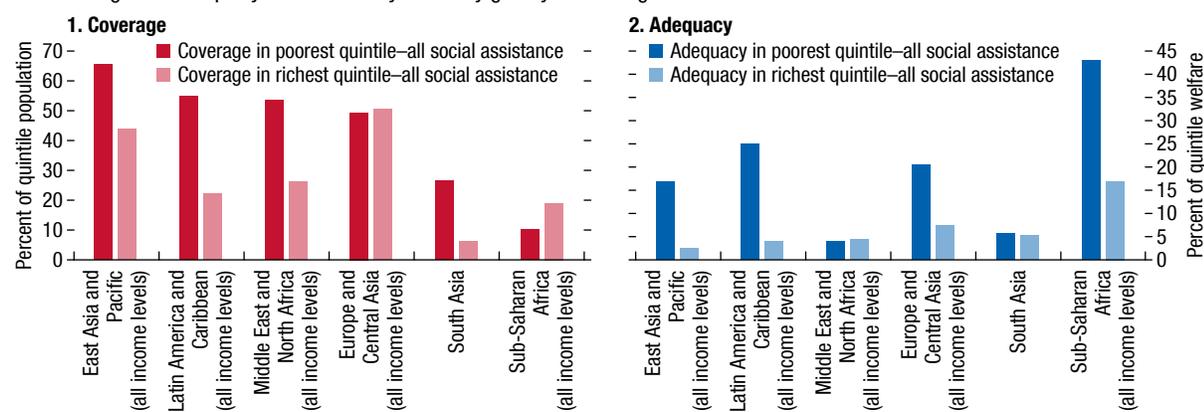
within the overall expenditure envelope and consistent with other social protection programs.<sup>9</sup>

Against these yardsticks, social safety nets in emerging market and developing countries have significant gaps in terms of coverage of lower income groups and benefit levels (generosity). They cover less than one-fifth of the poorest quintile of households, on average, and the average transfer accounts for only 13 percent of the consumption of the bottom 20 percent of the income distribution (World Bank 2018). Programs are often fragmented (*Mexico*), involve beneficiary overlaps, and lack appropriate incentive features. Moreover, the burden of income support is placed on social safety nets, as very few of the poor are covered by unemployment insurance. In these countries, social safety nets can be improved by using instruments that are effective in reaching individuals most in need. These instruments include mobile money, in-kind provision of goods and services (especially health care, water, and transportation services), use of existing social registries where applicable, and use of community-based methods to identify those in need. In Middle East and North African countries, cash transfers to households (ideally targeted)

<sup>9</sup>Social safety nets in this chapter are considered to be a part of social protection and do not cover pension, health, and unemployment insurance.

**Figure 2.13. Coverage and Adequacy of Social Safety Nets, by Region**  
(Percent of quintile population or welfare)

The coverage and adequacy of social safety nets vary greatly across regions.



Sources: Francese and Prady 2018; and World Bank, ASPIRE database.

Note: Welfare is usually estimated by total expenditure as self-declared in household surveys.

could be more progressive than subsidies. The example of Aadhaar in India—the largest biometric program in the world with 1.2 billion residents enrolled over several years—could be emulated in economies that have the means and centralized information to map individual bank account information with a unique identification number, to implement direct cash transfers, provided that privacy and security concerns are appropriately addressed.

For most advanced economies with better-developed safety nets, concerns relate to improving the outcomes of existing programs, extending coverage based on enhanced means testing, and better preserving work incentives (by reducing implicit labor tax wedges that arise from benefits being quickly withdrawn as earnings increase). In advanced economies, strengthening existing two-pillar unemployment benefit systems or improving the design features of guaranteed minimum income programs could improve income stabilization in the event of a recession.

- A two-pillar unemployment benefit system provides both income insurance and assistance to households in recessions, thereby stabilizing consumption. It is an effective automatic stabilizer for two reasons. First, more people receive unemployment insurance when they lose their jobs without any action from policymakers. And, second, beneficiaries of unemployment assistance are more likely than average to spend their benefits, thereby stabilizing demand. *Austria, Germany, Finland,*

*Ireland, New Zealand, Spain, and the United Kingdom* have implemented two-pillar systems (Immervoll 2010).

- A guaranteed minimum income program is, typically, selective, conditional, and means tested (Table 2.1).<sup>10</sup> It is *selective* because it focuses on low-income households; *conditional* because recipients must prove their commitment to finding a job or participating in active labor market programs (for example, employment and training); and *means tested* because the entitlement depends on household income and wealth. Almost all OECD countries have centralized minimum-income programs for working-age individuals. *Italy*, where the government—building on earlier safety nets—introduced a citizenship income program in the 2019 budget, is the latest addition to this list.

Practical measures to enhance spending-side automatic stabilizers while preserving work incentives include subsidizing reduced working hours (*Germany*) and increasing the coverage and benefits of unemployment benefits and social safety nets (for example, by relaxing eligibility criteria and loosening work requirements in recessions). For example,

<sup>10</sup>A guaranteed minimum income program is different from a universal basic income scheme. The latter applies to all citizens, regardless of their socioeconomic status or their needs, is unconditional (granted to individuals without a need to meet any requirements), and is not means tested.

**Table 2.1. Typical Features of Guaranteed Minimum Income Programs**

|                       |  |
|-----------------------|--|
| <b>Coverage</b>       | Able-bodied working-age individuals in poverty and their households receive a guaranteed minimum income. The government's ability to verify households' income and assets, based on a means test, is important to determine eligibility and benefit levels. Yet verification may not be feasible in countries with large informal sectors and limited administrative capacity, especially low-income developing countries. The appropriate mix of universal and targeted transfers depends on country preferences and circumstances, including administrative, financing, social, and political constraints (IMF 2019c). |
| <b>Benefit Levels</b> | The guaranteed minimum income (or the benefit level) should reflect basic needs without causing welfare dependence. The state tops up the beneficiary's income to the guaranteed limit, which is calibrated in relation to the relative poverty line. Most countries provide additional housing allowances and health care.  |
| <b>Incentives</b>     | Program design should include features that incentivize work. Generous benefit levels and high withdrawal rates (that is, the reduction in benefits once beneficiaries find jobs) could strongly disincentivize work and discourage labor force participation. To strengthen incentives, successful guaranteed minimum income programs incorporate conditional inwork tax credits (including for secondary earners) as well as a variety of "out of work" benefits, such as (marginal) income disregard for part-time and casual work, gradual benefit phaseouts, and back-to-work bonuses.                              |
| <b>Conditionality</b> | Participation in active labor market programs is essential for receiving the benefits, if implementation capacity exists. This further reduces disincentives to work and control the fiscal cost. The use of conditions based on job training or placement, education, and so on, would help households return to work. Active labor market programs are less effective if there is a high degree of welfare dependence.   |

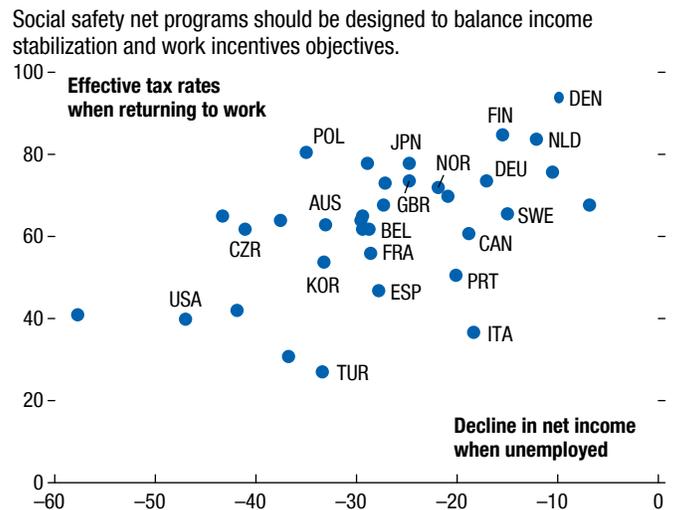
Source: IMF 2019d.

in *Italy*, the income-support scheme could be improved by reducing the generosity of benefits, thereby reducing welfare-dependence risks and creating greater incentives to work. Targeting could also be improved, and adequate controls and local administrative capacity should be built for effective implementation. As another illustrative example, if *Estonia* or the *United States* were to upgrade its benefit systems to that of the median OECD country, household incomes would fall by one-third less when workers lose their jobs during recessions. Moreover, countries with strong spending-side automatic stabilizers are better positioned to attenuate the adverse effects of atypical shocks, such as pandemics.

The design of social safety net programs can be improved toward more income stabilization by increasing the progressivity of net transfers through a reduction in the benefit withdrawal rate as earnings increase. Some countries (*Denmark, Finland*) provide strong income support when households become unemployed (through unemployment insurance and assistance), but they also have a large effective tax rate of 90 percent on labor income when recipients find a job—which could discourage participation in the labor market. Other countries without unemployment assistance (*Turkey, United States*) tend to place a higher weight on work incentives and have low effective tax rates upon the return to work (Figure 2.14).

Overall, spending-side automatic stabilizers can be improved while preserving work incentives (including through in-work wage subsidies, such as the earned income tax credit in the *United States*), which is critical for long-term growth.

**Figure 2.14. Employment Income Replacement Rates When People Become Unemployed and Effective Tax Rates When They Return to Work (Percent of GDP)**



Sources: OECD's tax-benefit web calculator; and IMF staff estimates. Note: Based on OECD tax-benefit web calculator for a typical four-person household with two children and one working adult earning average employment income. Data labels use International Organization for Standardization (ISO) country codes. OECD = Organisation for Economic Co-operation and Development.

### Box 2.1. Factors Underlying Low Growth and Low Interest Rates

The underlying determinants of low levels of growth, investment, interest rates, and inflation have been variously attributed to inadequate demand (Rachel and Summers 2019), weak supply potential (Gordon 2015), and the debt supercycle (Lo and Rogoff 2015), which refers to a persistent and rapid increase in debt throughout the economy by consumers, businesses, and governments.

- Plausible explanations for inadequate aggregate demand include rising income inequality, aging populations, globalization, and greater demand for safe assets—partly from financial (re-)regulation and higher demand for reserves by emerging market and developing economies (Caballero, Farhi, and Gourinchas 2016; Gourinchas and Rey 2016, 2019).
- Reasons for weak supply potential include lower productivity growth, for example, from slowing innovation and rising market power (Philippon 2019), a trend decline in public investment-to-GDP ratios in advanced economies and the growth rate of investment per capita in emerging market and developing economies, and plateauing education attainments and labor participation rates, as well as a shrinking labor force in advanced economies and some emerging markets.
- Drivers of the global debt supercycle include the financial boom that preceded the global financial crisis and subsequently left advanced economies with an overhang of debt (governments, households, and

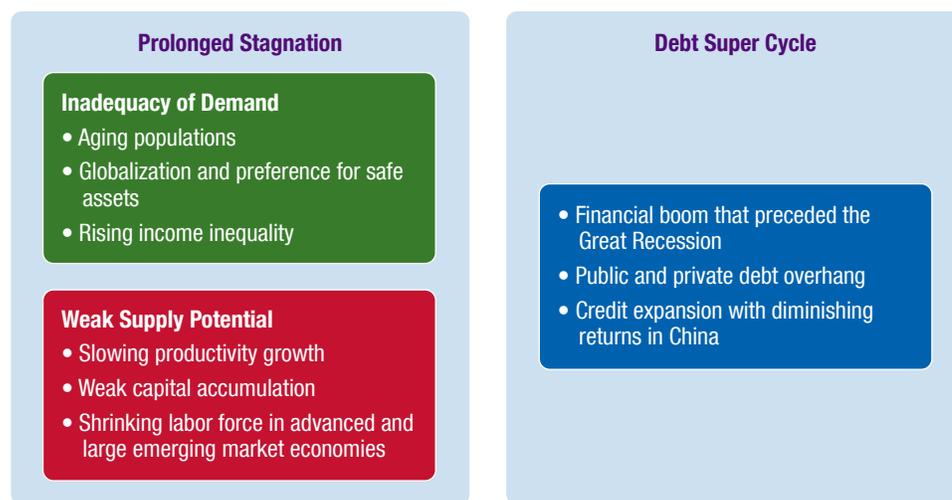
firms) and lower growth (Chudik and others 2017), and continued credit expansions with diminishing returns on investment in China (Maliszewski and others 2016).

Although it is hard to disentangle the effects of weak aggregate demand from weak supply potential or a debt supercycle (Figure 2.1.1), there is a broad consensus among these competing theories on the need for more high-return investment (public and private) to foster long-term growth.

- If aggregate demand remains weak for a lengthy period because of a debt overhang, pessimistic expectations (Benigno and Fornaro 2018), rising inequality, or aging, then the real return on private investment would stay low. High-return public investment, in a low interest rate environment, could spur private sector activity.
- If growth weaknesses are supply driven, investing in physical and human capital as well as research and development can propel an economy over the longer term by bringing about innovation and technological change. This argument applies to all economies across income groups that have experienced a sharp productivity slowdown in recent years owing to the moderation of capital accumulation. Evidence shows that high-return investment, particularly if complemented with structural reforms such as those that foster competition and innovation, can durably raise long-term growth (IMF 2015b; Bakker 2019).

**Figure 2.1.1. Drivers of Subdued Growth, Low Inflation and Interest Rates, and High Debt**

Different theories conceptualize the underlying drivers of current global trends.



Sources: Gordon 2015; Lo and Rogoff 2015; Rachel and Summers 2019; and IMF staff summary.

### Box 2.2. Tax Policy and Automatic Stabilizers

This box discusses how the design of the tax system can help stabilize the economy, with an emphasis on specific desirable features that certain countries have adopted.

The design of a country's tax system—which reflects economic considerations as well as political factors and societal attitudes toward redistribution—affects how the economy responds to economic shocks and, thus, the volatility of output and employment. For example, a progressive tax system, in which the tax rate on high incomes is larger than that on low incomes, helps stabilize the economy because taxpayers pay lower taxes in a recession than in a boom, so that their consumption and investment—and thus aggregate demand—will fluctuate less.<sup>1</sup> Moreover, the impact of a recession on net wages is cushioned, so that people are less likely to drop out of the labor force or to work fewer hours. Through these mechanisms, the tax system therefore acts as a so-called “automatic stabilizer” because the stabilization effect is embedded in the design of the system. By obviating the need for further action by policymakers when the shock occurs, automatic stabilizers prevent the lags between shocks and policy responses that stem from policymaking and legislative processes. Among Organisation for Economic Co-operation and Development countries, income taxes can automatically stabilize between 20 and 50 percent of income shocks (OECD 2019).

Among various taxes, those on income respond the most to the economic cycle, reflecting the progressive rate structure for personal income taxes and the close link to profitability for corporate income taxes (Baunsgaard and Symansky 2009). Likewise, taxes on goods and services (particularly if consumption is less volatile than income), as well as payroll taxes and social security contributions (particularly if capped at a nominal level), move with the cycle, though to a lesser extent than progressive income taxes.<sup>2</sup> Taxes on capital gains, financial transactions, and immobile

property also respond to developments in asset prices. On the whole, progressive income taxes are the most effective for output stabilization.

Some tax-related automatic adjustments contribute little, if at all, to stabilizing output. For example, there are no strong stabilization properties from tax deductions (such as mortgage interest payments or certain types of investment), the earmarking of proceeds from particular taxes, nontax revenues loosely related to nominal GDP, specific taxes that are infrequently indexed (such as excises), and taxes collected with delays.

Furthermore, tax-related automatic stabilizers may not be sufficient to deliver an adequate fiscal response to large output shocks. Raising the progressivity of personal income taxes would, in principle, enhance automatic stabilizers. This increase, though, is likely to have a moderate additional impact on stabilizing output and needs to be balanced against disincentives to labor supply (McKay and Reis 2016). In addition, broadening the revenue base (for direct or indirect taxes) could also foster income stabilization (Amaglobeli and others 2019). Expenditure-side automatic stabilizers, such as unemployment benefits and social transfers (discussed in the main text), can complement revenue-side stabilizers.

Several tax-related instruments can strengthen automatic stabilizers (Baunsgaard and Symansky 2009) and can be tailored to respond to the ongoing pandemic. *Bonus depreciation* allows firms to automatically deduct a substantial portion of their new investment from taxable profits as depreciation during recessions. This measure seems to have boosted investment in the United States during the global financial crisis, especially by providing breathing space to the most liquidity-constrained firms (Zwick and Mahon 2017). Accelerated depreciation or super-deductions can encourage investment in health or hygiene products that are undersupplied during the pandemic.

Automatically allowing deduction of current corporate losses against past tax payments (*cyclical loss-carry backward*) can provide struggling companies with immediate tax refunds during recessions. This feature has been applied in several advanced economies in previous recessions (*Canada, France, Germany, United Kingdom, United States*), as well as during the current pandemic.

Governments can link *property taxes* more closely to the real estate cycle, by assessing property values annually (*United States*). This smooths the cycle by

<sup>1</sup>In the United States, Auerbach and Feenberg (2000) find that reduced income and payroll tax collection offset 8 percent of the loss of output. The Congressional Budget Office (2013) estimates that, through increased transfer payments and reduced taxes, automatic stabilizers supported activity during and in the aftermath of the global financial crisis.

<sup>2</sup>Taxpayer compliance may also deteriorate during sharp recessions, leading to additional revenue loss (Brondolo 2009). Although noncompliance would reinforce automatic stabilizers, it can easily become entrenched. Tax administrations should thus counter the recession-related deterioration in compliance.

**Box 2.2 (continued)**

increasing tax collections during property booms and reducing taxes during slumps.

Tax credits are preferable to deductions as a way of encouraging socially valuable activities (such as education and charitable contributions) while smoothing the cycle. The impact of tax credits on disposable income is fixed, whereas the impact of deductions declines during downturns as disposable income falls. *Uniform personal income tax credits* (that is, an equal credit for all individuals) are recommended because, under a deduction-based system, higher-income individuals would receive higher effective tax relief (Batchelder and Goldberg 2008). This proposed measure applies when the personal income tax is progressive. *Investment tax credits* are stabilizing because they reduce the cost of capital and stimulate investment when it tends to fall during recessions—that is, at a time when the stabilization is most needed (Blanchard,

Dell’Ariccia, and Mauro 2010). These instruments are relevant in the current conjuncture. For instance, in *Sweden*, cyclical investment tax credits through the Swedish Investment Fund successfully served as countercyclical fiscal measures between the mid-1950s and the mid-1970s (Taylor, Baily, and Fischer 1982). During normal times, firms could deduct up to 40 percent of their taxable profit, allocate it to an investment fund, and draw on this fund freely for investment during downturns.

*Corporate income tax collections based on current-year estimated income*—as opposed to a corporate income tax based on actual income of the previous year—allow tax collections to be linked more closely to the current state of the economy. In this way, the tax could make stabilization timelier because tax collections would fall during downturns and reverse during a recovery.

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